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Chief Editor

Prof. (Dr.) Pavnesh Kumar

Editors

Dr. Alka Lalhall & Dr. Svati Kumari

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MESSAGE

In present era, organizations have faced several new challenges that they had not encountered earlier. The management as a discipline of study has become more important than ever. Several factors have been significantly influencing management practices today; such as pace of change in technology adaption, human resource practices and change in global business scenario. How can management practices and principles manage these new challenges in the changed organizational and business environment?

We must understand that society, politics, economy and technology are changing at an unprecedented rate. The current situation presents a unique challenge for management professionals. At one place, managers need predictability and stability to develop and implement plans/strategies effectively. However on the other, they need adaptability and flexibility to respond to challenges and opportunities.

One of the major factors driving the change is the widespread use of computers and information technology in almost every area of application and human interface. It has been predicted that robots will perform almost half of the present jobs in the next twenty years.

I take immense proud in sharing that the Department of Management Sciences of Mahatma Gandhi Central University (MGCU), Motihari, East Champaran, Bihar is taking substantial and significant initiatives in reflecting on the advances in Business, Management and Technology in the form of this E-conference. I am delighted to know that a conference proceeding is being published for this e-conference.

I must congratulate the faculty members of Department of Management Sciences for taking this initiative and being the part of this grand exercise of extreme academic significance. I am sure such initiatives will immensely be helpful in conceptualizing and strategizing for the new world shaping up after the pandemic and will help in transforming India into a formidable force and into the hallowed position of "Vishwa Guru".

My sincere good wishes to all the academicians attended this event. I hope this literary event becomes a grand success.

Foreword

The twenty first century is a knowledge driven with the Blend of information & technology, where the knowledge is the only power and its use is the only way to lead the world. Any institution is known by the knowledge it creates and how it disseminates the same among the students and society.

It should therefore be the role of any university, institution or college to cultivate the culture of exploring various dimensions of knowledge and its application by assisting the students to apply their learning to solve the problems of the society where they reside. Any such idea, theory, product or exercise has to be tested in the field and the results so obtained, verified, analyzed and interpreted to create new paradigm of knowledge as an application, if the field trial is successful, or else it must be assessed why the trial has failed getting to the bottom of the resons of failure and what learning can be derived from the same. Failure is the best and most important step to success- if we know why we failed, and then resolve to correct them and once again attempt to try our experiment. This is the only way forward, for progress, growth and development.

I am happy to share that Department of Management Sciences, MGCUB is providing a high-level interactive platform through "NCABMT-2021" for the wide range of topics to create a multi-disciplinary, multi-speciality and multi-dimensional interaction space for the researchers, academicians, industry expert and specialist mentors.

My sincere greetings to the organizers, authors, editors, and publisher for making this endeavour of "NCAMBT-2021" successful as a knowledge gatherings sharing and documenting event to be cherished and treasured by the scholars, students and researchers.

Chief Editor

Acknowledgment

This book **"Advances in Business Management & Technology Vol-II"** carries impressions of many people including our valued contributors. We take this opportunity to record our deep sense of gratitude to all those persons who have been associated whith this task directly or indirectly.

Foremost it is our priviledge to express our sincere regards to our Chief Patron & Chairperson Prof. (Dr.) Sanjeev Kumar Sharma and Co Patron & Co Chairperson Prof. (Dr.) G. Gopal Reddy for creating a conducive learning atmosphere within the campus which paves the way for this kind of academic activities.

We are also grateful to Prof. (Dr.) Rajeev Kumar, OSD Admin, whose able guidance, inspiration, constant encouragement and help, we were able to complete this work.

We would also like to thank all the members of the Advisory Committee and the Review Committee for their most valuable insights on the subject matter.

As this book grew out of collective efforts made by various researchers, academicians and practitioners, we owe a great intellectual debt to all of them for their valuable contributions.

Last but not the least we are obliged to the Almighty for their blessings which gave us the strength and mental support without which the book would not have been presented in the current form.

Editors

About the Conference

This two days National E-Conference through virtual mode on "Advances in Business Management & Technology" aims to bring together the academicians, professionals students, researchers and other stake holders from Management, Commerce & Economics field to share their expertise and experiences in providing a series of focused research achievements that will benefit the academic world and industry services. It will also facilitate discussion on business and organizational environment that will expedite nation's growth and stability. It will help to bridge the gap between academic wisdom and practical knowledge. Furthermore, with the advent of new normal and focus on FDI reforms, and innovations in information & technology, there has been a significant increase in international mobility of human capital, knowledge, technology and materials. Globalisation, economic and monetary integration as well as global financial crisis are the prominent factors affecting macro as well as microeconomic business environment. As the world habituates itself with the 'new normal', there may be some of the unexplored avenues of innovation in the field of management and its allied practices that will help in generating the necessary momentum and propel an equitable and sustainable growth? The conference will also be a platform to share the innovative practices in the pre and post COVID-19 era.

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CHAPTER 1

Financial Inclusion of the 'Excluded' through Riba: free Micro Credit Societies in India

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ABSTRACT

In this paper an attempt has been made to analyze the role of Riba free micro credit societies in promoting financial inclusion of the economically excluded minority women who are living at the margins of the society. Riba free micro credit is primarily based on the profit-sharing principles of equity-based finance which provides interest-free loans to the needy .It has the potential to convert dead capital into income-generating assets to financially and economically excluded people of the society. These societies evolved their own design in terms of outreach and performance, reduction in the adverse selection of the borrowers and development of collateral substitutions. Riba (Interest) free Microfinance has proved to be one of the most effective tools for promoting women entrepreneurship and skill development all over the world in general and developing countries in particular. Of late riba-free microfinance is gaining popularity among the marginalised sections of society particularly people of Pakistan, Bangladesh, Ethiopia, Sudan, Bosnia and India. This study attempts to investigate the role of riba free micro-credit societies in providing access to easy and affordable micro credit to the excluded Muslim women. This study, based on primary data collected from united Andhra Pradesh, uses Logit Model to analyse the impact of riba free micro credit in promoting financial inclusion to the disadvantaged women of the society.

The findings of the study suggest that though Riba free micro credit is providing easy access to micro credit to the marginalised women, the focused skill-based programs are also the need of the hour to change the lives of these women for the better.

Keywords: *Poverty Reduction, Riba, Adverse Selection,Collateral Substitutions*

INTRODUCTION

In 2005, United Nations and the World Bank declared the year as the year of microfinance. In 2006, Mohammad Yunus was awarded the Nobel Peace Prize for bringing the revolution in the history of microfinance and changing the lives of poor women. Soon micro finance gained momentum and considered as a tool for poverty reduction. But within the next five years the claims of poverty eradiation could not be substantiated due to the incidences of high interest rates prevailing in the society. Various studies revealed that the poor borrowers of

many parts of the country turned defaulters due to the non repayment of the debts and got trapped into poverty while many of them committed suicides . According to India's National Crime Records Bureau, more than 87567 farmers committed suicide between 2002 and 2006 because of failing harvests and huge debts. These instances made governments realise that the microfinance system in the country is exploiting those who are already economically excluded and living in poverty. A comprehensive study of 13 micro credit schemes in Asia, Africa and South America unanimously indicated that the benefits of the micro credit schemes under study varied for different income classes – the upper and middle income poor tended to benefit more than the poorest of the poor (Hulme & Mosley,1996).The poor with no assets could not have access to credit due to their inability to provide collateral against the loan. As a result 'excluded' from the access to credit from the conventional banking system.

1.0 FINANCIAL INCLUSION OF THE 'EXCLUDED'

Financial inclusion is the process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low-income groups at an affordable cost (Rangarajan Committee, 2008). According to the Planning Commission (2009), Financial inclusion refers to universal access to a wide range of financial services at a reasonable cost. The broad objective of financial inclusion is to provide access to credit to the needy for helping them to build up diversified and multiple livelihood opportunities and inculcate a strong savings culture among them. In broader sense the objective of extensive financial inclusion is to offer a wide range of services for achieving holistic set of services for growth and development of the country. In narrow sense financial inclusion may be achieved to some extent by providing access to any one of these services. Financial inclusion provides an opportunity to the poor to secure better life for themselves and for their family. Financial inclusion demands higher level of financial penetration of the banking system and access to a bank account combined with deposit, insurance, easy access to credit at an affordable cost (Thorat, 2008).

Financial inclusion plays an instrumental role in alleviating poverty, and promoting financial inclusion of the excluded sections of the society. Financial inclusion has received increased attention in view of the international initiatives towards inclusive growth of the emerging economies. Financial inclusion is viewed as a device for the new vision of inclusive growth (Chakrabarty, 2009). In cross-country regressions Beck, Demirgüç-Kunt, A. & Ross, stated that financial development alleviates poverty and reduces income inequality (Beck, T., Demirgüç-Kunt, A. & Ross, L. (2004). Financial inclusion can be viewed as an intensification and extension of poverty alleviation efforts (Karmakar, 2008). World Bank data reveals that, 'Higher the population, lower the financial penetration' (CGAP/The World Bank, 2009) and countries with large proportion of population not having access to financial services shows higher poverty ratios measured by both national and international poverty lines. World Bank data on percent of population with access to financial services reveals that countries like India (48 percent), Bangladesh (32 percent), China (42 percent) and Philippines (26 percent) with large proportion of population not having access to financial services shows higher poverty ratios measured by both national and international poverty lines (World Bank, 2008).

Financial inclusion enables the poor to contribute towards and share the benefits of economic growth by equalizing opportunities, reducing inequalities and moving the wealth effect towards a neutral realm (World Bank, 2008 and Thorat, 2008). The present study in this context focuses on financial inclusion of the excluded Muslim Women through '*Riba'* free Micro Finance in Andhra Pradesh.

2.0 RIBA: THE CONCEPT

The word "Riba" in Arabic language literally means an "increment" or "addition". In Islamic Fiqh the term Riba is considered as an unjustified increment in borrowing or lending money,paid in kind or in money above the amount of loan as a condition imposed by the lender or the borrowe**.** Paying or receiving Riba (interest) in any form is not permissible in Islam. According to the philosophy of Islam money cannot earn money without putting it into some productive use. Money must be invested in order to create more money. According to Islam Riba promotes concentration of wealth in the hands of few and has the potential of creating monopolies, discrimination and income inequalities in the society. On the contrary, Riba free credit promotes welfare and social justice based society. Due to this reason, Islam strictly prohibits Riba.

3.0 *RIBA FREE* MICRO CREDIT IN INDIA: THE CONTEXT

Riba (Interest) free micro credit is primarily based on the profit-sharing principles of equity-based finance which provides interest-free loans to the financially excluded sections of the society. It has the potential to convert dead capital into income-generating assets to benefit the financially and economically excluded people of the society. Riba (Interest) free Microfinance provided an alternative to the financially excluded people of the society and provided them interest free loans. Soon it became popular among the most disadvantaged sections of

the society .The basis of its popularity particularly among the poor Muslims was on account of the three reasons- first and foremost it is based on the principles of *shari'ah*, second it does not charge interest and three it does not ask for collateral. Due to its inclusionary attributes, the riba-free micro credit was widely spread in the countries like Afghanistan ,Pakistan, Bangladesh, Ethiopia, Sudan, Bosnia and India in particular. Of late International agencies like International Monetary Fund and the World Bank also started recognizing Islamic financial products as alternative means of financial intermediation (World Bank, 2013).

Since 1960s, there have been sincere and organized efforts in India to run interest free credit societies for the welfare of the Muslim community although some efforts were made much earlier (Hamidullah, 1944). There are over 100 microfinance institutions working in the Muslim community for past many decades (Khan, J.A. & Nisar ,S.,2004). Indian Muslims have established and are administering more than 200 interest-free credit societies in the length and breadth of the country. These societies such as Muslim Fund Najibabad in Uttar Pradesh and Bait un Nasr Urban Cooperative Credit Society have grown to become established institutions of fairly large size. A committee constituted in 1991 reported there were 300 interest free institutions in India. The largest number is in Kerala followed by UP. A majority of them are registered as charitable institutions. 15% are registered as cooperative societies and a few of them are registered under the Indian Companies Act. (Bagsiraj, 2006). Riba free micro finance can be best classified on the basis of their functional model and registration authority. In India they basically follow three distinct models (Bagsiraj, 2006) and are registered with three different authorities, which are as follows:

I. Financial Associations of Persons (FAPs)

Financial Associations of Persons (FAPs) do not belong to the organised sector of Islamic finance in India. As such they do not have any specific format or model. However some of them also utilise the Co-operative or Company format. These are the private efforts of ordinary Muslims, living or working together in market, Madrasas13, colleges, Mosques and Anjumans14. They are generally organised in the form of Chit Funds i.e. small Group Funds wherein a dozen or more people contribute their subscriptions on daily, weekly or monthly basis and pick up beneficiary's name by drawing lots. Thus every member of the Group gets an assured lump sum at no Cost, which he or she left to himself or herself is not able to save or accumulate. Some FAPs formed by Muslim businessmen collect their daily savings and provide loans of Rs.0.5 lakh to Rs.1.00 lakh, which are also refunded on daily basis within 3 to 6 months at nominal Cost. All the unregistered Associations, Groups or Societies that are performing the interest-free credit function with or without zakah and sadaqah mobilisation and distribution, are classified as FAPs.

II. Islamic Financial Societies

Muslim Funds (MF), Human Welfare Organizations (HWOs) and Bait-ul-Maals registered under Society or Trust Act. are classified as Islamic Financial Societies (IFSs). For instance the Toor Bait-ul-Maal of Hyderabad has combined interest-free credit function with Zakah and Sadaqah mobilisation and distribution through various charity-based funds. Islamic Welfare Societies promoted by Jamat-e-Islami Hind which are found more in South India, have been also combining credit function with zakah mobilisation and distribution. Provision of interest-free credit is the common basic function of all these Societies. Most of these interest-free credit-offering Societies have been registered under Societies or Trust Act. All the registered Societies that are accepting Amanath Deposits or trust loans and donations; and disbursing interest-free loans, have been classified as Islamic Financial Societies.

The present study in this context makes an attempt to focus on riba free micro finance, a system based on ethical Shari'ah principles as an instrument through which the impact of riba free micro finance on marginalised Muslim women is being assessed in state of Andhra Pradesh.

4.0 OBJECTIVES OF THE STUDY

In the Indian context Riba free micro credit provides an alternative to interest based conventional microfinance. To help poor and financially excluded Muslims riba free micro credit societies have evolved their own design. These societies remain the most successful ones in terms of outreach, performance, cost-effective substitute to the conventional micro finance institutions and reduction in the adverse selection of the borrowers. The group formation under *riba*-free micro-credit system is based on willingness to establish business activity, managerial skills of the members to manage the business and involvement in poverty reduction programs. This study tries to examine how riba-free microfinance institutions are making a difference in the livelihood of the poor Muslim women. In this study, an impact assessment analysis is done to examine the role of riba-free micro credit in promoting financial inclusion and thereby reducing poverty at the household and enterprise levels of the marginalised Muslim women in Andhra Pradesh.

The general objective of this study is to assess the impact of *Riba free micro credit* on poverty reduction at household and enterprise levels . The Specific objectives are as under:

- To assess the impact of Riba free micro credit on the income of the borrowers
- To assess the impact of Riba free micro credit on business activities of the borrowers

5.0 METHODOLOGY

This study, quantitative in nature, attempts to describe the role of Riba free Micro credit societies in promoting financial inclusion so as to bring the marginalised Muslim women out of the clutches of poverty. The study is based on both Primary and Secondary data. The Primary data was collected from Hyderabad, Kurnool and Guntur branches of Human Welfare Organisation, Al-Khair Society and Mutually Aided Cooperative Credit Society operating in the state. The primary sources of data is obtained from direct observation, structured and unstructured questionnaires, focus group discussions and interviewing the concerned parties like management staff and employees of Human Welfare Organisation, Al-Khair Society and Mutually Aided Cooperative Credit Society at the main office of each organisation.

Direct observation is made in all the three cities. This method helped the researcher to observe the real impact of Human Welfare Organisation, Al-Khair Society and Mutually Aided Cooperative Credit Society's intervention on financially excluded women. Structured questionnaires were used to collect information from households on various aspects of impact dimensions. Before applying it, the questionnaire was tested for its validity by using pilot survey. Six Field investigators and staff members were involved in pilot testing. The questionnaire was refined and finalized after incorporating the inputs of the pilot survey.

The interviews were administered on randomly selected active clients and incoming clients to answer questions regarding their situation before they took the loan based on their memory and after taking the loan. The questionnaire was prepared in English language. The respondents should know and told about the research objectives in the language, which they can understand. Most respondents in the survey speak Urdu. Therefore, the questionnaire was translated into Urdu. This enabled the enumerators and respondents to easily understand the questions, express their ideas comfortably and reduce communication barriers. The interview enabled the researcher to capture and ascertain both subjective and objective facts. Thus, face-to-face interview were important in order to increase probability of response rate and flexibility in extracting more qualitative and quantitative information. Three supervisors and five enumerators were trained to collect relevant data from sample households and enterprises. A training manual was prepared to train enumerators. The enumerators were given a one-day training on the training manual, which focused on the objectives of the study on how to approach a respondent, how to record the responses, and on detailed contents of the questionnaire.

Conducting focus group discussions was important to assess the satisfaction or dissatisfaction of clients in service provision and disclose their problems, comments and provide some recommendations. This also strengthened the reliability of the finding. The focus group discussions were conducted in all the three cities of the sample Districts i.e. Hyderabad, Gutnut and Kurnool. A total of six focus group discussions, of which, two in each city , were conducted. Each group discussion had seven to ten participants.

Discussions with key informants such as some clients of Human Welfare Organisation, Al-Khair Society and Mutually Aided Cooperative Credit Society ,employees and branch managers and Human Welfare Organisation, Al-Khair Society and Mutually Aided Cooperative Credit Society (MACCS) officials were conducted to collect qualitative information. Secondary data were obtained from documents, reports, journals, proceedings, bulletins, Internet, periodicals, various books and other relevant materials.

SAMPLE DESIGN

The sample frame of the study is the entire group of women clients in the list of Human Welfare Foundation, Al-Khair Society and Mutually Aided Cooperative Credit Society in Andhra Pradesh. Probability sampling technique or simple random sampling is used in the study. Probability sampling ensures sampling units a known, non-zero and equal chance of being included and hence representativeness. In this technique sampling units are stratified depending on the branch category or grouping of the institution. Determining the appropriate sample size is important in research undertaking. Thus, sample size depends on the total number of population, the level of confidence and the maximum deviation from true population that can be tolerated in the study. Depending on this, there are various sample size estimation methods. Among these the method or model used to determine the desired sample size with the population of above 10,000 and sample size of above 30 is formulated as:

$$\mathbf{n = z^2 pq\ d^2}$$

where:

n = sample size (when population is greater than 10,000)

z = the standard normal deviation usually set at 1.96 which corresponds to the 95 percent confidence interval

p = proportion in the target population estimated to have a particular characteristics

q=l-p

d = degree of accuracy usually set at 0.05 or occasionally at 0.01.

All the three organizations selected for the study namely Human Welfare Foundation , Al-Khair Society and Mutually Aided Cooperative Credit Society have branch offices operating in all the three selected cities-Kurnool, Guntur and Hyderabad. Two stage sample design procedures were employed for the study. The first stage is the selection of sample branches of the Human Welfare Foundation , Al-Khair Society and Mutually Aided Cooperative Credit Society. The Old city branches are purposefully selected in all the selected districts as there is a concentration of Muslim Population in and around the old city. The second stage is random selection of women respondents from the selected branches.

SAMPLE SIZE

The probability-sampling method has been used for this study. The sample size was determined by the scientific method used by Krejcie and Morgan (1970) in the Table given below. The total population of riba-free Muslim SHGs in Andhra Pradesh is around 2000. According to this table for the population of 2000 above a sample of 322 were to be selected. Initially, the researcher had intended to cover 322 samples. Keeping in mind the large size of the state , finally, it was decided to take 450 samples from all the districts from the field of the study. Out of the selected population all 450 respondents were evenly distributed among the three selected regions i.e. 150 respondents for each region.

Table-1: Distribution of Samples for the Study

Cities	Respondents
Guntur	150
Kurnool	150
Hyderabad	150

PILOT STUDY

Before conducting the main survey, a Pilot study was conducted with 150 respondents in all across the three regions. The data was tested for validity and reliability using the Statistical Package for Social Sciences. According to SPSS the scales being used are of high reliability and validity and thus further studies can be carried out.

Table-2: Distribution of Samples for Pilot Study

Description	No. of items
HYDERABAD	50
KURNOOL	50
GUNTUR	50

TOOLS OF DATA ANALYSIS

In the first part of the study we have used general descriptive using frequency tabulation and cross tabulation and graphical analysis approach to examine the impact of Riba free microfinance on various aspects of Muslim women living in Andhra Pradesh. Second part of the analysis deals with explaining dependent variable relationship with the independent variables. The study attempts to assess the impact of Riba free micro credit societies on the level of income and business activities and poverty reduction. Since the research design of the study is empirical in nature, the following Logistic regression model has been used for the study.

6.0 FORMULATION OF THE EMPIRICAL MODEL FOR THE STUDY

Logit Model:

Logistic regression analysis studies the association between a categorical dependent variable and a set of

independent (explanatory) variables. The logistic regression is used when the dependent variable has only two values, such as 0 and 1 or Yes and No. For this purpose regression analysis has been conducted and binary logistic or logit model has been estimated for the study.

A logistic function is defined as,

$Li = P(y=1|x) = Log [Pi/(1-Pi)] = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \varepsilon$

Where,

Pi/(1-Pi) = odds ratio of probability of success to probability of failure,

Where,

Pi = probability of success or probability of presence of a trait and,

1-Pi = probability of failure or probability of absence of trait.

In fact, in logit model, the odds ratio :

$[Pi/(1-Pi)] = \exp(\beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \varepsilon)$

i.e. it is an exponential function of the X variables, which then leads to linearization by taking logarithm of odds ratio i.e.

$\log [Pi/(1-Pi)] = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \varepsilon$

Above function is known as logit or logistic function which is estimated in cases where the dependent variable is binary having two possibilities of occurrences.

The Logit model is based on the logistical curve, for all values of the repressors. This is a more realistic pattern of change in the probability compared to other Qualitative Dependent Variable Models like the Probit, for two reasons. First, the odds ratio, which is a measure of the strength and direction of the relationship between the two variables, has a special property of not requiring variables to be normally distributed. Second, a mathematical transformation of the odds ratio is the logit model.

This is an empirical study which attempts to assess the role of riba free micro finance institutions in providing access to interest free micro finance to the excluded marginalised women so as to bring them out of the clutches of poverty and promote financial inclusion.

7.0 EMPIRICAL ANALYSIS OF THE DATA

This section presents the empirical analysis of the impact of Riba free micro credit on income and business activities of financially 'excluded' Muslim women so that poverty among them is reduced in the state of Andhra Pradesh. The empirical analysis examines the impact of Riba free micro credit on various aspects of the respondents of the study. This section is divided into two parts. The first section gives the descriptive analysis of the personal dimensions of the respondents such as marital status, educational qualification and occupation, etc and the second section deals with the relationship between the dependent variable and independent variables to assess the impact of Riba free micro credit on the income and business activities of the respondents in the state.

Descriptive Analysis of the Data

In order to examine the impact of Riba free micro credit on poverty reduction on marginalized Muslim women living in the state of Andhra Pradesh, the general descriptive analysis based on frequency tabulation has been done.The variables such as marital status, educational qualification and occupation to study the respondent's dimensions are taken into account. The following section gives a detailed picture of the personal profile of the respondents:

DEMOGRAPHIC INDICATORS OF RESPONDENTS

Personal Profile includes variables such as marital status, educational qualification and occupation of the respondents. The table-1 shows that among 450 respondents from the study area, the majority of the respondents are married. The results of the study show that 226 respondents are married, 96 are widowed, 96 are unmarried while 32 respondents lie under the category of others.

Educational development is an indicator of individual growth. The table-1as given above shows that among the 450 respondents majority is educated till the secondary level (35.6 percent), Madarsa background (21.8 percent), Primary level (21.3 percent) while 7.1 percent each in Professional, Technical and Higher Secondary

level respectively. The table indicates that out of all, 98 respondents are Madrasa educated while 96 respondents are educated till Primary class. The study shows that majority of the respondents are involved in stitching, embroidery, *chudi* making and beautification etc. for which they have taken training before joining the profession.

Table-3: Demographic Indicators of Respondents

Personal Profile of the Respondent	Frequencies	Percentage
Marital Status		
Married	226	50.2
Single	96	21.3
Widowed	96	21.3
Others	32	7.1
Total	450	100.0
Educational Qualification		
Madarsa	98	21.8
Primary	96	21.3
Secondary	160	35.6
Higher Secondary	32	7.1
Professional	32	7.1
Technical	32	7.1
Total	450	100.0
Occupation		
Professional/Technical*	129	28.7
Administration**	32	7.1
Farmer	32	7.1
Sales Worker	64	14.2
Craftsman/Labour	33	7.3
Self-employed	96	21.3
Others	64	14.2
Total	450	100.0

**Tailoring, Kadhai (Embroidery), Chudi Making, Dress designing , etc.*

***Supervisor, Manager, Saleswomen, Team Leader etc.*

Logistic Regression Model for Impact Assessment

The following empirical models are developed to analyze the impact of Riba free micro credit on the income and business activities of the women:

Model-1: Access to Riba free micro credit to the excluded Muslim Women

Binary Logistic regression was employed to know the validity of the statement; the independent variables (monthly savings deposited in Microfinance providing societies, organizing programs to encourage respondents to opening accounts, since how long respondents have been borrowing from riba free Microfinance providing societies, how many times respondents borrowed from there, saving area, returns expected) will not significantly explain the variance in the dependent variable (saving account). The null hypothesis is tested to see the relationship between the dependent and independent variables.

Thus, the following logit model is estimated and binary logistic regression is employed:

$P\ (RFMF\ account=1|x)=Log\ [Pi/(1-Pi)]=\beta0+\beta1X1+\beta2X2+\beta3X3+\beta4X4+\varepsilon$

Dependent Variable:

Pi = Probability that borrowers› income has increased.

1 – Pi = Probability that borrowers› income has not increased.

Independent Variables:

X1=Monthly savings deposited in Riba free micro credit providing societies (1 >500; 2.500-1000; 3.1000-5000; 4. <5000),

X2=Organizing programs to encourage target group to open accounts (1=yes; 2=no), X3=Since how long you have been borrowing from Riba free micro credit providing societies (1. one year; 2.two years; 3.More than two years)

X4= How many times you have borrowed from Riba free micro credit providing societies(1.One time; 2. two times; 3. more than two times),

ε =Error Term

The null hypothesis 'the independent variables will not influence the dependent variable' is tested. In this binary logistic regression model stepwise forward log-likelihood ratio has been used.

Table-4: Distribution Summary of Variables Selected for the Mode

Variables	Classification	N	Marginal Percentage
1. Monthly saving deposited with Riba free micro credit societies	>500	165	36.7%
2.	500-1000	218	48.4%
3.	1000-5000	51	11.3%
4.	<5000	16	3.6%
5. Organizing programs	Yes	341	75.8%
6.	No	109	24.2%
7. Monthly saving deposited with Riba free micro credit societies	Once a year	254	56.4%
8.	Twice a year	33	7.3%
9.	More than two times in a years	163	36.2%
10. Number of times borrowed	One	246	54.7%
	Two	33	7.3%
	More than two	171	38.0%

Table-4 explains the Preliminary analyses of the data have done first by using the distribution frequencies of the selected variables for the study. Out of the total samples, 85.6% have riba free micro credit saving accounts, 14.2% respondents don't have saving accounts with the society.36.7% respondents have savings deposits of less than five hundred rupees, and 48.4% of respondents have savings deposits in between 500 to 1000 rupees. More than 75 % of respondents revealed that the Riba free micro credit is organizing programs in the selected areas to encourage the excluded Muslim women to open the RFMF account whereas. Hence most of the respondents have been associated with Riba free micro credit to get benefits. The table shows that the majority of the respondents (54.7%) borrowed the lowest 7.3 % claimed that they took loans twice from Riba free micro credit providing society for two times.

Table-5: Model Summery

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	188.454a	.329	.589

The model is effectively a good fit for the data based on the Nagelkerke R Square value 0 .589 which is more than 0.05%.

Table-6: Estimates of Binary logistic regression

Items	B	S.E.	Sig.	Exp(B)
Monthly saving with Riba free micro credit societies	.625	.261	.017*	1.868
Organizing programs	3.436	.750	.000*	31.077
Since how long you have been associated with Riba free micro credit societies			.000*	

Once a year(1)	3.258	.622	.000*	26.010
Twice a years (2)	-17.044	6528.858	.998	.000
How many times borrowed			.000*	
Once (1)	-4.458	.784	.000*	.012
Twice (2)	-2.567	1.094	.019*	.077
Constant	-7.976	1.135	.000*	.000

Variable(s) for Model: Monthly saving, Organizing programs, Since how long you have been with RFMIS, How many times borrowed.

*p<0.01,**p<0.05 and ***p<0.10

The binary logistic analysis for the dichotomous variable ownership of the Riba free micro credit saving account results have an impact on the following - Significant at 0.05 confidence level, are monthly savings deposits in Riba free micro credit providing societies (what is the average monthly saving deposits in Riba free micro credit providing societies to know the saving habits of the respondents), organizing programs (whether the respondents are informed about the Riba free micro credit providing societies program), Since how long been associated with Riba free micro credit to get benefits like loans(whether the respondents have been associated long back) and how many times the respondents have borrowed (to know the No. of times respondents are benefited from riba free riba free micro credit providing societies).

The respondents are opening Riba free micro credit providing societies accounts for saving. It is proved that by observing the independent variable monthly savings deposits in Riba free micro credit providing societies is significantly influencing on dependent variable positively. The value of coefficient (0.625) is positive and the odds ratio exp (b) (1.868) is also more than the coefficient value. It is also significant at 5 % level. Hence the Riba free micro credit providing societies are encouraging savings habits among the respondents in the selected area. Riba free micro credit providing societies are organizing programs to encourage people to open an account in Microfinance providing societies. The coefficient (b) 3.436 of this independent variable is showing the positive influence on respondents ownership of Riba free micro credit providing societies Accounts and the expected (b) value is also more than the coefficient value moreover it is significant at 1% level hence we conclude that Riba free micro credit providing societies are organizing programs effectively to encourage the excluded Muslim women to open the Riba free micro credit providing societies Accounts. Since one year the respondents have been borrowing from Riba free micro credit providing societies influencing positively the dependent variable. The coefficient (b) (3.258) and its exp (b) is more than the coefficient it is also significant at a 1% level.

By the above model, we can conclude that Riba free micro credit providing societies is providing access to credit to marginalised Muslim women of the state. Riba free micro credit providing societies are also encouraging Muslim women to open accounts in Riba free micro credit providing societies by organizing awareness programs in the selected areas. Finally, the null hypothesis is rejected because 'the independent variables will influence the dependent variable'. Hence we can accept the alternative hypothesis.

Model-2: Riba free micro credit Helping Women Establishing Business Activities.

To obtain the objective of whether Riba free micro credit is playing a role in establishing the business activities in the selected areas, the following hypotheses are tested:

H_0: Riba free micro credit is not helping women to establish business activities.

H_1: Riba free micro credit is helping women to establish business activities.

Binary Logistic regression was employed to know the validity of the statement; the independent variables (If the purpose is business then the type of business, spent total amount borrowed for the intended purpose, Loan size is satisfactory, Loan issued timely, Investing loan amount borrowed from Micro credit providing societies) will not significantly explain the variance in the dependent variable (purpose of business). The null hypothesis is tested to see is there any relationship between the dependent and independent variables. Thus, the following logit model is estimated and binary logistic regression is run:

$$P(\text{purpose of business}=1|x)=Log[Pi/(1-Pi)]=\beta0+\beta1X1+\beta2X2+\beta3X3+\beta4X4+\beta5X5+\beta6X6+\varepsilon$$

Where,

y is a binary variable i.e. y=Purpose of loan (Business=1; Personal=2),

X1=Purpose of Loan (Business=1; Personal=2),

X2= If the purpose is business then type of business,(1=SME; 2=Technical;3=Traditional; 4=Trading),

X3= Spent total amount borrowed for the intended purpose (Yes=1; No=2),

X4= Loan size is satisfactory (Yes=1; No= 0) ,X4= Loan issued timely (Yes=1; No=0),

X5= Size of loan is satisfactory
X6= Investing loan amount borrowed from Riba free micro credit (Yes=1;No=0) ,
ε=Error term

Table-7: Distribution Summary of variables selected for the model

Variables	N	Marginal Percentage
Purpose of loan		
Business=1	286	63.6%
Personal=2	164	36.4%
If the purpose is business(type of business)		
SME=1	36	8.0%
Technical=2	213	47.3%
Traditional=3	171	38.0%
Trading=4	30	6.7%
Spending total amount for intended purpose		
Yes=1	395	87.8%
No=2	55	12.2%
Size of loan is satisfactory		
Yes=1	193	42.9%
No=2	257	57.1%
Loan issued timely		
Yes=1	403	89.6%
No=2	47	10.4%
Investing the amount loan taken from RFMFIs.		
Yes=1	392	87.1%
No=2	58	12.9%

Table-7 explains the Preliminary analyses of the data by using the distribution frequencies of the selected variables for the study. By this distribution table, we have analyzed the data at the preliminary level of how the frequency distribution has done for the selected dependent and independent variables. Out of 450 respondents, 63.6% of respondents have preferred loans from Riba free micro credit providing societies for business and 36.4% preferring loans for personal purposes. If the purpose is business then for SME type of business activity 8%, technical 47.3%, for traditional business purpose38.0%, and 6.7%, for trading purpose.87.8% of the respondents those have taken a loan from Riba free micro credit providing societies are spending for the intended purpose and 12.2% are not spending the loan amount for the intended purpose.42.9% of respondents are satisfied with the size of loan issued by the Riba free micro credit and 57.2% are not satisfied with the size of loan issued by Riba free micro credit providing societies. The very high number (89.6%) of the respondents are satisfied with Riba free micro credit providing societies as they are providing loan in time while 10.4% are not satisfied .A total of 87.1% respondents are investing their loan as per the purpose of the loan while 12.9% of respondents are not . 36.7% of respondents have saving deposits less than five hundred rupees, 48.4% of respondents have

saving deposits in between 500 to 1000 rupees.11.3% respondents have between 1000to 5000 rupees and 3.6% of respondents have more than 5000 rupees saving deposits in Riba free micro credit providing societies account. By observing the above distribution pattern most of the respondents have saving deposits between 500 to 1000 only and very less percentage of respondents are saving deposits more than 5000 rupees.

Table-8: Classification Table

Observed	Loan Purpose	Predicted		
		Purpose of loan		Correct Percentage
		1.00	2.00	
Loan purpose	Business=1	263	23	92.0
	Personal=2	117	47	28.7
Overall Percentage				68.9
a. The cut value is .500				

Based on the above mentioned classification table it is observed that overall correctness of the model is (68.9). Hence this model can be used for analysing the significance of the selected independent variables on dependent variables.

Table-9: Model Summery

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	547.311b	.091	.125

This Model is effectively good fit based on the Negelkerke R Square value .125which is more than 0.05

Table-10:Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	4.201	7	.756

Good fit is based on the Hosmer and Lemeshow Test result .756 which is more than the 0.5 reveals that the model is adequately fits the data. By rejecting the null hypothesis that the model is not adequately fits the data.

Table-11: Estimates of Binary Logistic Regression

Items	B	S.E.	Sig.	Exp(B)
If the purpose is business(type)		.019*		
SME(1)	.621	.581	.285	1.861
Technical (2)	.917	.477	.055**	2.503
Traditional (3)	.273	.487	.575	1.314
Spending total amount for intended purpose	.663	.305	.030**	1.941
Size of loan is satisfactory	.446	.212	.036**	1.561
Loan issued timely	1.166	.337	.001*	3.210
Investing the loan amount taken from RFMFIs	.786	.305	.010*	2.194
Constant	-4.807	.812	.000	.008

Variable(s) entered on model: loan size satisfactory, loan issued timely, investing the loan amount taken from RFMFIs.

p<0.01,p<0.05 and ***p<0.10*

From the above empirical results, it is proved that the binary logistic regression model given above is suitably chosen for analyzing the data. In this model, all the explanatory variables have been considered in the analysis. Hence the model is suitable for the analysis. According to the Good fit of the model by Hosmer and Lemeshow Test (0.756) which is more than 0.5; hence the model is treated as the good fit model for the analysis.

The purpose of the loan is considered as a dichotomous dependent variable with business=1, personal=2. The other explanatory variables considered for the analysis of the model are X1= if the purpose is business then the

type of business- again categorized into (1=SME

2=Technical 3=Traditional 4=Trading), X2= spent total amount borrowed for the intended purpose (yes=1,no=2), X3= loan size is satisfactory yes=1 or no= 0 ,X4= loan issued timely yes=1 no=0 ,X5= investing loan amount borrowed from Riba free micro credit providing societies yes=1 no=0 .

The respondents whose purpose is technical business activity have been taking a loan from Riba free micro credit providing societies for the business purpose (0.917) times more than the personal purpose the odds ratio Exp (B) (2.503) is also more than the coefficient (B). And it is also significant at 5 % level. Hence we can conclude that the respondents prefer a loan from RIBA FREE MICRO CREDIT is mainly for the technical business activity rather than the SME, traditional and trading. However, the SME and traditional business activities have the positive coefficient and odds ratio also more than 1 but they are insignificant on the dependent variable that the purpose of the loan is business. The respondents (87.7%) are spending the amount for the intended purpose of loan taken from Riba free micro credit providing societies. The coefficient (B) is positive (.663) and the odds ratio (1.941) is more than the coefficient, which is significant at 5%. The size of loan issued by Riba free micro credit providing societies is also satisfactory to the respondents for business the coefficient (b) is positive (.446) and the odds ratio is (1.561) it is also significantly showing the impact on preferring loan for business rather than the personal at 5% significance level. The loan issued timely is also a significant impact on respondents preferring the loan from Riba free micro credit providing societies for business the coefficients of this variable are 1.166 and the odds ratio 3.210 is also more than the coefficient it is also highly significant at 1% significance level. The Independent variable investing the loan amount from the Riba free micro credit providing societies is a significant impact on the dependent variable purpose of the loan is business. The coefficient (B) is positive (0.786) and the Exp (B) is more than the coefficient 2.194 the significant impact on the dependent variable is at5%.

From the above empirical results, it can be concluded that the Riba free micro credit is helping the respondents to get out of poverty by providing them a timely loan to establish their business activities. The loan amount is also being spent on the intended purpose of the respondents. Finally, the null hypothesis is rejected because 'the independent variables will influence the dependent variable'. Hence we can accept the alternative hypothesis. It is concluded that Riba free micro credit is helping the excluded Muslim women to establish business activities and hence reducing poverty.

Model 3: Increase in the income levels of excluded Muslim women

To obtain the objective of whether Riba free micro credit is playing any role in increasing the income levels of excluded Muslim women in the selected areas or not, the following hypotheses are tested:

H_0: Riba free micro credit is not playing a role in increasing the income levels of excluded Muslim women in the selected areas.

H_1: Riba free micro credit is playing a role in increasing the income levels of excluded Muslim women in the selected areas.

Binary Logistic regression was employed to know the validity of the statement; the independent variables (saving deposits, average monthly income after loan, increased reason, invested loan amount taken from Riba free micro credit providing societies) will not significantly explain the variance in the dependent variable (income levels). The null hypothesis is tested to see is there any relationship between the dependent and independent variables. Thus, the following logit model is estimated and binary logistic regression is employed:

$P\ (income\ levels=|x) = Log\ [Pi/(1-Pi)]\ \beta 0 + \beta 1\ X1+\beta 2X2+\ \beta 3X3+\ \beta 4X4 + \beta 5X5+\ \varepsilon$

Where,

y is a binary variable i.e. y=last twelve months overall income =1 if no increase; =0 if increase.

*X1= saving deposits (1.>500; 2. 500-1000; 3. 1000-5000; 4. <5000***),**

X2=average monthly income after loan (yes=1, no=2),

X3= increased reason (yes=1 or no= 0),X4= invested loan amount taken from Riba free micro credit (yes=1 or no= 0),

X4= invested amount of loan taken from RFMFIs

X5= Monthly saving deposits Riba free micro credit providing societies

ε =Error term

Table-13: Distribution Summary of Variables of the Model

Variables	Classification	N	Marginal Percentage

Last twelve month overall income	No increase	255	56.7%
	Increase	195	43.3%
Average monthly income after loan	1000-5000	249	55.3%
	5000-10000	94	20.9%
	10000-20000	37	8.2%
	Above 20000	70	15.6%
Increased reason	Expanding business	121	26.9%
	New enterprise	54	12.0%
	Sold in new market	54	12.0%
	Got job	146	32.4%
	Income from other sources	75	16.7%
Investing amount loan taken from Riba free micro credit providing societies	Yes	392	87.1%
	No	58	12.9%
Monthly saving deposits Riba free micro credit providing societies	>500	165	36.7%
	500-1000	218	48.4%
	1000-5000	51	11.3%
	<5000	16	3.6%

The dependent variable has only one value observed in 38 (45.8%) sub populations.

In the table given above, it may be observed that there is no change in the overall income of 56.7% of respondents whereas 43.3% of respondent's income level has been increased in the last twelve months. The average monthly income of 55.3% of respondents after taking a loan from Riba free micro credit is Rs. 1000-5000 rupees,20.9% of respondents have Rs, 5000-10000,8.2% earn Rs.10000-20000 rupees while 15.6% of respondent's average monthly income after the loan is taken from Riba free micro credit is above 20000 rupees. This increased income is due to expanding business (26.9%), new enterprise (12%), started selling their products in new markets (12 %) and got the job (32.4 %). The respondents also claimed that they invest in the loan amount. Out of the total, 87.1% responded as investing while 12.9% of respondents claimed that they do not invest.

Table-13: Classification Table

Observed	Last twelve month overall income	Predicted		
		Last twelve month overall income		Correct Percentage
Last twelve month overall income	No change	201	54	78.8
	Increased	131	64	32.8
Overall Percentage				58.9

a. The cut value is .500

Table-14: Model Summery

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
3	597.749b	.039	.053

Model is effectively good fit for the data based on Nagelkerke R Square value .589 which is more than 0.05%.

Table-15: Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
3	6.104	8	.636

Table-16: Estimates of Binary Logistic Regression

Variables	B	S.E.	Sig.	Exp(B)
Monthly savings in RFMFIs	-.313	.130	.016*	.731
Investing loan amount taken RFMFIs	-.876	.315	.005*	.416
Increased reason	.140	.066	.034**	1.150
Constant	.854	.488	.080***	2.350

c. Variable(s) on step 3: increased reason, Monthly savings in RFMFIS, Investing loan amount taken from RFMFIS

p<0.01,p<0.05 and ***p<0.10*

The model based on the Hosmer and Lemeshow Test is effectively a good fit as the result (.756) is more than the 0.5. It reveals that the model is adequatly fits the data. By rejecting the null hypothesis the result shows that the model does not adequately fit the data.

Income levels of the respondent's increases due to various reasons such as monthly savings, deposits in Riba free micro credit providing societies, investing loan amount in various activities, expanding an existing business, starting a new business, getting the job, selling produced goods in new markets attracting higher profits as well as other income sources. In this model, no change in income level is considered as reference. The variable monthly savings negatively influenced on income level changes. Its coefficient (B) -.313 is negative and it is significant at a 5% significance level. Monthly savings in Riba free micro credit providing societies is negatively influencing the respondents whose income level has no change. Hence we can understand that if the respondents saving deposits amount decreases in Riba free micro credit providing societies, it may lead to a decrease or no change in income level. If there is an increase in savings, it may lead to an increase in the income level of respondents. Investing loan amounts in various productive activities may also increase the income level. Its coefficient is negatively influencing the dependent variable -.876 and it is also significant at a 1% significance level. Investing in various activities may increase the income in the last 12 months' overall income of the respondents. An explanatory viable reason for increased income is a significant positive impact on the dependent variable where the last twelve months overall income increased. It is significant at 5% level.

By the above model, we can conclude that Riba free micro credit providing societies is playing a positive role in increasing the income levels of excluded Muslim women in the selected areas. If there is an increase in savings may lead to an increase in the income level of respondents. Investing loan amounts in various productive activities may also increase the income level, Investing in various activities may increase the income in the last 12 months overall income of the respondents. Finally, the null hypothesis is rejected because 'the independent variables will influence the dependent variable'. Hence we can accept the alternative hypothesis.

The study finds out that that the Riba free micro credit societies are promoting financial inclusion by providing access to riba free micro credit to the excluded Muslim women to establish and expand their business activities, mobilize savings and channelize them into productive uses so that they get out of the clutches of poverty.

8.0 CONCLUSION & RECOMMENDATIONS

The study reveals that the after having the access to the riba free micro credit, the financially excluded women established business activities and felt more empowered both at household and enterprise level. It helped women borrowers to diversify their business -generating activities such as embroidery, knitting, chudi making and tailoring which are proved to be the useful indicators of decision making on large scales in the regression model. The study also finds out that the availability of riba free credit has inculcated the habit of savings among women. Although the Riba free micro credit societies have been helping financially excluded muslim women but these societies also have their own set of problems and constraints regarding their resources, operations, structure and professional orientation. Riba free micro credit societies are advised to design their policies and strategies in such a way that they mobilize more resources and channelize them into productive uses These societies are concentrated only in muslim *mohallas* hence the other marginalised communities except the ones who live in the vicinity remain unaware of their existence and can not be benefitted. They need to expand their services to the non-muslim *mohallas*, rural areas and small towns where women due to the non availability of

these services remain financially excluded . Conducting more skill based training programs are also important so that these women become more professional, confident, independent in managing their income generating business activities. It is also necessary that these societies should have a monitoring division to ensure that the loan amount is put in the productive use instead of meeting some unproductive household consumption requirements.

Riba-free microfinance certainly provides an alternative to the conventional micro finance and may be considered as an important effective tool for promoting financial inclusion. The relatively higher probability of success of riba-free microfinance in targeting poverty lies in the philosophy of riba free access to credit, which makes sure that the poor get the intended financial assistance. The potential effective use of riba fee credit plays a significant role in bringing the poor out of the vicious circle of poverty and promoting financial inclusion. This advantage of riba-free microfinance lies in its Islamic jurisprudence based structure which promotes social justice based system and not the market oriented profit maximization motive based conventional system of microfinance. Therefore, the riba free microfinance has the potential of accelerating the pace of financial inclusion by providing access to credit to the 'excluded'who are struggling to get out of the vicious circle of poverty.

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CHAPTER 2

Measurement of Formal Harmonization in Accounting: A Study of Indian Accounting Standards (IND-AS)

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ABSTRACT

The globalization of capital markets has resulted in increased attention towards internationalization of accounting. The movement towards a common global accounting language is led by International Accounting Standards Board (IASB) which has introduced the International Financial Reporting Standards (IFRS). Adoption of the IFRS - a set of global accounting standards - is replacing the domestic accounting standards of individual countries and is reducing the efforts and cost of individual companies and investors in dealing with multiple accounting standards. The IFRS are now accepted around the world with 166 jurisdictions permitting their use in one form or the other. With more and more countries around the world moving towards IFRS, it is important to develop a tool to measure the degree of convergence or 'formal harmonisation' to gauge the extent of adoption of IFRS by different countries and also for relative ranking regarding the implementation of IFRS in their own country. In our paper, we have compared Indian Accounting Standards (IND-AS) with the IFRS as issued by IASB. We calculate degree of convergence of IND-AS with IFRS for financial years 2016-17 to 2019-20 which can be used by investors, standard setters and companies to gauge the status of convergence of IND-AS vis-à-vis IFRS over the years and accordingly make economic decisions. We conclude that the overall degree of convergence in India has increased from 0.944 in 2016-17 when IND-AS were first introduced to 0.958 in 2019-20. The degree of convergence of individual standards is also high with 34 out of 39 standards having a convergence score of 0.9 or higher. Overall, the degree of convergence has increased over the years reflecting continuous commitment of Indian standard setters to fully converge with IFRS by progressively removing deviations from IFRS popularly known as 'carve-outs' and also continually amending IND-AS to reflect the annual amendments to IFRS issued from time to time. This paper contributes to the literature by using a new methodology to measure degree of formal harmonization. Also, the score calculated is dynamic taking into account annual amendments in IFRS from time to time and matching with the IND-AS year-wise. Also, this paper is the first to take into account all aspects of individual standards and give a standard wise convergence score which can be used to locate the source of divergence between domestic accounting standards and IFRS.

Keywords: *Accounting Standards, Convergence, Formal harmonization, IFRS, IND-AS*

INTRODUCTION

Modern economies are characterized by increasing cross border movement of companies and investors for financing & investment requirements. Rapid globalization of financial markets is complicated by differing accounting practices of respective countries making it difficult and costly for multinational corporations and investors to keep track of accounting developments in each country and suitably adjust their decision making. In order to aid seamless worldwide movement of capital and business operations, the International Accounting Standards Board has been working towards global acceptance of a common accounting language known as the International Financial Reporting Standards (IFRS). Although IASB has no formal authority to enforce adherence to IFRS, countries across the world are committed to adopting IFRS the wake of major developed economies like the European Union, Australia, New Zealand & Russia endorsing these standards and requiring domestic companies to comply with them. Even the United States permits foreign listed companies to file their statements using IFRS standards without reconciliation to US GAAP. Currently IFRS are in use by 166 jurisdictions around the world[1] with some countries replacing their local accounting standards by IFRS and some countries aligning their national standards in line with IFRS. For eg: Canada, Russia, Turkey, Mexico, Chile and European Union have adopted IFRS as issued by IASB whereas China, Australia, India, Hongkong, Malaysia, New Zealand, Singapore, Bangladesh, Venezuela, Saudi Arabia, Philippines, Brazil, Serbia, Japan and many others have made changes to IFRS keeping in mind the unique local environmental and legal factors. Thus, despite the worldwide acceptance of IFRS, differences still exist in the form countries have implemented the said standards. These differences can affect the comparability of financial statements even amongst IFRS nations. Thus, it is necessary to measure the degree of convergence so as to know the relative progress of different nations in the journey towards international accounting.

Before proceeding further, it is necessary to define certain terms used in context of movement towards IFRS. The term 'adoption' implies following the IFRS as issued by IASB in toto i.e replacing the local GAAP with IFRS. Convergence implies "aligning the national standards in a way that financial statements prepared according to them draw unreserved statement of compliance with IFRS."[2] Countries taking the Convergence route make changes to IFRS to cater to the unique domestic requirements. Apart from convergence, there are two more terms associated with the process of accounting internationalization: Standardization & Harmonization. Van Der Tas (1988) described harmonization as "the coordination, a tuning of two or more objects". Tay & Parker (1990) describe "harmonisation' as a process, a 'movement away from total diversity of practice' and harmony as a state "indicated by the clustering of companies around one or a few of the available methods". "Standardisation" is described as a movement towards uniformity. It includes reduction in the number of available methods and clustering around few methods. Convergence implies movement towards a common point, union or uniformity. Authors have identified two types of harmonization: "Formal harmonization or de-jure harmonization which refers to harmonization of accounting regulations or standards. Material harmonization or de-facto harmonization which refers to harmonization of actual financial reporting practices" (Qu & Zhang, 2010). Majority of studies conducted till date focus on measuring the degree of material or de-facto harmonization and develop indices for the same. However, it is as much important to measure the degree of formal harmonization as material harmonization cannot be achieved without formal harmonization (Qu & Zhang,2010). It is also argued that formal harmonization may lead to material harmonization (Garrido et al, 2002). Also, users need to be aware of the degree of similarities between each countries' version of IFRS & IFRS issued by IASB so as to be able to have a greater understanding of the comparability of financial statements produced under converged IFRS. It is well established that differences between GAAP of different countries lead to share price and return variations (Alford et al. (1993), Amir et al. (1993)). Thus, in this study, we aim to measure the degree of formal harmonisation in India which has also adopted the convergence route and introduced its own version of IFRS, known as IND-AS. IND-AS contain certain departures from IFRS, popularly referred to as 'carve-outs' and standard setters claim that these carve-outs will be progressively removed and the country expects to achieve full convergence with IFRS by 2021.[3] We also wish to test this assertion by measuring the degree of harmonisation each year starting from the first year of IND-AS adoption i.e 2016-17. We use a similar methodology as employed by Qu & Zhang (2010) & Nguyen & Gong (2014) based on matching the contents of two standards and calculate India's convergence score. Our study differs from available literature in this field in the following ways: we calculate a dynamic score of formal harmonization taking into account the latest amendments made by standard setters in India. Also, we make a contemporaneous comparison of standards i.e., local standards (IND-AS) are compared with the corresponding version of international standards (IFRS) effective at the same time thus making our score relevant & reliable. Also, we make a comprehensive comparison of standards line by line taking into account the scope, recognition, measurement and disclosure requirements. We are also able to provide a comparison score of individual standards as well as IND-AS as whole. Our study is relevant to standard setters, users, multi-national corporations & financial statement preparers.

LITERATURE REVIEW

Most of the prior studies on in this field focus on dejure or material harmonization. These studies employ indices that seek to capture the degree to which companies employ similar accounting method to deal with similar events. When more & more companies report similar events employing same accounting alternatives, financial statements are deemed to be more comparable. Indices commonly employed in these studies include H, C & I Index developed by Van Der Tas (1988) and more recently T-index developed by Taplin (2004). These indices aim at capturing the degree of relative clustering of accounting choices around one or more alternatives to determine extent of harmonization. However, the indices developed for measuring material harmonization are not suitable for measuring formal harmonization. There are relatively few studies focusing on measuring formal harmonization. Some of the early work in this area was done by Adhikari & Tondkar (1992) who focused on disclosure requirements of stock exchanges of 33 countries to examine the relationship between environmental factors & disclosure requirements. They took stock exchange listing & filing requirements as proxy for accounting disclosure and developed a Disclosure index containing 44 items that ought to be disclosed by companies and scored each stock exchange on the basis of whether the said items were a part of disclosure requirements or not. Rahman et al (1996) used the technique of Mahalanobis distances to capture harmony in the measurement and disclosure practices of countries. For their sample, they identified Australia and New Zealand and calculated Mahalanobis distances between the disclosure & measurement requirements of two countries from stock exchange requirements, accounting standards & statutory requirements as of 30th Oct, 1993. They found the greatest divergence was in relation to disclosure requirements of EPS, Reserves, Partnership Accounting & measurement requirements of EPS, Pensions & Investment Property.

Tarca (1998) analyzed the studies on formal & material harmonization and found that major differences existed between local accounting standards of different countries & between local -international accounting standards. Also, they analyzed various measurement indices for material harmonization such as H-Index, I-Index & C-Index. The authors concluded that significant differences existed between standards and actual accounting practices and national standard setting bodies need to introduce many changes to achieve the goal of harmonization.

Garrido et al. (2002) analysed the progress made by IASC in terms of harmonization of accounting standards since 1973 and empirically measured the same using Euclidean Distances. They observed IAS standards on 20 accounting issues & concluded that since 1973 to 1995, harmonization has increased in terms of small values of Euclidean distances. This paper defined formal harmonisation as reduction in accounting alternatives in standards over time and captured the same using Euclidean distances. Also, complete comparability was defined as 0 value of distance measure. However, distance measure can also have a 0 value if accounting alternatives remain same over time. Also, this concept requires a stage of reference which the authors have taken as a hypothetical situation wherein standards do not allow for any accounting alternative. Assuming no accounting alternatives does not necessarily imply complete formal harmonization.

Fontes et al (2005) compared the level of convergence between Portuguese accounting standards with international accounting standards from 1973-2003 using 3 measures: Jaccard's coefficient, Spearman's correlation coefficient and Euclidean distance. They compared 43 accounting issues separately under IAS & Portugal standards over 3 phases and coded them as per the strength of accounting regulation. They found that using Euclidean distances, the level of convergence was minimum during the last phase (1995-2003). Jaccard's coefficient indicated that the level of convergence between Portuguese standards and IAS IS 59%. Using Spearman's correlation coefficient, they found that only in the last phase, there was no significant difference between the two standards. This paper measures convergence based on measurement aspects only and ignores several features of accounting standards such as definition, scope, recognition & disclosure. As such, full extent of standards is not compared. Also, phase wise comparison of local accounting standard w.r.t international accounting standard is not done and all phases of LAS are compared with last phase of IAS.

Boolaky (2006) compared the local accounting standards of South Africa, Mauritius & Tanzania with International Accounting standards published upto 2003.They compared three aspects of standards: Definitions, accounting treatment and disclosure requirements and prepared a harmony score based on number of similarities & differences between the respective standard and IAS. Using Wilcoxon matched pairs test, the authors found no significant difference between local accounting standards of Tanzania & Mauritius and significant difference between accounting standards of South Africa & IAS in terms of disclosure requirement. Certain limitations in this paper are noted. Tests of significant difference do not provide information about the extent of similarity for comparison between countries. Countries may show no significant difference between their LAS & IAS but their convergence score may be different which is important for ranking of different countries. Also, items missing in one standard and included in other are ignored but this may affect convergence score. Also, classifying items into 'similar' or 'different' is difficult as there are layers of similarity. For eg: If LAS permits two alternative

accounting treatments and IAS permits only one treatment, their categorization strictly into one of the two categories is difficult.

Qu & Zhang (2010) propose a new method of measuring formal harmonization using matching & fuzzy clustering analysis. They illustrate the use of this method by measuring harmonization of Chinese accounting standards with IFRS. They compare the components of each standard item by item and cluster items into 4 categories: Completely convergent, substantially convergent, substantially different & completely different. Matching coefficients are then calculated which form the basis of fuzzy clustering analysis. They calculate overall convergence level as 0.7497 indicating substantial convergence.

Peng & Smith (2010) conduct a longitudinal analysis of the convergence of Chinese GAAP & IFRS from 1992-2006. They compare 159 Chinese GAAP measurement items with IFRS and categorise items into 3 categories: Full convergence (FC), Substantial convergence (SC) & non-convergence. Convergence score is calculated by dividing the number of converged items (FC & SC) by the number of measurement items. They concluded that China is moving progressively towards IFRS with convergence score increasing from 20% in 1992 to 77% in 2006. This study omitted 4 IFRS relating to disclosure requirements and focused only on measurement aspects of the remaining standards. As such, the convergence score cannot be said to be based on comprehensive comparison of standards as a whole. Also, standard wise score is not calculated. Fully converged and substantially converged standards are given the same treatment.

Cirstea & Baltariu (2014) examined the convergence between IFRS & US GAAP for a single standard i.e Business Combination & Consolidation following the long-term convergence efforts of IASB & FASB. They used similarity & dissimilarity coefficients such as Jaccard, Rogers & Tanimato, Dice Similarity, Lance & Williams Dissimilarity, Binary Euclidean distance and concluded that low level of convergence existed between the two standards despite Joint Convergence Projects. One limitation of the measures used is that the association coefficients capture similarity or differences on a binary scale and fail to take into account the degree of similarity.

Nguyen & Gong (2014) measure the degree of convergence between Vietnamese Accounting standards (VAS) & IFRS employing the method of matching coefficients as used by Qu & Zhang(2010) . They categorise standards into 4 categories: fully convergent, substantially convergent, substantially different and completely different. Their results indicated that VAS had only mild level convergence with IFRS i.e 0.6527. The overall levels of measurement and disclosure convergence were 69.53% & 58.56%. The convergence level of standards for revenues & expenses were found to be much higher than those of assets.

RESEARCH GAP

Existing literature in this field has used Mahalanobis Distances, Euclidean distances, Jaccard's coefficient, Spearman's correlation and other association measures to measure the degree of formal harmonization. Mahalanobis Distances may give arbitrary large values which may not be meaningful. This measure calculates distance from mean/centroid which does not serve our purpose. Use of this measure in the context of measuring formal convergence does not give one comprehensive similarity score which can be used for comparison with other countries. Euclidean distances as used in literature capture the difference between accounting alternatives under two standards to measure degree of convergence & define lower values as higher convergence. However, two standards may have same number of accounting alternatives but differ in content. Also, complete comparability is defined as 0 value of distance measure. However, distance measure can also have a 0 value if accounting alternatives remain same across two standards but just having same number of accounting alternatives does not imply complete convergence. Also, for Euclidean distances, pair of values are required and that can only be used when we make comparison phase-wise. Jaccard's coefficient measures the similar number of accounting alternatives between two standards on a binary level. However, the strength of similarity is not included. Similarly, Spearman's correlation coefficient captures similarity based on ranks which does not fully capture the extent of matching as it is qualitative in nature. Also, our purpose is match IFRS content wise with IND-AS and not to calculate degree of association. Some papers have tested for significant differences between two standards; however, tests of significance difference do not provide information about the extent of similarity for comparing between countries. Countries may show no significant difference between Domestic Accounting Standards & International Accounting Standards but their convergence score may be different which is important for ranking of different countries. The association coefficients capture similarity or differences on a binary scale and fail to take into account the degree of similarity. Apart from methodology, most of the literature focus only on accounting choices while ignoring other contents of standards such as Scope, Definition, recognition & disclosure requirements. As such the convergence score is not meaningful as it does not provide complete picture. Most of the studies group accounting alternatives into "required'', "recommended'', allowed or not permitted. However, for measuring formal harmonization, this type of categorization is redundant and accounting choices need to

be matched on the basis of similarity or difference. Also, a measure of harmonization should be able to capture convergence on individual standards as well as complete set of standards in force as compared to international standards. The measures used in literature are only able to do the latter. In our study, we have used a similar methodology as used by Qu & Zhang (2010) & Nguyen & Gong (2014). Our methodology is based on the strength of similarity/divergence between IFRS and local GAAP and assigns weights based on the nature & implication of the extent of differences popularly known as 'carve-outs' between IND-AS & IFRS. Also, we have compared all aspects of standards including Scope, Definition, Recognition, Measurement, Re-measurement and Disclosure requirements giving a comprehensive picture of degree of convergence with IFRS. We are also able to generate a score standard-wise as well as for IND-AS as a whole. This methodology enables standard setters and users to know the individual standards that are a source of deviation from IFRS and take measures accordingly. The procedure for calculating the overall degree of convergence is explained in the next section.

RESEARCH METHODOLOGY

Our study focuses on all IND-AS applicable for the years 2016-17, 2017-18, 2018-19 & 2019-20 and corresponding IAS/IFRS. Each pair of standards is considered a case and contents of each standard such as Scope, Definitions, Recognition, Measurement & Disclosure are considered as comparison items. There are sub-comparison items within each comparison item. For eg: Comparison item Measurement in IND-AS 2 inventories further contain sub comparison items such as Cost of Inventory, Cost of Purchase, Cost of Conversion, Cost of inventories of service provider, cost formulae etc. Thus, for the years 2016-17 & 2017-18, we have 40 cases and 39 cases for the years 2018-19 & 2019-20. It is to be noted that IND-AS contain certain carve-outs i.e departures from IFRS in order to meet unique requirements of India. We have divided these carve-outs into 7 categories depending on their nature and implication for comparison. Sub Comparison items which do not match in pair wise comparison of IND-AS & IFRS are divided into one of the categories of carve-outs and assigned weight (matching factor) on a scale ranging from 0 (complete divergence) to 1 (complete convergence). The complete description of type of carve-outs and their related weights is provided in Appendix 1. Matching coefficients/Degree of convergence are calculated for each standard by multiplying the sub-comparison items with their respective weights and dividing by the weighted sum of products. The following table gives an illustration of the calculation of matching coefficient for IND-AS 16 (PPE):

Table 1: Illustrative example of calculation of matching coefficient: IND-AS 16/ IAS 16 (PPE)

Case: IND-AS 16/IAS 16 (PPE)								
Comparison Items	**Matching factor(A)→**	**1**	**0.75**	**0.5**	**0.25**	**0**	**Total**	
	No. of sub comparison/matching items							
Scope	3	2		1				
Definitions	12	12						
Recognition	4	4						
Measurement	8	7		1				
Disclosures	5	5						
	Total no of matching items (B)	30	0	2	0	0	32	
	Matching Coefficient = Σ(AB) / ΣB	0.96875						

In this manner, matching coefficients are calculated for each pair of standards and for IND-AS as a whole for the years 2016-2020. The calculation for the year 2016-17 is shown in Appendix 2. Overall degree of convergence for a particular year is calculated as follows:

Overall degree of convergence

$$\frac{\Sigma(\text{No of Matching items for all cases} * \text{Matching factors})}{\text{Total no of matching items for all cases}}$$

RESULTS & DISCUSSION

The overall convergence level for years 2016-17 to 2019-20 is calculated as follows:

Table 2: Degree of convergence of IND-AS with IFRS

Year	Degree of Convergence
2016-17	0.9444
2017-18	0.9441
2018-19	0.9543
2019-20	0.9576

Our research design also enables us to measure degree of convergence of individual standards with respective IFRS/IAS year-wise. The same is shown below:

Standards	2016-17	2017-18	2018-19	2019-20
IND-AS 1/ IAS 1	0.8529	0.8529	0.8529	0.8529
IND-AS 2/IAS 2	0.9722	0.9722	0.9722	0.9722
IND-AS 7/IAS7	0.9318	0.9773	0.9773	0.9773
IND-AS 8/IND-AS	0.9875	0.9875	0.9875	0.9875
IND-AS 10/IAS 10	0.9167	0.9167	0.9167	0.9167
IND-AS 12/IAS12	0.8966	0.7941	0.9265	0.9265
IND-AS 16/IAS 16	0.9375	0.9375	0.9688	0.9688
IND-AS 17/IAS 17	0.9571	0.9571	0.9571	
IND-AS 18/IAS 18	0.8750	0.8750		
IND-AS 11/IAS 11	0.8462	0.8462		
IND-AS 19/IAS19	0.9767	0.9767	0.9767	0.9767
IND-AS 20/IAS 20	0.9412	0.9412	1.0000	1.0000
IND-AS 21/IAS 21	0.9583	0.9583	0.9583	0.9583
IND-AS 23/ IAS 23	0.9722	0.9722	0.9722	0.9722
IND-AS 24/IAS 24	0.9000	0.9000	0.9000	0.9000
IND-AS 27/IAS 27	0.9063	0.9063	0.9063	0.9063
IND-AS 28/IAS 28	0.8971	0.8971	0.8971	0.8971
IND-AS 29/IAS 29	0.9833	0.9833	0.9833	0.9833
IND-AS 32/IAS 32	0.9457	0.9457	0.9457	0.9457
IND-AS 33/IAS 33	0.9200	0.9200	0.9200	0.9200
IND-AS 34/IAS 34	0.7250	0.7250	0.7250	0.7250
IND-AS 36/IAS 36	0.9643	0.9643	0.9643	0.9643
IND-AS 37/IAS 37	1.0000	1.0000	1.0000	1.0000
IND-AS 38/IAS 38	0.9674	0.9674	0.9783	0.9783
IND-AS 40/IAS 40	0.8750	0.8750	0.8750	0.8750
IND-AS 41/IAS 41	1.0000	1.0000	1.0000	1.0000

IND-AS 101/IFRS 1	0.8300	0.8300	0.8300	0.8300
IND-AS 102/IFRS 2	1.0000	1.0000	1.0000	1.0000
IND-AS 103/IFRS 3	0.9032	0.9032	0.9032	0.9032
IND-AS 104/IFRS 4	1.0000	1.0000	1.0000	1.0000
IND-AS 105/IFRS 5	0.9839	0.9839	0.9839	0.9839
IND-AS 106/IFRS 6	1.0000	1.0000	1.0000	1.0000
IND-AS 107/IFRS 7	1.0000	1.0000	1.0000	1.0000
IND-AS 108/IFRS 8	0.9821	0.9821	0.9821	0.9821
IND-AS 109/IFRS 9	0.9914	0.9914	0.9914	0.9914
IND-AS 110/IFRS 10	0.9844	0.9844	0.9844	0.9844
IND-AS 111/IFRS 11	0.9583	0.9583	0.9583	0.9583
IND-AS 112/IFRS 12	1.0000	1.0000	1.0000	1.0000
IND-AS 113/IFRS 13	0.9953	0.9953	0.9953	0.9953
IND-AS 114/IFRS 14	0.9737	0.9737	0.9737	0.9737
IND-AS 115/IFRS 15			0.9592	0.9592
IND-AS116/ IFRS 16				0.9825

As per Table 2, it can be seen that India has achieved substantially high convergence with IFRS over the period of study and is progressively removing the carve-outs and is on the path to achieving full convergence. Also, IND-AS are kept up to date with the new standards issued by IFRS and the same are being implemented simultaneously. For eg: IFRS 15 (Revenue from Contracts with Customers) is effective from 1st Jan, 2018 and the corresponding Indian standard IND-AS 115 along with consequential amendments to other standards is effective from 1st Apr, 2018 onwards. Similarly, IFRS 16 (Leases) is applicable w.e.f. 1st Jan, 2019 and the corresponding IND-AS 116 which replaces IND-AS 17 is applicable w.e.f. 1st Apr, 2019. From Table 3, it can be seen that areas of complete convergence are IND-AS 102 (Share based payments), IND-AS 104 (Insurance contracts), IND-AS 106 (Exploration & Evaluation of mineral resources), IND-AS 107 (Financial Instruments-Disclosures), IND-AS 112 (Disclosure of Interest in Other Entities), IND-AS 37 (Provisions, Contingent Liabilities & Contingent Assets), IND-AS 41 (Biological Assets). Also, IND-AS 20 (Government Grants) contained a major carve out when the standards were originally issued but due to amendment to bring it in line with IFRS, its degree of convergence increased from 0.94 to 1. The areas of least convergence are IND-AS 34 (Interim Financial Reporting) with a score of 0.725 where there are carve-outs relating to scope & measurement and IND-AS 101 with a score of 0.83 where there are additional optional exemptions on transition than provided by IFRS 1. Areas where score has increased are IND-AS 20: Government Grant (from 0.94 to 1) due to removal of carve-out , IND-AS 12(Income taxes) from 0.89 to 0.92 owing to annual improvements to IND-AS & consequential amendments because of change in other standards , IND-AS 38(Intangible Assets) from 0.967 to 0.978 as a result of consequential amendment relating to IND-AS 20 & IND-AS 7 (Cash flow Statement) due to amendment relating to change in liability arising from financing activities to bring this standard in line with IAS 7.

CONCLUSION & REMARKS

The need to address accounting diversity in different countries to aid globalization of financial markets has led to worldwide acceptance of IFRS promulgated by the IASB. With many countries opting for the convergence route i.e modifying their local standards in line with IFRS, there is a need for a tool to measure this degree of convergence or formal harmonization. The objective of this study was to measure the same in context of India, the fifth largest economy of the world and an attractive destination for foreign capital. In the year 2016-17, India introduced its own version of IFRS known as IND-AS with some deviations referred to as 'carve-outs' to address local environmental, political and legal issues. We compared standards under IND-AS with the corresponding

IFRS and assigned weights based on degree of similarity between the two. Based on our calculations & analysis, the overall degree of convergence in the first year of IND-AS was found to be 0.9444 and increased to 0.9576 in 2019-20. Moreover, 34 out of 39 standards were found to have degree of convergence greater than or equal to 90%. This affirms India's commitment towards international harmonization by systematically removing carve-outs and continuously amending IND-AS to match the annual improvements to IFRS issued by IASB from time to time. The results of this study are expected to be useful to international and national standard setters for gauging India's progress towards IFRS. Researchers can employ this methodology to calculate degree of formal harmonization of their countries. Also, investors can use the results of this study to compare the relative position of India with respect to other countries following convergence route and accordingly plan their investments. Companies aiming at operating in IFRS countries will also be able to determine the comparative cost of compliance in individual IFRS compliant countries as per this score.

LIMITATIONS & FUTURE RESEARCH

The methodology used in this study involves personal judgement in matching the content of each standard with corresponding IFRS and assigning weightage because of which it is possible that some bias may exist. This study exclusively focuses on India so future research on formal harmonization in different countries following convergence route is needed for comparison purposes. Also, since this tool is dynamic in nature, it can also be used to measure the progress towards IFRS in future. Also, researchers in future can utilize this tool to compare the degree of formal harmonization in their countries particularly for IFRS relating to banking, financial institutions and insurance companies as these are likely to be heavily influenced by local regulatory and legal requirements of individual countries.

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APPENDIX

Appendix 1: Description of Carve-outs & Related Weights/matching factors

CATEGORY	DESCRIPTION	WEIGHT/MATCHING FACTOR (1 = Complete Convergence; 0 = Complete Divergence)
1	Deviations that result in IND-AS financial statements not being in compliance with IFRS i.e where different guidance is provided	0
2	Regulation or practice related differences	0.75
3	IND-AS provides additional explanation or examples and requires additional disclosures which do not hamper IFRS compliance	0.75
4	Differences in Nomenclature eg: Statement of Financial position versus Balance Sheet	0.75
5	Removal of Options: Statements are compliant with IFRS but IND-AS eliminates choices. Eg: IAS 40 provides option of using both cost model & fair value model for subsequent measurement of Investment Property whereas IND-AS 40 allows only cost model	0.5
6	Additional Options provided in IND-AS that result on statements not being in compliance with IFRS if the entity opt for the extra options. Eg: Optional exemptions given in IND-AS 101 that are not given in IFRS 1.	0.25
7	A deviation in One standard that leads to adjustment in all other related standards	(same as original weighting)

Appendix 2: Calculation of Degree of Convergence for 2016-17

	Scope		Definition/ Terminology		Recognition		Measurement		Disclosures			
Standard	Matching factor	No. of matching	Matching factor	No. of matching	Matching factor	No. of matching	Matching factor	No. of matching	Matching factor	No. of matching	Total no of matching items	MC/ DOC*
IND-AS 1/ IAS 1	1	1	1	8	1	9	1	4	1	4	26	0.8529
	0.75		0.75	1	0.75	1	0.75	1	0.75		3	
	0.5		0.5		0.5		0.5	1	0.5		1	
	0.25		0.25	1	0.25		0.25		0.25		1	
	0		0		0	2	0	1	0		3	
	Total	1		10		12		7		4		

IND-AS 2/ IAS 2	1	1	1	3	1	1	1	9	1	3	17	0.9722
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5	1	1	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	1		3		1		9		4		
IND-AS 7/ IAS7	1	1	1	7	1	8	1	1	1	3	20	0.9318
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5	1	0.5		0.5		1	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0	1	1	
	Total	1		7		9		1		4	22	
IND-AS 8/ IND-AS	1	1	1	9	1		1	4	1	5	19	0.9875
	0.75		0.75		0.75		0.75	1	0.75		1	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	1	Total	9	Total		Total	5	Total	5	20	
IND-AS 10/ IAS 10	1	1	1	3	1	3	1	1	1	3	11	0.9167
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0	1	0		0		0		1	
	Total	1	Total	4	Total	3	Total	1	Total	3	12	
IND-AS 12/ IAS12	1	1	1	8	1	9	1	2	1	4	24	0.8966
	0.75		0.75		0.75	2	0.75		0.75		2	
	0.5		0.5		0.5	1	0.5		0.5		1	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0	1	0	1	0		2	
	Total	1		8		13		3		4	29	

IND-AS 16/ IAS 16	1	2	1	12	1	4	1	6	1	5	29	0.9375
	0.75		0.75		0.75		0.75		0.75		0	
	0.5	1	0.5		0.5		0.5	1	0.5		2	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0	1	0		1	
	Total	3		12		4		8		5	32	
IND-AS 17/ IAS 17	1	1	1	20	1	5	1	3	1	4	33	0.9571
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5	1	0.5		0.5		1	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0	1	0		0		1	
	Total	1	Total	20		7		3		4	35	
IND-AS 18/ IAS 18	1	3	1	2	1		1	5	1	4	14	0.8750
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0	2	0		0		0		0		2	
	Total	5		2				5		4	16	
IND-AS 11/ IAS 11	1	1	1	5	1	2	1		1	3	11	0.8462
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0	1	0		0	1	0		0		2	
	Total	2		5		3				3	13	
IND-AS 19/ IAS19	1	1	1	20	1	7	1	9	1	5	42	0.9767
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0	1	0		1	
	Total	1		20		7		10		5	43	

IND-AS 20/ IAS 20	1	1	1	7	1	4	1		1	3	15	0.9412
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5	1	0.5	1	0.5		2	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
		1		7		5		1		3	17	
IND-AS 21/ IAS 21	1	1	1	12	1	4	1	7	1	4	28	0.9583
	0.75		0.75		0.75		0.75		0.75	1	1	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0	1	0		0		1	
	Total	1		12		5		7		5	30	
IND-AS 23/ IAS 23	1	1	1	2	1	4	1		1	1	8	0.9722
	0.75		0.75	1	0.75		0.75		0.75		1	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	1		3		4				1	9	
IND-AS 24/ IAS 24	1	2	1	6	1		1		1	6	14	0.9000
	0.75	2	0.75		0.75		0.75		0.75	3	5	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25	1	0.25		0.25		0.25		1	
	0		0		0		0		0		0	
	Total	4		7						9	20	
IND-AS 27/ IAS 27	1	1	1	2	1	1			1	2	6	0.9063
	0.75		0.75		0.75				0.75	1	1	
	0.5		0.5		0.5	1			0.5		1	
	0.25		0.25		0.25				0.25		0	
	0		0		0				0		0	
	Total	1		2		2				3	8	

IND-AS 28/ IAS 28	1	1	1	8	1	1	1	5	1		15	0.8971
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25	1	0.25		1	
	0		0		0		0	1	0		1	
	Total	1		8		1		7			17	
IND-AS 29/ IAS 29	1	1	1		1	1	1	9	1	3	14	0.9833
	0.75		0.75		0.75		0.75		0.75	1	1	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	1				1		9		4	15	
IND-AS 32/ IAS 32	1	2	1	5	1	14			1		21	0.9457
	0.75		0.75		0.75	1			0.75		1	
	0.5		0.5		0.5				0.5		0	
	0.25		0.25		0.25				0.25		0	
	0		0	1	0				0		1	
	Total	2		6		15					23	
IND-AS 33/ IAS 33	1		1	8	1		1	8	1	5	21	0.9200
	0.75	2	0.75		0.75		0.75		0.75		2	
	0.5	1	0.5		0.5		0.5		0.5		1	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0	1	0		1	
	Total	3	Total	8	Total			9		5	25	
IND-AS 34/ IAS 34	1		1	2	1	4	1	5	1	3	14	0.7250
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5	1	0.5		0.5		1	
	0.25		0.25		0.25		0.25		0.25		0	
	0	1	0		0	1	0	3	0		5	
	Total	1		2		6		8		3	20	

IND-AS 36/ IAS 36	1	7	1	11	1	8	1	6	1	7	39	0.9643
	0.75		0.75		0.75		0.75		0.75		0	
	0.5	2	0.5		0.5		0.5	1	0.5		3	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	9	Total	11	Total	8	Total	7	Total	7	42	
IND-AS 37/ IAS 37	1	4	1	9	1	2	1	2	1	6	23	1.0000
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	4	Total	9	Total	2	Total	2	Total	6	23	
IND-AS 38/ IAS 38	1	5	1	13	1	9	1	12	1	5	44	0.9674
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5	1	0.5		1	
	0.25		0.25		0.25		0.25		0.25		0	
	0	1	0		0		0		0		1	
	Total	6		13		9		13		5	46	
IND-AS 40/ IAS 40	1	1	1	5	1	4	1	1	1	2	13	0.8750
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5	1	0.5	1	0.5		2	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0	1	1	
	Total	1		5		5		2		3	16	
IND-AS 41/ IAS 41	1	1	1	11	1	4	1	4	1	3	23	1.0000
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	1	Total	11	Total	4	Total	4	Total	3	23	

IND-AS 101/ IFRS 1	1	1	1	8	1	13	1	15	1	1	38	0.8300
	0.75	1	0.75	1	0.75	1	0.75	1	0.75		4	
	0.5		0.5		0.5	1	0.5		0.5		1	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0	2	0	5	0		7	
	Total	2	Total	9	Total	17	Total	21	Total	1	50	
IND-AS 102/ IFRS 2	1	3	1	20	1	2	1	4	1	3	32	1.0000
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	3	Total	20	Total	2	Total	4	Total	3	32	
IND-AS 103/ IFRS 3	1	2	1	14	1	4	1	6	1	2	28	0.9032
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0	1	0		0	1	0	1	0		3	
	Total	3		14		5		7		2	31	
IND-AS 104/ IFRS 4	1	3	1	22	1	4	1	2	1	2	33	1.0000
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	3	Total	22	Total	4	Total	2	Total	2	33	
IND-AS 105/ IFRS 5	1	7	1	13	1	6	1	1	1	2	29	0.9839
	0.75	1	0.75		0.75	1	0.75		0.75		2	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	8		13		7		1		2	31	

IND-AS 106/ IFRS 6	1	2	1	3	1	5	1	2	1	2	14	1.0000
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	2	Total	3	Total	5	Total	2	Total	2	14	
IND-AS 107/ IFRS 7	1	2	1	8	1		1		1	22	32	1.0000
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	2	Total	8	Total		Total		Total	22	32	
IND-AS 108/ IFRS 8	1	2	1	1	1	2	1	1	1	7	13	0.9821
	0.75	1	0.75		0.75		0.75		0.75		1	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	3	Total	1	Total	2	Total	1	Total	7	14	
IND-AS 109/ IFRS 9	1	4	1	27	1	13	1	13	1		57	0.9914
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5	1	0.5		1	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	4	Total	27	Total	13	Total	14	Total		58	
IND-AS 110/ IFRS 10	1	3	1	12	1	8	1	8	1		31	0.9844
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5	1	0.5		0.5		1	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	3	Total	12	Total	9	Total	8	Total		32	

IND-AS 111/ IFRS 11	1	1	1	8	1	9	1	5	1		23	0.9583
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0	1	0		1	
	Total	1	Total	8	Total	9	Total	6	Total		24	
IND-AS 112/ IFRS 12	1	2	1	3	1		1		1	11	16	1.0000
	0.75		0.75		0.75		0.75		0.75		0	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	2	Total	3	Total		Total		Total	11	16	
IND-AS 113/ IFRS 13	1	7	1	25	1		1	16	1	4	52	0.9953
	0.75	1	0.75		0.75		0.75		0.75		1	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	8	Total	25	Total		Total	16	Total	4	53	
IND-AS 114/ IFRS 14	1	2	1	6	1	5	1	1	1	3	17	0.9737
	0.75	1	0.75	1	0.75		0.75		0.75		2	
	0.5		0.5		0.5		0.5		0.5		0	
	0.25		0.25		0.25		0.25		0.25		0	
	0		0		0		0		0		0	
	Total	3	Total	7	Total	5	Total	1	Total	3	19	

Table 4: Calculati An Approach to Gender Neutrality in the Offence of Rape in India on of Overall Degree of Convergence for FY 2016-17

2016-17		
No. of matching items(A)	**Matching factors(B)**	**Degree of convergence(ΣAB/ΣA)**
883	1	0.9444
28	0.75	
17	0.5	
3	0.25	
36	0	
Total(**ΣA**): 967		

ENDNOTES

1. https://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/
2. Concept paper on Convergence with IFRSs in India. The Institute of Chartered Accountants of India, Oct (2007)
3. https://www.thehindubusinessline.com/news/india-will-achieve-full-convergence-with-ifrs-in-5-years/article9226918.ece

CHAPTER 3

Determinants of Stock Market Liquidity: A Macroeconomic Perspective

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ABSTRACT

Market liquidity is an essential component of market microstructure that depicts ease of trading security in the market. The literary works in this area have been rapidly growing in recent times due to its key implications in the area of the asset pricing and in predicting economic health which have obtained robust applications in policy making and investment decisions. Furthermore, the financial crisis in the year 2008 laid more emphasis on framing liquidity enhancing policies. Since then the empirical works in this area have been undertaken to comprehensively determine the notion of stock market liquidity with a principal focus on identifying the key determinants affecting the liquidity at aggregate market level and individual stock level. The empirical evidence suggests that there are common factors determining the liquidity of the aggregate market and individual stocks as well and hence macroeconomic indicators can be assumed as the suitable systematic factors.

Thus the current study examines the impact of macroeconomic indicators on the liquidity of Indian stock market by using low-frequency measures over an extensive period from 2009-2019 by employing Granger Causality test, Vector Auto-Regressive Model and Impulse Response Functions. A total of 18 macroeconomic indicators were analyzed at monthly and quarterly frequencies for their effect on liquidity of NSE NIFTY 500 stocks. The liquidity of these stocks were measured across four facets i.e. depth, breadth, immediacy and tightness by using Amihud Illiquidity Ratio, Share Turnover, Coefficient of Elasticity of Trading and Relative Quoted Spread respectively.

The study finds that, the Indian stock market is characterized by higher liquidity as determined in terms of higher market immediacy, market breadth and a consistent level of market depth. Additionally, there exists a lower significant relationship between the liquidity measures and macroeconomic indicators amongst which transaction cost measure was related to most of the monthly indicators. There exists a strong positive relationship between transaction costs and market volatility and between market depth and trading volume. The results document a prominent negative impact of foreign investment inflows on stock market liquidity wherein increased Foreign Direct Investment lowers market breadth and Foreign Portfolio Investment lowers tightness by broadening the transaction costs which confirms the notion of informational asymmetry caused by foreign investors.

Besides, contraction in the money supply results in a fall in the overall market liquidity by lowering the tightness, immediacy and depth in the market. Even, gold prices shrink the aggregate liquidity by reducing the overall trading activity and immediacy thereby indicating a flight to safe investment assets.

The overall results indicate that foreign investment inflows, money supply and gold prices are the fundamental macroeconomic determinants of liquidity in the Indian stock market and thus should form a crucial consideration while making trading decisions as well as while initiating the liquidity enhancing policy interventions. Also, due attention must be paid towards the level of market volatility since it was found to be a key factor related to transaction costs.

Keywords: *Liquidity; Bid-ask spreads; Amihud Ratio; Stock; FDI; Money Supply*

INTRODUCTION

Market liquidity is an essential component of market microstructure that depicts ease of trading security in the market. The previous research works have ambiguously defined it across five dimensions namely; tightness, immediacy, depth, breadth and resiliency (Díaz & Escribano, 2020; Sarr & Lybek, 2002). A wide range of liquidity measures have been proposed and market liquidity has been empirically studied over the past three decades. The advent and wide applicability of liquidity measures have made it convenient to empirically assess the liquidity across the varied market structures.

The earlier studies (Chordia et al., 2001; Fernández-Amador et al., 2013; Johnson, 2008; Loukil et al., 2010; Amihud & Mendelson, 1986) highlight that market liquidity plays a pertinent role in asset pricing and is an important risk factor in determining security returns in addition to volatility (Dinh, 2017). Their results establish a negative liquidity-return relationship by employing a wide array of liquidity measures in both order-driven and quote-driven stock markets. This negative relationship has proved of crucial importance to the investors during the period of higher uncertainty to estimate premium on their security returns as compensation against fall in aggregate liquidity level.

More recently, the identification of liquidity commonality (Chordia et al., 2000; Hasbrouck, 2001; Huberman & Halka, 2001) has initiated research on the effects of market-wide liquidity, and there is now some evidence that the variation in aggregate liquidity is indeed an important factor in explaining the cross-section of stock returns (Acharya & Pedersen, 2005; Eckbo & Norli, 2011) as well as the time-series of aggregate returns (Amihud, 2002; Harvey et al., 2005; Jones, 2005). Additionally, the changes in overall market liquidity levels have been even found as the key factor in determining economic health and act as a key component in the forecasting of economic conditions (NÆS et al., 2011; Smimou, 2014).

When the world economies were hit by the financial crisis in the year 2008 emphasis was mainly laid on framing liquidity enhancing policies. Since then the empirical works in this area have been undertaken to comprehensively determine the notion of stock market liquidity with a principal focus on identifying the key determinants affecting the liquidity at aggregate market level and individual stock level (P. Naik & Reddy, 2021). Studies have found a significant impact of regulatory policy announcements, corporate announcements, corporate governance mechanisms, stock exchange mergers, developments in trading systems and company-specific factors on liquidity. However, macroeconomic determinants of market liquidity have been infrequently studied.

Macroeconomic indicators are known for causing an immense disturbance in the overall market and are the key element in stimulating systematic effects on stock market characteristics principally in emerging markets (Olokoyo et al., 2020). As noted above, liquidity being an essential market characteristic given its impact on both individual stock and aggregate returns and the health of the economy, a suitable understanding of systematic forces causing the liquidity becomes imperative. Also, the evidence of commonality in liquidity emphasizes that factors affecting market and stock level liquidity are common and hence an evaluation of determinants of market liquidity will instantly direct towards identifying individual stock liquidity determinants.

The current study tries to identify the key macroeconomic determinants of liquidity in the Indian stock market by using low-frequency measures over an extensive period from 2009-2019. The contribution of this study is twofold; first, it highlights the prime macroeconomic indicators that affect the overall liquidity and thus contributes to understanding the role of systematic forces in the determination of liquidity variations. Second, it adds to the existing scarce literature by investigating the indicator's impact across various liquidity facets, thereby ensures robust and comprehensive results in an emerging market. The study uses the Granger Causality test, VAR model and Impulse Response Functions and concludes that a higher foreign investment in the form of Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI) and high gold prices impairs the aggregate liquidity

whereas easing of monetary policy fosters the overall liquidity. The results will enable the domestic and foreign investors in perceiving the systematic sources affecting liquidity which in turn will assist in tactically devising investment strategies. Additionally, the market regulator can also frame appropriate and timely intervening economic policies to overcome liquidity problems.

The paper proceeds as follows: the second section discusses literary works that have studied stock market liquidity determinants, reveals gaps in the previous studies and states the objectives of the current study; the third section describes data, selected liquidity and macroeconomic variables and details the methodology; the fourth section elaborates results obtained in the study; the fifth section includes conclusion, study implications and research prospects.

REVIEW OF LITERATURE

The literature provides a handful of studies done in the context of macroeconomic factors and their impact on stock market liquidity. Fujimoto (2011) studied the impact of macroeconomic indicators and stock market variables on the liquidity of the US stock market. The study employed macroeconomic indicators like industrial production growth, the change in the unemployment rate, the CPI inflation rate, the growth rate of the Conference Board index of sensitive materials prices, the change in the federal funds rate, and the orthogonalized non-borrowed reserves and stock market variables namely market return, volatility and share turnover. It was found that the macroeconomic indicators directly determine the aggregate liquidity and also indirectly through their effect on stock market variables. Additionally, negative supply-side inflation and expansionary monetary policy play a key role in stimulating liquidity principally during the high volatility period.

More specifically, Omran & Pointon (2001) studied and concluded a negative impact of changes in inflation levels on the Egyptian stock market trading activity and liquidity. They argued that a decrease in the inflation rate enhances the market trading activity and liquidity on account of investor's expectation of increased return on their investments. Such effect was empirically proved over the short as well as long run. Next, Zheng & Su (2017) looked for the impact of oil price changes arising from three sources (i.e. specific demand, aggregate demand and supply) on market liquidity in China and showed that liquidity increased due to oil price change resulting from specific demand shock whereas oil price effects on account of oil supply and aggregate demand shocks adversely lowered the overall liquidity. Moreover, Jiang (2014) examined the effect of the output gap and inflation gap on stock liquidity and liquidity commonality by using the Taylor Rule. They found that a wide gap in inflation and output increases commonality and contract liquidity. The results also suggest that lack of funding liquidity makes traders prefer large-size stocks over the smaller ones and thus the effect seems to be higher on the liquidity of small stocks.

Some studies evaluated the impact of monetary policy decisions on the stock market liquidity. Chowdhury et al. (2018) investigated the influence of monetary and fiscal policy variables on the market liquidity of eight emerging Asian stock markets. By using different liquidity measures, it was concluded that an expansionary monetary and fiscal policy positively affects market liquidity as well as individual stocks. These results were robust even across the stock portfolios sorted based on size and industrial sectors. Additionally, Fernández-Amador et al. (2013) employed panel VAR and found that expansionary monetary policy increases stock specific and market liquidity and that this effect was found to be larger for small stocks. Concerning the Indian stock market, Debata & Mahakud (2018) analyzed the impact of monetary policy on the liquidity of continuously traded stocks listed on the National Stock Exchange, India. The study approximated monetary policy through two indicators; reserve money growth rate and interest rate and employed liquidity measures across the dimensions of depth, breadth and tightness. By performing Panel VAR, Granger causality tests, impulse response functions and variance decomposition analysis; the study concluded a positive influence of expansionary monetary policy on the stock liquidity which was observed more prominently during the financial crisis.

Few studies even evaluate the role of macroeconomic and policy announcements in determining stock market liquidity. Chordia et al. (2005) analyzed the common determinants of stock and bond market liquidity and examined whether monetary announcements by central banks infuse more trading activity and cause an increase in order flow in both the markets. The study concluded that cross-market correlations in liquidity and volatility are positive and confirm the common influences across the markets by using VAR and Impulse Response Functions. Also, found that easing of monetary policy improves liquidity especially during high volatility in both the markets. Busch & Lehnert (2014) tested for the impact of policy interventions on stock liquidity during the financial crisis by using spread as a liquidity measure. It was found that the spreads narrowed as a result of liquidity and rescue interventions mainly in the context of less traded stocks. In addition, studies have also documented that emerging markets are very sensitive to the macroeconomic announcements made by developed economies. Ekinci et al. (2019) and Sensoy (2017) have revealed that announcements relating to monetary policy, interest rates, and GDP of the US economy strongly determined the liquidity of the Turkish stock market.

The existing literature conveys very little focus on macroeconomic determinants of stock market liquidity and considers a few of them. Macroeconomic indicators are known for causing long-run and systematic exposures in the financial markets and were apparent during every economic crisis. Moreover, the empirical evidence of commonality in liquidity compels us to believe that there are common/systematic factors that determine the liquidity of the aggregate market and individual stocks as well and hence macroeconomic indicators can be assumed as the foremost systematic factors. Furthermore, the above-noted studies have rarely looked for an effect on multi-dimensional facets of liquidity. This is pertinent due to the growing evidence of the multidimensional nature of liquidity and the need to consider them for robust results (Díaz & Escribano, 2020; P. Naik & Reddy, 2021). Additionally, there is a limited number of empirical studies which have considered the effect of macroeconomic indicators on market liquidity in emerging economies. Since each emerging market is unique in terms of its market structure, mechanisms and processes, and is often prone to face liquidity problems hence a study concerning the systematic effect of macroeconomic indicators will provide some new cognizance in the area. The current study tries to overcome these gaps and evaluates the Indian stock market which is a rapidly growing emerging Asian market and offers attractive avenues for diversification. An understanding of macroeconomic determinants will assist the market stakeholders in perceiving and timely adapting to the liquidity levels.

DATA AND METHODOLOGY

The study analyses the macroeconomic determinants of stock market liquidity in India. For this purpose, a total of 18 macroeconomic indicators were identified based on their profound impact on the stock market (P. K. Naik & Padhi, 2012; Parab & Reddy, 2020; Sharma et al., 2012; Tripathi & Kumar, 2015) and were obtained at monthly and quarterly frequencies. These indicators include gold prices (GOLD), silver prices (SILVER), foreign exchange reserves (FER), inflation rate (INFL), interest rate (IR), crude oil prices (OIL), broad money (M3), narrow money (M1) and real effective exchange rate (REER) which are in monthly series, gross domestic product (GDP), gross fixed capital formation (GFCF), private final consumption expenditure (PFCE), government final consumption expenditure (GFCE) and current account balance (CAB), foreign direct investment (FDI), foreign portfolio investment (FPI), imports of goods and services (IMP) and exports of goods and services (EXP) are in quarterly series.

Next, market liquidity is measured by employing four-dimensional measures that depict a comprehensive cognizance of aggregate liquidity are defined below and were selected based on their wide application in the context of liquidity measurement in the context of emerging market (Bhattacharya et al., 2019; P. Naik et al., 2020; Sklavos et al., 2013; Yeyati et al., 2008):

RELATIVE QUOTED SPREAD (RQS)

RQS measures the amount of cost involved in trading security and was used in previous researches (Foran et al., 2015; Yilmaz et al., 2015) as a reliable measure to determine the liquidity dimension of tightness. RQS is calculated as:

$$\text{Relative Quoted Spread (RQS)} = \frac{AP_{it} - BP_{it}}{1/2}(AP_{it} + BP_{it}) \quad \text{.....(1)}$$

where AP and BP denote daily closing Ask Price and daily closing Bid Price; i and t denote stock i at time t.

COEFFICIENT OF ELASTICITY OF TRADING (CET)

Wanzala (2018) suggested CET as a measure to compute the time taken to execute a trade transaction in the market. Thus, this measure is considered to depict the immediacy level of the transacting parties to execute the trade at the quoted price. This measure is calculated as:

$$\text{Ceofficient of Elastiscity of Trading (CET)} = \frac{\%\Delta Ts}{\%\Delta P} \quad \text{.....(2)}$$

where %ΔTs denotes the percentage change in the daily trading volume of a stock 's' and %ΔP denotes the percentage change in daily closing price.

SHARE TURNOVER (ST)

ST is a measure used for tracing the market depth and reflects the frequency at which the available securities are traded. This measure represents the number of orders present in the trading book and thus denotes trading activity in a stock exchange. It is computed as:

$$\text{Share Turnover (ST)} = \frac{VO_t}{SO_t} \quad \text{.....(3)}$$

Where VOt is the number of shares traded on day t and SOt is the number of shares outstanding on day t.

AMIHUD ILLIQUIDITY RATIO (AR):

AR is a popular measure proposed by Amihud (2002) for measuring the market breadth and represents the rate at which the security prices are affected by trading volume. It is a widely used liquidity measure and is regarded as the best price impact measure (Goyenko et al., 2009). This ratio is computed as follows:

$$\text{Amihud Illiquidity Ratio} = \frac{|R_{it}|}{Vol_{it}} \quad \text{.....(4)}$$

Where |Rit| and Volit are the absolute return and volume (in Rs.) on day t for stock i respectively.

To compute these liquidity measures a total of 500 stocks belonging to the NIFTY 500 index of the National Stock Exchange, India, (as per market capitalization on 26th May 2019) were selected. Based on the availability of data across these stocks during the study period, 352 stocks constituted the final sample. The data relating to macroeconomic indicators were extracted from the official websites of World Bank, Federal Reserve Economic Data (FRED) and Reserve Bank of India (RBI) whereas that required for liquidity measurement were collected on a daily basis from the databases of Bloomberg and Centre for Monitoring Indian Economy (CMIE) Prowess for the period from 2009 to 2019. Each of the selected liquidity measures was calculated on a daily basis for every stock. These were further aggregated into value-weighted cross-sectional averages and value-weighted time averages to derive monthly and quarterly averages of aggregate market liquidity. Next, to avoid any form of outliers, these averages of liquidity measures and the selected macroeconomic indicators were converted into natural log values at monthly and quarterly frequencies and were evaluated to derive the empirical results.

In addition, we control for the effect of market-specific factors on stock market liquidity by incorporating market returns (RET) and volatility of daily market returns (STDEV) (Chordia et al., 2005; Fernández-Amador et al., 2013). RET is computed on a monthly and quarterly basis as the value-weighted average of individual monthly/quarterly stock returns. Similarly, the market's monthly/quarterly STDEV is computed as the monthly/quarterly standard deviation of the value-weighted average of daily stock returns. Even we control for individual stock characteristics that are known to determine market liquidity by including trading volume (TV) and firm size (MCAP) (Hameed et al., 2014; Verrecchia, 1991). The TV is calculated on both a monthly and quarterly basis as the value-weighted average of individual monthly/quarterly stock trading volume whereas MCAP is computed as the average of individual monthly/quarterly stock market capitalization. All the control variables are converted into natural log values.

First, the descriptive statistics and correlation analysis is performed for all the liquidity measures, macroeconomic indicators and control variables. Before we undertake any further analysis, we test data for stationarity using the Augmented Dickey-Fuller (ADF) test. Although the related literature points out a unidirectional relationship between the macroeconomic indicators and stock market liquidity but studies (NÆS et al., 2011) evidence that stock market liquidity is a leading indicator of the real economy and any negative shocks to it leads to distress in the economy. Thus, we expect an endogenous relationship between these variables and thereby investigate them by specifying the following VAR model and a lag length of three was set according to the Akaike Information Criterion (AIC):

$$Z_t = c + AZ_t + BX_{t-1} + U_t \quad \text{.....(5)}$$

Where: is the vector of endogenous variables (AR, CET, RQS, ST, CAB, EXP, FDI, FPI, GDP, GFCE, GFCF, IMP, PFCE, OIL, INFL, FER, GOLD, IR, M1, M3, REER, SILVER)

X_{t-1} are control variables (RET, STDEV, MCAP, VOL),

c is the vector of intercepts,

A is a coefficient matrix of endogenous variables,

B is the coefficient matrix of control variables, and

U_t is the vector of residuals.

To interpret the estimated VAR models we report the Granger-causality tests (Fernández-Amador et al., 2013) and also use the corresponding impulse response functions. Since we are primarily interested in the effect

of the macroeconomic indicators on stock market liquidity, we only report the impact of monthly/quarterly macroeconomic indicators on the selected liquidity measures. For Granger-causality tests, we test the null hypothesis that the lagged endogenous variable (either macroeconomic indicators or stock market liquidity) does not Granger-cause the dependent variable (either stock market liquidity or macroeconomic indicators). We also assume that PFCE, GFCE, GFCF, GDP, M1, M3, FDI, FPI, FER, CAB, EXP, REER have a positive impact on stock market liquidity whereas CPI, IR, GOLD, SILVER, OIL and IMP will have an inverse impact.

EMPIRICAL RESULTS

Descriptive Statistics

In Table I Panel A, among the liquidity variables, CET is higher and ST is lower in comparison to other liquidity measures. This indicates a higher immediacy and lower trading activity. Also, transaction costs are higher for a given trading volume as represented by higher RQS and the level of the price impact of trades is lower as indicated by lower AR. With respect to macroeconomic variables; PFCE is higher and FPI is the lowest. The control variables indicate a higher MCAP and lower STDEV. Additionally, CET, CAB and RET have strong deviations whereas ST, GFCF and MCAP display lower deviations.

In Table I Panel B, among liquidity measures, AR is been the highest whereas ST is the lowest, thus indicating a higher trading impact on prices and lower trading activity. Also, M3 has been the highest and REER is the lowest in comparison to other macroeconomic variables. RET is higher and STDEV is lower. Moreover, CET, IR and RET have been highly volatile whereas ST, CPI and TV show lower deviations.

Table I. Summary statistics results of market liquidity, macroeconomic variables and control variables.

Panel A. Summary statistics of quarterly variables						Panel B. Summary statistics of monthly variables				
Variables	**Mean**	**Std. Dev.**	**Skewness**	**Kurtosis**		**Variables**	**Mean**	**Std. Dev.**	**Skewness**	**Kurtosis**
AR	-0.0060	0.2161	0.0039	9.3662		AR	-0.0003	0.1405	0.2202	14.6946
CET	0.0024	0.4943	1.0744	4.6104		CET	-0.0010	0.2267	0.0519	4.7587
RQS	-0.0049	0.0794	-1.0952	6.4258		RQS	-0.0029	0.0529	-0.3537	4.2078
ST	-0.0062	0.0463	-0.4381	4.0878		ST	-0.0020	0.0375	-0.0738	3.2931
CAB	-0.0022	2.6556	0.1653	18.7869		OIL	0.0022	0.0792	-0.7184	4.0600
EXP	0.0309	0.0737	-0.1244	5.2719		INFL	0.0061	0.0087	0.7376	6.1729
FDI	0.0160	0.8142	0.0078	3.2472		FER	0.0068	0.0213	-0.5582	6.0335
FPI	-0.0196	1.0481	0.3299	4.7807		GOLD	0.0059	0.0341	0.6093	4.2705
GDP	0.0318	0.0496	-0.3086	2.8203		IR	0.0077	0.1890	-0.1222	5.2437
GFCE	0.0282	0.2100	-0.0450	1.8509		M1	0.0079	0.0376	-2.6408	30.0727
GFCF	0.0295	0.0466	-0.1851	2.5985		M3	0.0084	0.0143	-3.9985	34.9721
IMP	0.0287	0.0584	0.0320	2.3752		REER	0.0010	0.0166	-0.3457	3.3817
PFCE	0.0323	0.0525	0.7047	2.8752		SILVER	0.0044	0.0611	0.3576	3.1575
RET	-0.0065	0.7287	0.3020	4.7218		RET	0.0019	0.7922	-0.3921	11.4229
STDEV	-0.0286	0.3273	-0.1574	2.3377		STDEV	-0.0120	0.4307	-0.1064	4.1985
MCAP	0.0026	0.0051	0.1716	3.0767		MCAP	-0.0039	0.0532	-10.7012	16.0221
TV	0.0013	0.0118	0.4781	3.3780		TV	0.0005	0.0109	-0.0474	2.9474

UNIT ROOT TEST

To examine the stationarity of the liquidity measures, macroeconomic indicators and control variables, the study employs the Augmented Dickey-Fuller (ADF) Test for both monthly and quarterly variable series. The ADF unit root results are shown in Table II. It evidences significant results and hence the null hypothesis that the variables are non-stationary is rejected and that all the variables are stationary at level.

Table II. Results of the Augmented Dickey-Fuller (ADF) test.

Series	Variables	ADF test statistic	Probability	Series	Variables	ADF test statistic	Probability
Quarterly	AR	-10.533	0.0000***	Monthly	AR	-9.9700	0.0000***
	CET	-9.8920	0.0000***		CET	-6.0252	0.0000***
	RQS	-6.6927	0.0000***		RQS	-10.3607	0.0000***
	ST	-5.6219	0.0000***		ST	-12.8746	0.0000***
	CAB	-10.331	0.0000***		FER	-10.5798	0.0000***
	EXP	-9.2836	0.0000***		GOLD	-9.3069	0.0000***
	FDI	-5.7278	0.0000***		IR	-18.1937	0.0000***
	GDP	-2.5477	0.1034*		M1	-8.2041	0.0000***
	FPI	-4.9217	0.0006***		M3	-11.2412	0.0000***
	GFCE	-3.3445	0.0210**		SILVER	-9.2277	0.0000***
	GFCF	-2.0481	0.0660*		REER	-9.0928	0.0000***
	IMP	-6.5228	0.0000***		OIL	-9.2277	0.0000***
	PFCE	-11.5607	0.0000***		INFL	-6.5345	0.0000***
	RET	-10.205	0.0000***		RET	-9.7378	0.0000***
	STDEV	-5.1719	0.0002***		STDEV	-13.2853	0.0000***
	MCAP	-5.1345	0.0001***		MCAP	-10.0586	0.0000***
	TV	-6.0463	0.0000***		TV	-14.4404	0.0000***

CORRELATION ANALYSIS

The correlation results of the quarterly series in Table III Panel A show that among the market liquidity measures, AR is not significantly related to any of the employed macroeconomic indicators and control variables. CET is positively related to EXP and GFCF, which can be because the growth in exports and higher capital formation contributes to an increased investment especially in developing nations (Sundararajan, 2014) and thereby promote higher immediacy in the market. CET is negatively related to PFCE which indicates that lower private expenditure on consumption enhances market immediacy. Further, RQS is negatively related to MCAP which suggests that trading in small firm stocks carry higher transaction costs due to their illiquid characteristic (Kissell, 2013). Moreover, the transaction costs increase with an increase in the trading volume and market volatility as depicted by the positive relationship between RQS, TV and STDEV. ST is negatively related to RET and positively with TV. This suggests that an increased trading volume for stocks will foster trading activity and thereby lowers the overall return on account of higher market liquidity. Additionally, ST and STDEV are positively correlated which hints that trades are executed in an asymmetric informational environment (Jones, 2005).

The correlation results of the monthly series in Table III Panel B show that AR is positively related with INFL and REER which implies that during a higher inflationary trend and appreciation in domestic currency there is a higher price impact of trades. Further, it is seen that higher price impact is not duly compensated by higher returns as depicted by the negative relationship between AR and RET thereby indicate depressed investment prospects. CET is negatively related to TV and STDEV thereby indicates that market immediacy is enhanced during periods of lower trading volume and market volatility. Moreover, RQS is negatively related with M1 and REER which means that a rise in narrow money and appreciation in domestic currency lowers the transaction costs on account of increased investment inflow whereas RQS widens during increasing oil prices as indicated by the positive relation between RQS and OIL. On the other hand, RQS and ST are positively correlated with TV and STDEV thus indicates trading in asymmetric information as observed in the case of quarterly series of these variables. Also, RQS rises during an increase in FER which implies that higher foreign assets resemble a higher liability on account of higher foreign investment receipts. Lastly, RQS and ST hold a positive relationship with GOLD which indicates that the transaction costs and trading activity lowers down when the prices of gold rise thereby confirm with safe investment property of gold as a security.

Table III. Results of correlation analysis.

Panel A. Correlation results of quarterly variables						Panel B. Correlation results of monthly variables				
	AR	**CET**	**RQS**	**ST**			**AR**	**CET**	**RQS**	**ST**
CAB	0.0328	0.1569	0.1166	-0.0151		OIL	-0.0480	0.1248	0.1656*	-0.0347
EXP	-0.0782	0.2674*	0.0126	-0.0193		INFL	0.1784**	0.0482	-0.1289	-0.1186
FDI	0.1521	-0.2202	0.1108	0.0004		FER	-0.0316	-0.0689	0.3224***	0.1251
GDP	-0.1004	0.0039	0.0522	0.0079		GOLD	0.0939	-0.0516	0.3127***	0.1795**
FPI	-0.0562	-0.2703	0.1725	-0.2779		IR	-0.1292	-0.0330	-0.1312	-0.1390
GFCE	-0.0584	0.0582	0.0671	0.1105		M1	-0.0270	-0.0455	-0.1521*	-0.0740
GFCF	-0.0834	0.2980*	-0.1019	0.0098		M3	0.0234	-0.0227	-0.0725	-0.0516
IMP	-0.2293	-0.0440	-0.1557	-0.1972		REER	0.1881**	0.1184	-0.3359***	-0.0562
PFCE	0.0476	-0.3264**	-0.0540	-0.1042		SILVER	0.0769	-0.0166	0.0988	0.1342
RET	0.1202	-0.2389	-0.0247	-0.4742***		RET	-0.2120**	-0.0089	0.2696***	0.0391
STDEV	-0.1428	-0.1691	0.6893***	0.4826***		STDEV	0.0719	-0.2693***	0.4963***	0.3743***
MCAP	0.0955	-0.0951	-0.3958***	-0.2230		MCAP	0.0020	0.0508	0.0219	-0.0415
TV	0.1835	0.0969	0.3957***	0.8593***		TV	0.0302	-0.1644*	0.2907***	0.7740***

4.4 CAUSATION EFFECT BETWEEN STOCK MARKET LIQUIDITY AND MACROECONOMIC INDICATORS

From Table IV Panel A, we find that only a few of the macroeconomic variables are causing the various dimensions of market liquidity. CAB causes AR and RQS, FPI causes RQS and GFCF causes AR. On the other hand, Table IV Panel B discloses that all the dimensional measures show causality across many macroeconomic variables. AR causes CAB and GFCF, CET causes GFCE and PFCE, RQS causes FDI and FPI, ST causes GDP and GFCE. These results reveal bidirectional causality between AR and CAB, AR and GFCF, RQS and FPI.

Table IV. Granger causality tests– quarterly data series

Panel A. Granger causality tests: Macroeconomic variables and market liquidity – quarterly data series (H_0: Macroeconomic variables do not Granger-cause market liquidity)

Variables	AR	CET	RQS	ST
CAB	27.5970***	1.7706	7.6400**	1.8504
EXP	3.0379	3.1151	0.9280	2.3730
FDI	4.2677	3.1207	0.1369	3.2015
GDP	1.8461	0.8046	0.3509	5.9218
FPI	0.7429	1.0816	11.9353***	3.2839
GFCE	2.8819	4.2162	0.5473	4.6756
GFCF	7.2102*	2.6364	2.6320	0.6482
IMP	3.3264	4.2882	0.3462	2.9857
PFCE	4.0974	4.5615	0.4629	0.8766

Panel B. Granger causality tests: Market liquidity variables and Macroeconomic variables - quarterly data series (H_0: Market liquidity does not Granger-cause Macroeconomic variables)

	CAB	EXP	FDI	GDP	FPI	GFCE	GFCF	IMP	PFCE
AR	15.0520***	4.9809	4.2677	1.8461	0.7429	2.8819	7.2102*	3.3264	4.0974
CET	0.4065	0.3043	2.9815	0.8046	3.0413	19.7920	5.7287	4.2882	10.7302***
RQS	2.4390	0.2653	16.7536***	4.7028	6.6639*	0.4618	0.9302	1.6769	1.0618
ST	1.0480	1.5219	0.6154	10.7104***	1.5858	7.7591**	2.2859	2.8155	4.7647

From Table 5 Panel A, we find that GOLD causes ST. M1 causes CET and ST. M3 causes CET and RQS. REER causes CET. SILVER causes CET and ST. On the other hand, Table 5 Panel B discloses that AR causes GOLD. CET causes INFL, GOLD, IR, M3 and REER. RQS cause M3. ST causes IR, M1, M3 and REER. There is bidirectional causality between M1-ST, M3-RQS-CET, REER-CET.

Table V. Granger causality tests– monthly data series

Panel A. Granger causality tests: Macroeconomic variables and market liquidity - monthly data series (H_0: Macroeconomic variables do not Granger-cause market liquidity)

Variables	AR01	CET	RQS	ST
OIL	2.2533	2.1385	5.0476	2.1902
CPI	1.9461	3.6817	1.3546	1.0352
FER	4.9311	1.9056	0.7634	1.7975
GOLD	3.3741	5.2256	3.1830	6.4557*
IR	0.9083	3.0939	3.7826	2.7287
M1	0.2125	16.4208***	5.4833	6.4655*
M3	0.7271	10.6767***	8.7981**	3.5544
REER	2.8123	7.0075*	0.6357	1.9139
SILVER	4.9179	9.0976**	4.1063	9.7300**

Panel B. Granger causality tests: Market liquidity variables and Macroeconomic variables - monthly data series (H_0: Market liquidity does not Granger-cause Macroeconomic variables)

	OIL	CPI	FER	GOLD	IR	M1	M3	REER	SILVER
AR	1.8842	2.4600	0.8473	7.9773**	3.3615	0.4786	0.5444	3.4584	4.8797
CET	4.2765	10.6853***	0.7653	8.4642**	8.3540**	4.4570	6.8572*	6.0402*	2.2769
RQS	0.1452	2.5449	1.8224	3.2421	3.9491	1.5952	6.8069*	2.8142	0.7680
ST	2.4047	3.9690	0.7307	3.2644	7.9007**	11.3106***	6.4492*	7.9002**	1.3774

IMPULSE RESPONSE ANALYSIS:

From Figure 1-4, we find that the immediate lag of FDI has a positive impact on AR which refers that a higher ownership concentration by foreign investors leads to a higher price impact on account of information asymmetry. Since these investors gain direct ownership control in the management of the host company and have longer investment durations and thus tend to have an informational advantage over the other investors. It is also found that the price impact increases during a lower CAB as observed through a negative impact of all lags of CAB on AR. This is because the current account deficit indicates the country's liability which is mainly funded through large foreign direct investments (Behera & Yadav, 2019) which in turn contributes to higher illiquidity in the stock market. Even the transaction costs (RQS) have a negative impact of the third lag of CAB. Moreover, CET is found to be increasing as a result of higher imports in the country (as indicated by the positive impact of the second lag of IMP on CET) since higher imports foster higher foreign investments (Fontagne, 1996) which tend to improve the execution time of trades. But such increased execution speed is available at a higher transaction cost and results in a wider volume impact on stock prices as depicted by the positive impact of immediate two lags of FPI on RQS and FDI on AR.

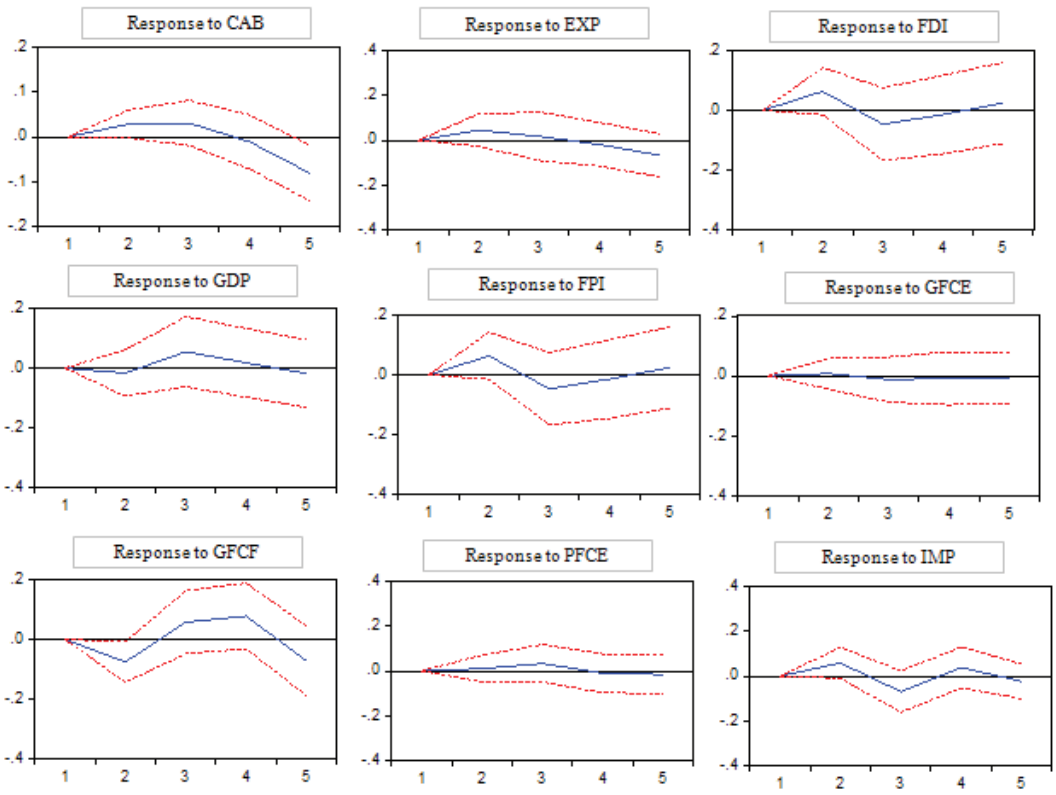

Figure 1. Response of AR to a Unit Standard Deviation Innovation in the Macroeconomic variables (quarterly)

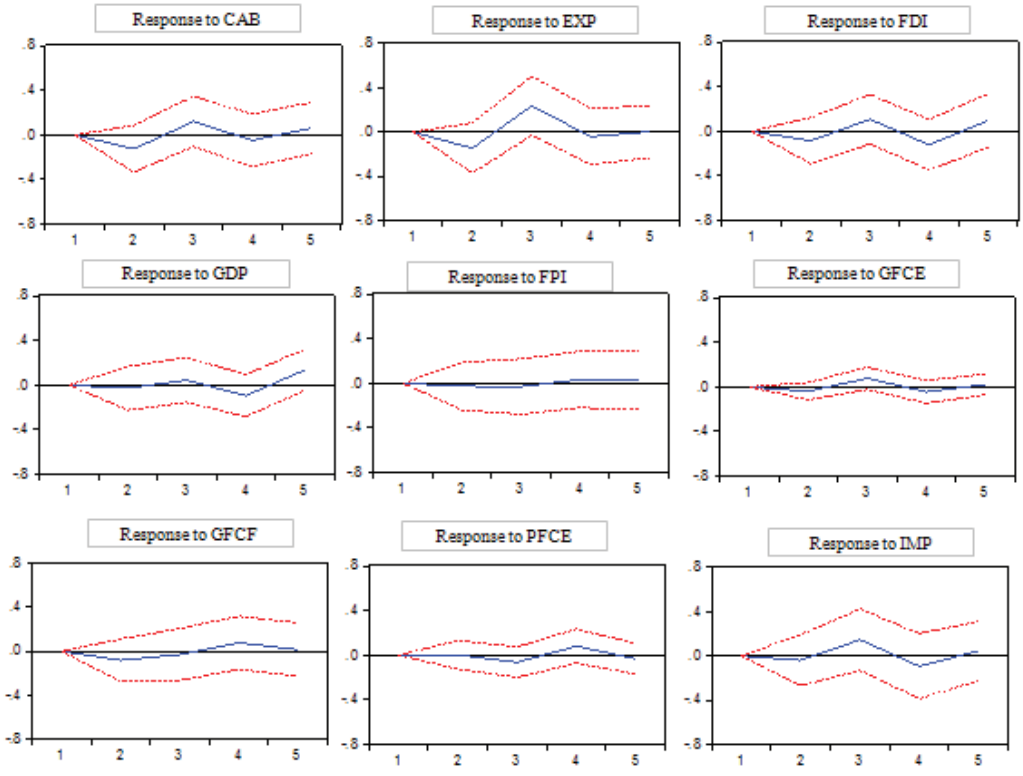

Figure 2. Response of CET to a Unit Standard Deviation Innovation in the Macroeconomic variables (quarterly)

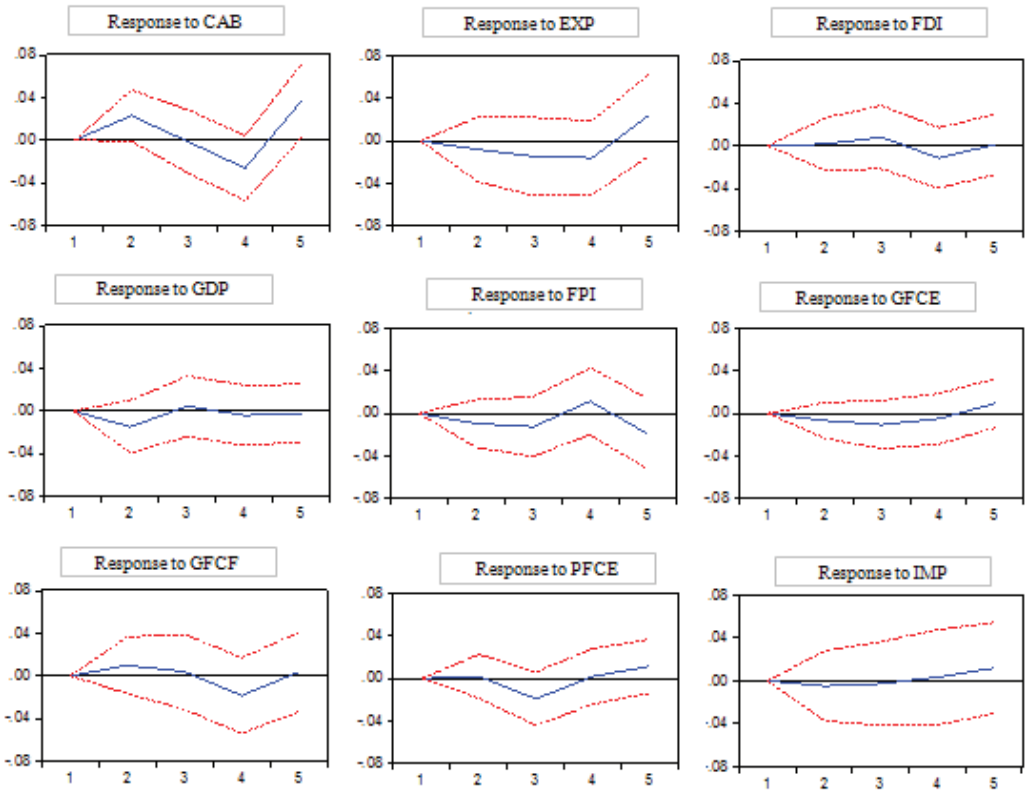

Figure 3. Response of RQS to a Unit Standard Deviation Innovation in the Macroeconomic variables (quarterly)

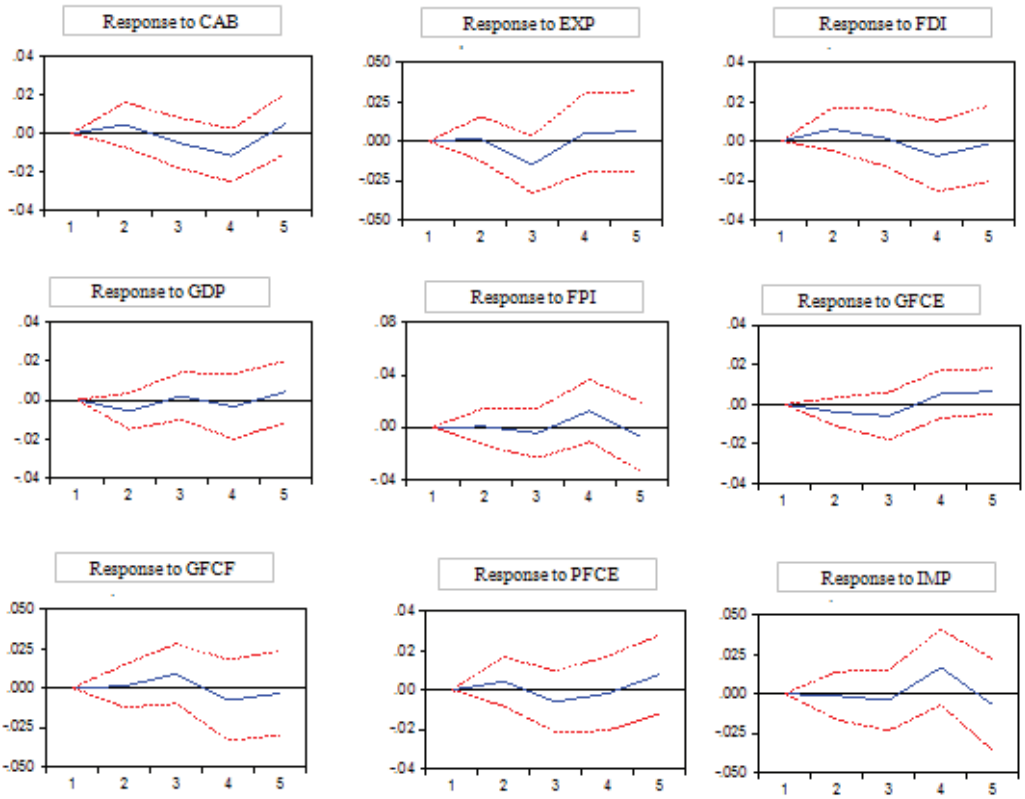

Figure 4. Response of ST to a Unit Standard Deviation Innovation in the Macroeconomic variables (quarterly)

From Figure 5-8, we find that the monthly series of CET is positively affected by all the lags of REER and negatively affected by all the lags of money supply (M1 and M3) and the second lag of INFL. This refers that the market immediacy is fostered during the appreciation of domestic currency but it lowers down when inflation rises and the money supply is curtailed to lower the effects of inflation which further broadens the bid-ask spreads as shown by the positive impact of the second lag of M1 and M3 on RQS. Moreover, this increased money supply lowers trading activity as shown by the negative impact of all the lags of M1 and M3 on ST. Additionally, the increased interest rates positively affect RQS which confirms that higher borrowing cost deprives the domestic investors of trading. Also, the execution speed of trade and trading activity slows down during increasing gold and silver prices as represented by the negative impact of the third lag of GOLD and first lag of SILVER on CET and second lag of GOLD and first lag of SILVER on ST. However, it is found that the negative impact of the first lag of SILVER is nullified by the positive impact of its distant lag on CET. Thus, GOLD evolves as the important security that significantly affects the level of trading activity and immediacy in the stock market over SILVER.

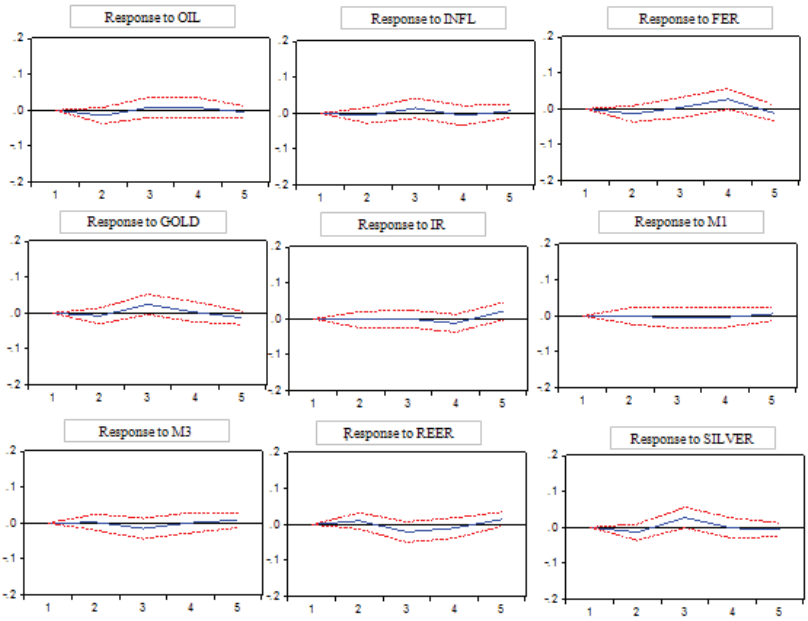

Figure 5. Response of AR to a Unit Standard Deviation Innovation in the Macroeconomic variables (monthly)

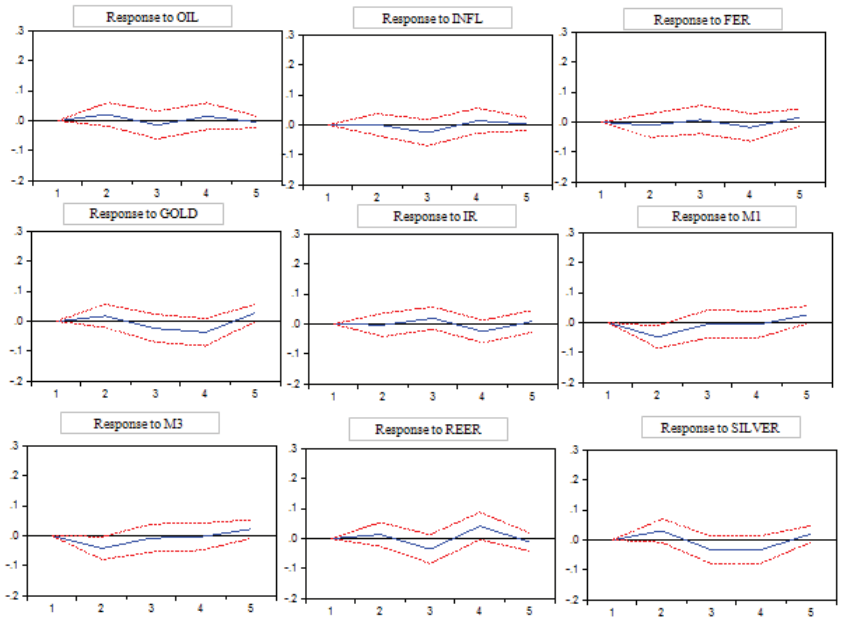

Figure 6. Response of CET to a Unit Standard Deviation Innovation in the Macroeconomic variables (monthly)

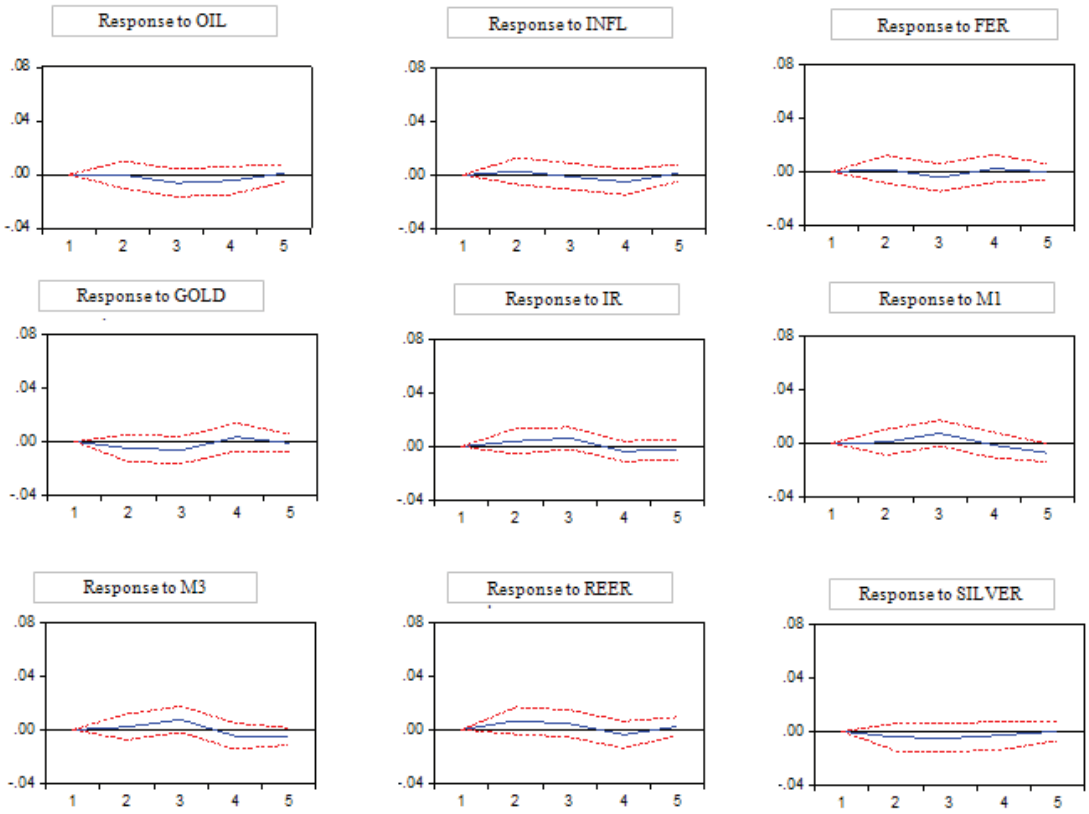

Figure 7. Response of RQS to a Unit Standard Deviation Innovation in the Macroeconomic variables (monthly)

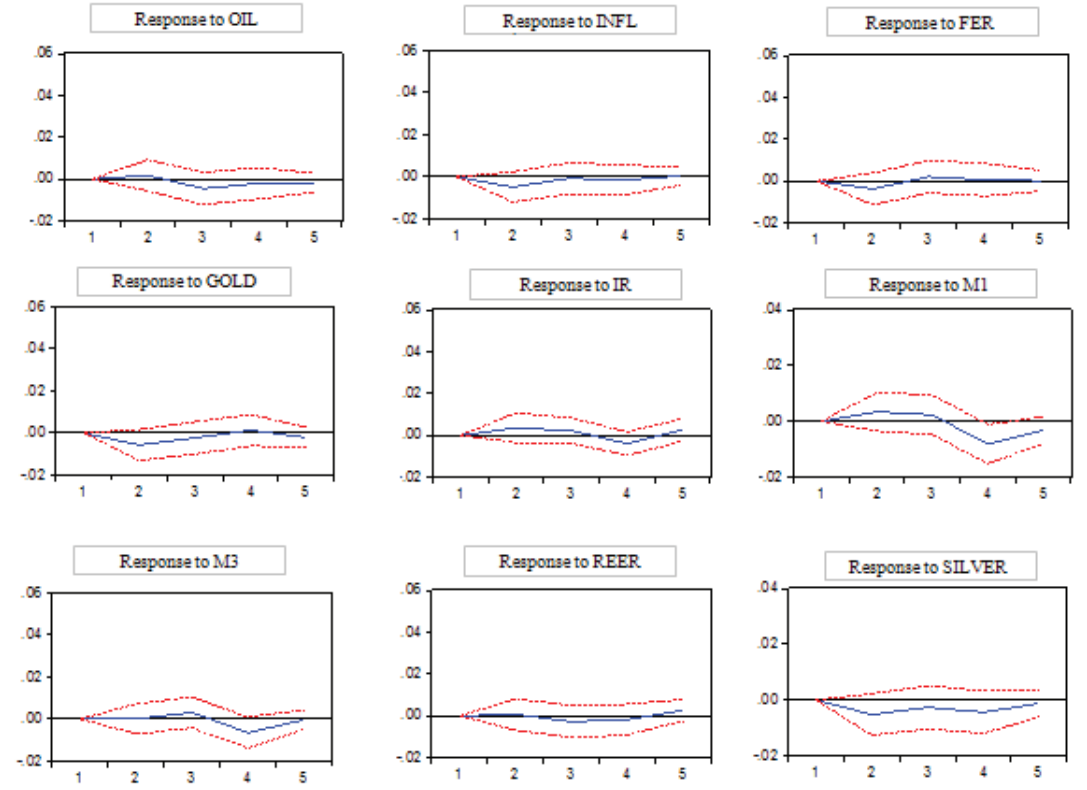

Figure 8. Response of ST to a Unit Standard Deviation Innovation in the Macroeconomic variables (monthly)

CONCLUSION

The current study analyzes the impact of macroeconomic indicators on the liquidity of the Indian stock market. A total of 18 macroeconomic indicators at monthly and quarterly frequencies were selected and analyzed using the Granger Causality test, VAR Model and Impulse Response Functions from 2009-2019. The study finds that during the period of study, the Indian stock market is characterized by higher liquidity as determined in terms of higher market immediacy (CET), market breadth (AR) and a consistent level of market depth (ST). Concerning the macroeconomic indicators, Foreign Portfolio Investment (FPI) and Real Effective Exchange Rate (REER) have been the lowest over the period whereas Private Final Consumption Expenditure (PFCE) and broad money (M3) have surged. Additionally, the market volatility has been quite low in comparison to other market characteristics. Further, there exists a strong significant relationship between control variables and liquidity measures wherein transaction costs (RQS) and market volatility (STDEV) are positively correlated while market depth (ST) is found to have a positive correlation with trading volume (TV) and supports the findings of Fujimoto (2011). However, a lower significant relationship is found between the liquidity measures and macroeconomic indicators amongst which transaction cost (RQS) measure was related to most of the monthly indicators.

The Granger Causality results reveal bidirectional causality between Amihud Illiquidity Ratio (AR), Current Account Balance (CAB) and Gross Fixed Capital Formation (GFCF); Relative Quoted Spread (RQS), Foreign Portfolio Investors (FPI) and Broad Money (M3); Share Turnover (ST) and Narrow Money (M1); Coefficient of Elasticity of Trading (CET), Broad Money (M3) and Real Effective Exchange Rate (REER). The VAR results and impulse responses document a prominent negative impact of foreign investment inflows on stock market liquidity wherein increased FDI lowers market breadth (widen the price impact of trades) and FPI lowers tightness by broadening the transaction costs which confirms the notion of informational asymmetry caused by foreign investors as modeled by Goldstein & Razin (2006). Besides, contraction in the money supply (represented by M1 and M3) results in a fall in the overall market liquidity by lowering the tightness, immediacy and depth in the market and is in confirmation to the work of Debata & Mahakud (2018). Even, gold prices shrink aggregate liquidity by reducing the overall trading activity and immediacy thereby indicating a flight to safe investment assets.

The overall results indicate that foreign investment inflows, money supply and gold prices are the fundamental macroeconomic determinants of liquidity in the Indian stock market and thus should form a crucial consideration while making trading decisions as well as while initiating the liquidity enhancing policy interventions. Also, due attention must be paid towards the level of market volatility since it was found to be a key factor related to transaction costs. However, these results may vary across size/sectoral based stocks as well as under diverse market conditions and thus can be further extended in future studies. Also, the impact of macroeconomic indicators of developed economies on the liquidity of emerging stock markets can be explored.

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CHAPTER 4

Need of Adequate Financial Literacy for Sustainable Development of India (A Case study of Jansath Tehsil District Muzaffarnagar)

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ABSTRACT

The vast financial sector of India is rapidly growing over the previous couple of years. Present global environmental challenges have arosed a need of digital financial setup in the country. This need is more rigorous for the developing countries like India, where low financial inclusion, low banking facilities and low level of education prevail on a massive scale. Moreover, cost effectiveness, convenience, security of financial transactions through digital mode are another serious issue of concern. These issue in the present rapidly transforming world become more serious because it are affecting negatively the economic development of India. Dealing with all these financial hurdles with a huge population base is a Hercule' task. Most of Indian population lives in villages and weak in education and information. Bulk of rural households is unaware about their financial and banking needs. They even do not know the financial products and investment provisions. Government of India took well-managed initiatives to strengthen the financial system. Opening of Jan dhan account, direct benefit transfer (DBT), transferring of wages, pensions and subsidies directly to the bank accounts are some examples of hardcore initiatives taken by government of India in the recent years. But the desired results cannot be received and the degree of financial inclusion in the country cannot be established as was thought upon during policy formation phase.

These statements do not show that there is a failure in the initiatives of government nor does it establish any theory that is against government ideology. It also does not contradict in any way the working of Government of India.

The main culprit is the less knowledge and weak attitude of people in financial performance. Many of rural people are not adequately acquainted with the basic financial concept and practice. They are in no manner know the use of digital method of banking. It shows a huge gap in financial literacy of rural people in India. Therefore, an urgent need for financial literacy of rural people is massively required. Least, the financial inclusion becomes obsolete and unfruitful. A comprehensive approach for financial literacy to all should be developed by establishing a financial literacy index (FLI) on tehsil level so that minor observations may be procured.

Keeping all these views, the authors through this study entitled "Need of Adequate Financial Literacy for Sustainable Development of India (Case Study of Jansath Tehsil District Muzaffarnagar)" made an initiative to examine the need of financial literacy for effective financial inclusion, and, to study the financial knowledge, financial behaviour and financial attitude among the economically underprivileged section's of the society. The present study is conducted in the densely populated rural Tehsil Jansath of Muzaffarnagar District. The study is based on primary data collection through likert scale based responses aadministered on 200 households.

Type of Study: Research Paper

Keywords: *Financial Literacy, Financial Knowledge, Financial Behavior, Financial Attitude, Financial Inclusion, FLI, Muzaffarnagar, Jansath*

INTRODUCTION

The economic progress of world including India is efectively related to financial literacy. India is inhabited by about 20% (approx.) of the world's population; only 24% of its population i.e, 0.48% of the world population is unaware about financial transactions. This is an indication of the future need of financially literacy to sustain economic progress. Financial literacy is an essential set of skills and knowledge for every individual.(Huston, 2010) Financial literacy enables an individual to acquire the knowledge related to saving and investing for its future. Lack of financial literacy affects the ability to make necessary savings and right investment decisions for life. This way, An individual's management of its earnings depends largely on its level of financial literacy. The better its financial literacy, the better its management of earnings. Financial literacy is teaches investing & savings in the right place, taking appropriate loan decisions at the time of need, taking necessary insurance decisions to secure the future and knowledge of interest etc. (Ozili, 2018). A survey was conducted in 15 districts of Uttar Pradesh for Financial Literacy and Financial Inclusion (NISM, 2014) in which 5,768 persons aged between 18 and 80 years are interviewed. The survey measured financial literacy by incorporating financial knowledge, financial behavior and financial attitude.(OECD, 2017). The survey revealed that people in urban areas are more financially literate than people in rural areas. Financial literacy among women and men is measured at 8% and 12%, respectively. There was no difference as per social class. It was also revealed in the same survey that in the age group of 50 to 65 years, financial literacy was found to be around 15%, which was highest among other age groups. With along the increase in income, both financial literacy and financial inclusion increased. Highest financial literacy and financial inclusion are found among government employees followed by retired individuals and further by private employees. Financial literacy is found to be around 10% among people doing their own work. Therefore, the financial literacy makes a person more mature and more finance friendly. He can opt between the various saving plans so as to expand its savings in a better way.

IMPORTANCE OF FINANCIAL LITERACY FOR FINANCIAL INCLUSION

Financial literacy is a tool that helps to find out the solution to various financial problems. Lack of financial literacy, reduces the ability to assess financial status properly. And, this is one of the main reasons for not using available financial products. FI's have different types of tailor made financial products but lack of financial literacy and distance from financial information, restrain these available products to reach the people. Financial literacy refers to the understanding of information and facts, which is the art of providing various suggestions to avoid losses in a financial matter.(Ergün, 2018) That's why, financial literacy helps a person to take a sound and profitable financial decision according to his understanding in various financial matters. It is good for the economic life and future upliftment of the society. The level of individuals in the society, knowledge of depositing and withdrawing money, information about interest and usage of financial information etc. tell the level of financial literacy of the society.(Kaiser & Menkhoff, 2017). Only a financially literate person can properly avail financial services and products

NEED OF FINANCIAL LITERACY

Financial literacy has been given much importance in recent years due to the increasing complexities of financial markets and the increasingly difficult for the general public to make informed choices due to information asymmetries between markets and the general public. is. Financial literacy is considered important for promoting financial inclusion and ultimately financial stability. Therefore, developed and developing countries are focusing on financial literacy/education programs. In India, the need for financial literacy is very high as the general literacy level is low and a large section of the population is still outside the formal financial framework. The scope of financial literacy in the context of financial inclusion is relatively broad and has acquired greater importance as it can be an important factor in reaching the marginalized groups of financial benefits. Furthermore, the process of

educating irreversibly involves dealing with deeply ingrained inhibiting behavioral and psychological factors. In a country with a diverse social and economic landscape like India, financial literacy is especially important for those who are resource-poor and who are subjected to constant financial pressure from the margins.(Agarwal & Rashid, 2020) The deprived of banking services without being connected to banks are forced to turn to costly alternatives. With extremely limited resources, the challenge of managing financial at home in difficult situations becomes even more difficult when it is difficult to make well-informed financial decisions due to a lack of skills and knowledge. Financial literacy helps them to meet the necessities of life in time and face unforeseen situations without taking unnecessary loans.

RESEARCH METHODOLOGY FOR MEASURING FINANCIAL LITERACY

The research paper, measures the need of financial literacy in urban area of Jansath tehsil of Muzaffarnagar District , UP. The Financial Literacy Index has been applied as prescribed by the OECD.(*2015 OECD/INFE TOOLKIT FOR MEASURING FINANCIAL LITERACY AND FINANCIAL INCLUSION*, n.d.) These basic parameter i.e, Financial Knowledge, Financial Attitude and Financial Behavior Index are initiated to calculated FLI. (OECD 2005, 2005)

a) Time : February 2021
b) Area : Rural Areas of Jansath Tehsil Town Muzaffarnagar District
c) Data Type : Primary Data
d) Tool for Survey: Questionnaire cum response statement based on Likert scale. For this scale five responsive were registered viz. - Strongly Agree, Agree, Neutral, disagree and strongly disagree.
e) Sample: 200.
f) Sampling : Stratified Random Sampling
g) Statistical Methods : Personal

COMPONENTS FINANCIAL LITERACY

Financial literacy is the combination and integration of financial awareness, knowledge, skill, personal attitude and individual behaviour essential to form financial decisions and ultimately achieve financial wellbeing of individual and community . A comprehensive approach of measuring financial literacy are going to be employed by comprising three independent dimensions representing three different aspects of financial literacy namely financial knowledge, financial behavior, and financial attitude for this study as proposed by Organization for Economic co-operation and Development (OECD).

S.NO.	COMPONENTS	MINIMUM SCORE	MAXIMUM SCORE
1	FINANCIAL KNOWLEDGE	0	1 0
2	FINANCIAL BEHEVIOUR	0	09
3	FINANCIAL ATTITUDE	1	15

The overall financial literacy index is measured by taking the arithematic mean of all the three components of financial literacy. Having first defined the minimum and maximum values, the dimension-specific indices are the calculated as follows:

$$\text{DIMENSION INDEX} = \frac{\text{ACTUAL VALUE} - \text{MINIMUM VALUE (Score)}}{\text{MAXIMUM VALUE(Score)} - \text{MINIMUM VALUE(Score)}}$$

After calculating the indices for financial knowledge financial behaviour and financial attitude dimension, aggregated scores of composite index using arithmetic mean also be calculated, This called the average of all three dimension indices. Following are the formula for the aggregated scores of composite index.

$$\text{FINANCIAL LITERACY INDEX} = \frac{\text{FINANCIAL KNOWLEDGE INDEX} + \text{FINANCIAL BEHEVIOUR}}{\text{MAXIMUM VALUE} - \text{MINIMUM VALUE}}$$

Where FLI = Financial Literacy Index FKI = Financial Knowledge Index FBI = Financial Bhaviour Index FAI = Financial Attitude Index

The Financial Literacy Index score categorised according the following tables :

Catagory	Financial Literacy Index Score
Poor Financial Literacy	0 - 0.25
Satisfactory Financial Literacy	0.25 - 0.50
Good Financial Literacy	0.51 - 0.75
Excellent Financial Literacy	0.76 - 1.00

On the basis of financial literacy index score if any survey respondent score 0 then he would be called financial illiterate people. If any server respondent score more than zero then it would be called poor financial literate people. However, we will further segregate financial literate segment into four categories – poor financial literacy, satisfactory financial literacy, good financial literacy and excellent financial literacy. The respondent who scores less than 0.25 points would be considered poor financial literate. The respondent who scores quite 0.25 points but scores less or adequate to 0.50 points would be considered satisfactory financial literate. The respondent who scores quite 0.5 points but scores less or adequate to 0.75 points would be considered good financial literate. The respondent who scores quite 0.75 points would be considered excellent financial literate.

S.no.	Domain / Indicator	Min. Score	Max. Score	Qualify Score
1	Financial Literacy	1	24	13
	A. Financial Knowledge	0	10	5
	B. Financial Beheviour	0	9	5
	C. Financial Attitude	1	5	3

FINANCIAL KNOWLEDGE AND ITS INDEX

Financial knowledge refers to people applying their mathematical knowledge in various financial matters, taking correct and consistent decisions in times of financial crises, reacting to financial news which make their poor financial condition better. Financial Knowledge Index calculated the status of such knowledge. A group of 10 questions is incorparate in the survey questionnaire to find out the application of common sense in financial decisions, by different rural households, willingness in financial matters and acceptance of financial news. Keeping the number of these questions 10, the FKI score IS kept from 0 to 10. One mark is awarded for each correct answer. In case of no answer 0 mark is given Further, it is assumed that the person does not have financial knowledge.

Table 1 : The Financial Knowlrdge Index

Score	Numbers of Respondents	Percent
0	3	1.5
1	4	2
2	16	8
3	25	12.5
4	56	28
5	43	21.5
6	32	16
7	5	2.5
8	14	7
9	2	1
10	0	0
TOTAL	**200**	**100**

Source : Primary Data

Table 1 shows the financial knowledge score among the respondents from semi urban area of Jansath tehsil. 28% people got 5 out of 10 marks in the survey. After this, 4 marks were obtained by 21.5% of the people and 6 marks by 16% of the people. 54.5% of the people in the survey have scored 5 or more, which indicates a satisfactory level of financial knowledge. The average score of financial knowledge of urban area of Jansath tehsil was found to be 4.6 marks. The Financial Knowledge Index comes out to be 0.46 which indicates the satisfactory level of financial knowledge.

FINANCIAL BEHAVIOUR AND ITS INDEX

Financial behavior is a series of actions taken by a person various financial matters for this financial progress. Measurement of financial behavior is very important to ascertain financial literacy.Generally, people take financial decisions in daily financial matters that increase or decrease the level of their visible financial life. Therefore, if financial literacy is to be measured, it is necessary to measure financial behavior. A financially literate person spends his income in a planned manner and converts income into more savings. This strengthens his financial security and upgrade his financial life. In today's financial world,. A financially literate person can make good use of various credits available in market.

A total of 9 questions are included in this questionnaire, related to financial behaviour and to ascertain the ability to make effective financial decisions. The Financial Behavior Index was calculated from a minimum score of 0 to a maximum of 9. Zero indicates no positive financial behavior while 1 point indicates positive person behavior.

Table 2 : The Financial Behaviour Index

Score	Numbers Of Respondents	Percent
0	4	2
1	11	5.5
2	10	5
3	14	7
4	18	9
5	26	13
6	56	28
7	28	14
8	18	9
9	15	7.5
TOTAL	200	100

Source : Primary Data

Table 2 shows the financial Behaviour score among the respondents from semi urban area of Jansath tehsil. 28% people got 6 out of 10 marks in the survey. After this 7 marks were obtained by 14% of the people and 5 marks by 13% of the people. 71.5% of the people in the survey have scored 5 or more, In Financial Behavior, 71.5% of the people scored more than 500 and 28.5% of the people scored less than 5. From this it can be concluded that there is a need for some improvement in the financial behavior of the respondent.

FINANCIAL ATTITUDE AND ITS INDEX

Financial attitude can be determined by measuring the tendency of people to prioritize and spend according to their plans that are necessary to make a living. Opinions are sought on thies questions through the likert scale from different respondents. Further average score is drawn that range from 1 to 5. Likert scale is responsive level. A minimum value of 1 and a maximum of 15 is placed to measure the Financial Attitude Index. The financial attitude towards various financial products and services is low value index comes to zero.

Table 3 : The Financial Attitude Index

Score	Numbers of Respondents	Percetage
1	14	7
2	118	59

3	48	24
4	12	6
5	8	4
TOTAL	200	100

Source : Primary Data

Table 3 shows the financial Attitude score among the respondents from Jansath tehsil semo urban area. 59% people got 2 out of 5 marks in the survey. After this 3 marks were obtained by 24% of the people and 1 marks by 7% of the people. As per Table No. 3, only 34% of the respondents have secured 3 or more marks. About 66% of the people have scored less than this which calls attention to the improvement in financial attitude. 59% of the people got only 2 marks which indicates very weak financial attitude. The financial attitude index of urban area of Tehsil Jansath is around 0.35 points which indicates a satisfactory financial attitude level.

FINANCIAL LITERACY AND ITS INDEX

Measuring financial literacy is a complex task because it involves the adequate mix of factors i.e, financial knowledge, financial behavior and financial attitude. It is two way process- Firstly, the measuring of knowledge, behavior index and financial attitude index through primary data. Secondly, the calculation of financial Literacy Index. The standard for these three indexes are given by OECD. The purpose of planning for the future and finance management was among the questions posed to the respondents.

Table 4 : The Financial Attitude Index

S.no	Area	Fki	Fbi	Fai	Fli
1	JANSATH TEHSIL TOWN	0.4535	0.6033	0.3525	0.4698

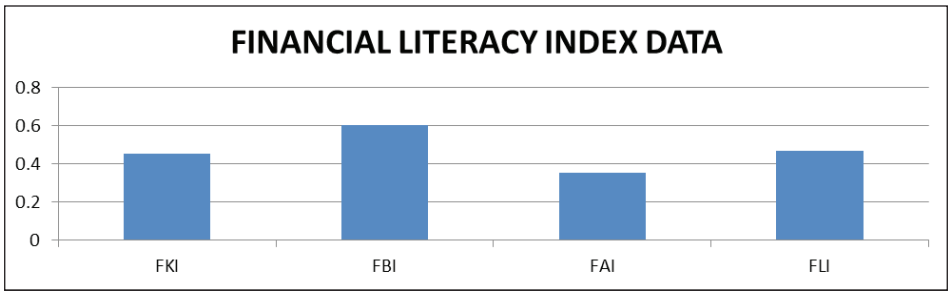

Table 4, Shows that For total score, it has ranged from 1 to 24 and the index has been from 0 to 1 range. The arithmetic mean was used to determine the financial literacy index. On counting, it was found that the financial literacy in the semi-urban area of Jansath Tehsil is of satisfactory level. The Financial Literacy Index is 0.47 which falls in the satisfactory level 0.25 to 0.50. The Financial Literacy Index comes at the satisfactory level of the urban area of Tehsil Jansath, but still, because it is a rural area, efforts will have to be made to make people financially literate. There are still many areas and people where it is very important to work on financial literacy. For this, efforts will have to be made by all the responsible people, in which the plan makers, financial institutions, non-government institutions and the public will all have to contribute. A person will be able to differentiate and choose between financial services and products correctly only if he is financially literate. Promoting financial literacy in the country is essential for economic progress and financial inclusion in the world. In the absence of financial information, wrong financial choices are harmful to both the individual and the society.

CONCLUSION AND SUGGESTIONS

Financial literacy, people of rural areas to deprived of this facility. Many efforts have been made by the government in the field which will be successful only when every section of the society contributes in it. Today, almost every household in our country has a mobile phone with internet facility. It can be adequately used to deliver digital financial services door-to-door. Digital payments and services have unexpectedly increased after demonetisation. People have started buying and selling their home necessities through internet. Digital financial services have also to be made more accessible secure and simple so that it can be used by all. There is a large number of illiterate people in our country, so these financial digital services have to be simplified. Voice based technology can be used to simplify the

digitalization. The NGOs and financial institutions of the country should come forward and make efforts to increase financial literacy in rural areas. Digital service can be further simplified through voice and color technology. Having financial literacy can fulfill the dream of financial inclusion. Financial inclusion will remain incomplete until the last person can access and choose and use financial services and products. Financial literacy should be the first step towards financial inclusion. Some more suggestions are as follows :

(i) Government and all concerned should promote non-discriminatory, fair and equitable financial education.

(ii) Financial education should start from the school level itself, so that people can become aware about it at the earliest.

(iii) Financial education should be part of the good governance of financial institutions, whose responsibility should be promoted.

(iv) Financial education should be separated from professional advice, a code of conduct should be developed for the employees of financial institutions.

(v) Encourage financial institutions to check that customers have a good understanding of information relating to long-term commitments or financial services with significant financial consequences; Short and unclear papers should be banned.

(vi) Financial education programs should be important in the context of life planning, such as basic savings, loans, insurance and pension etc.

(vii) Such programs should be undertaken which build financial capacity and are targeted towards specific groups as well as, if possible, individuals.

(viii) The person retiring in future should be aware that they need to assess the financial adequacy of their existing public and private pension schemes.

(ix) National campaigns, specialized websites, free information service sand warning systems on financial consumer risk matters (such as counterfeiting) should be promoted.

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CHAPTER 5

Appraising Profitability Determinants of Indian Banking Industry

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ABSTRACT

The current study examines the determinants of profitability of Indian commercial banks. The analysis is conducted over a period of 10 years in which the Indian banking sector has gone under different changes such as demonetization and issues related to banking sector sustainability and banking sector frauds. The analysis is based on balanced panel data over a period ranging from 2010 to 2019 for 69 commercial Indian banks. Profitability of Indian banks is measured by two proxies, namely, return on assets (ROA) and return on equity (ROE), whereas bank size, assets quality, liquidity, and deposits, are used as bank-specific factors. Further, a set of macroeconomic determinants such as gross domestic product, inflation rate, interest rate and exchange rate are used as independent variables. The results revealed that bank size, is the most important bank-specific determinants that affect the profitability of Indian commercial banks as measured by ROA. Furthermore, among the bank-specific determinants, the results revealed that bank size, assets quality ratio, and liquidity ratio are found to have a significant positive impact on ROE. Regarding the macroeconomic determinants, the results revealed that the inflation rate, exchange rate, the interest rate, and demonization are found to have a significant impact on ROA. However, in the case of ROE, the results show that all macroeconomic determinants have a significant impact on the bank's profitability as measured by ROE.

Keywords: *Profitability, ROA, ROE, Fixed and Random Effect*

INTRODUCTION

In the early 1990s, India had taken several liberalized policy initiatives, including the financial sector reforms. The financial sector reforms were aimed at restructuring financial facilities, especially to enhance the efficiency of the banking sector. The various policy initiatives taken during financial liberalization resulted in several changes in the banking industry, such as, improved asset quality, fall in non-performing assets (NPAs), changes in interest rate, and operation of private players and entry of foreign entities. Many studies (Sanyal & Shankar, 2011) have unanimously supported growth in banking industry that is reflected in the aggregate growth of banking services regarding expansion of bank branches, deposit growth and increase in loans and advances that ultimately lead to higher efficiency and profitability of the banking industry, which can be observed even at the individual level.

The Indian financial system has been dominated by the major stream of commercial banking. Its contribution towards providing healthy financial facilities plays a predominant role. In emphasizing the key role of banking in the process of economic growth, the changes particularly in different regulatory environments and the diversified nature of ownership patterns are noteworthy. To achieve substantial progress in the financial system of India, the banking sector must be efficient and should not continue to operate at low profitability. Thus, for boosting banking performance, a lot of initiatives were taken from time to time, such as, deregulation, equity share and branch licenses that were mostly based on the Narasimham Committee Report of 1991. The gradual relaxation of reserve ratios and several quantitative restrictions were implemented for improving bank profitability (Ahluwalia, 2002). The several changes that have taken place in the Indian banking system in terms of its operational autonomy and ownership, such as, collaborations, mergers and acquisitions, new banking services and advances in information technology available to banks, are likely to enhance aggregate banking performance and there by improve its profitability.

Commercial banks, especially in India, by forming a bridge between savers and investors help to fulfill the credit needs for productive activities, thus boosting economic growth (Rajan& Zingales, 1998). Indian financial markets have been constantly deregulated to help industrialists by breaking the administered and political restrictions and aiding private investors and entrepreneurs through tax, trade, and investment policies towards enhancing productivity and efficiency of banking operations (Kumar & Gulati, 2009).

To assess the major implications of these economic reforms on various banking groups operating in India, the present study examines the determinants of profitability of Indian banking sector using the data from 2010 to 2019.

REVIEW OF LITERATURE

Extensive research in many countries and regions around the globe has been conducted for examining the factors that influence a bank's profitability. Prior studies of a bank's profitability can be classified into three categories. First, studies related to a bank's profitability determinants that are empirically examined in different countries around the world (e.g., Perera and Wickramanayake (2016) who studied 122 countries, Dietrich and Wanzenried (2014) who studied118 countries and Masood, Ashraf, and Ashraf (2012) who studied 14 countries). Second, studies that compare a bank's profitability determinants amongdifferent banks in the same region (e.g., Chowdhury and Rasid (2017) who studied GCC countries, Petria, Capraru, and Ihnatov (2015) who studied EU 27 countries, Roman and Camelia (2015) and Dietrich and Wanzenried (2011) who studied CEE countries, Menicucci and Paolucci (2016) who studied Europe, Jara-Bertin, Moya, and Perales (2014) who studied,Lemma and Negash (2013) who studied Nine African countries). Finally, studies that have investigated a bank's profitability determinants and focused only on a single country. For example, Zouari-ghorbel (2014) and Bougatef (2017) who studied Tunisia, Marijana, Poposki, and Pepur (2012) who studied Macedonia, Tan and Floros (2015) and Tan (2016) who studied China, Bouzgarrou, Jouida, and Louhichi (2017) who studied France, Bose, Saha, Zaman, and Islam (2017) and Robin, Salim, and Bloch (2018) who studied Bangladesh,Athanasoglou, Brissimis, and Delis (2008) who studied Greece, Ramlan and Adnan (2016) Malaysia, Mendonça and Silvzz (2018) Brazil, Kapaya and Raphael (2016) who studied Tanzania, Growe, DeBruine, Lee, and Maldonad (2014) who studied USA, AL-Omar and AL-Mutairi (2008) who studied Kuwait and Singh and Sharma (2016) who studied India.

Majority of the preceding studies have measured profitability by ROA and ROE. For example, Chowdhury and Rasid (2017); Naeem, Baloch, and Khan (2017); Zamparaet al. (2017); Tiberiu (2015); Singh and Sharma (2016). However, bank's profitability was investigated by prior research as a function of both bank-specific (internal) and macroeconomic (external) determinants. Bank specific determinants are related to the direct result of managerial decisions of a bank (Louzis et al., 2012; Rjoub et al., 2017). Several studies such as Petria et al. (2015); Salike and Ao (2017); Singh and Sharma (2016); Rani and Zergaw (2017); Rjoub et al. (2017); Zampara et al. (2017); Bougatef (2017) assessed bank- specific determinants including variables such as, asset quality ratio, liquidity ratio, deposits ratio and bank size.

On the other hand, macroeconomic factors are determinants that are related to economic, environment that are out of a bank's control (Ongore and Kusa, 2013). Macroeconomic determinants comprise variables such as GDP, inflation rate, interest rate and exchange rate (Saona, 2016; Chowdhury and Rasid, 2017; Menicucci and Paolucci, 2016).

DATA

The present study is based on secondary data. The study considers two alternate indicators,namely, ROA and ROE, as proxies for profitability. Reserve Bank of India (RBI) database provides all the data related to the study. It has been considered as the most authenticate database for banking information in India. This forms a

panel of balanced data set of 69 bank year observation. A panel of 69 commercial banks over a period of 10 years from 2010 to 2019 is employed.

METHODOLOGY

The use of panel data model for examining the key determinants of profitability is a novel attempt made in this study (see Baltagi, 1995; Wooldridge, 1999). The present study examines the determinants of profitability of Indian banks using the panel data model. The justification for using panel data model is to try to address the bank-specific heterogeneity and obtain more robust results by increasing the number of observations. Algebraically, the panel model can be written as:

$$ROA_{it} = \alpha_i + \beta_1 LogAS_{it+} \beta_2 AQ_{it} + \beta_3 LIQ_{it} + \beta_4 DEP_{it} + \beta_5 GDP_{it} + \beta_6 INF_{it} + \beta_7 INTR_{it} + \beta_8 EXCH_{it} + s_{it} \quad \text{eq. (1)}$$

$$ROE_{it} = \alpha_i + \beta_1 LogAS_{it+} \beta_2 AQ_{it} + \beta_3 LIQ_{it} + \beta_4 DEP_{it} + \beta_5 GDP_{it} + \beta_6 INF_{it} + \beta_7 INTR_{it} + \beta_8 EXCH_{it} + s_{it} \quad \text{eq. (2)}$$

Where *ROA* is the return on assets, *ROE* is the return on equities, *LNAS* is the log of assets size, *AQ* is asset quality, LIQ is the liquidity, *DEP* is the deposits, *GDP* is the gross domestic product, *INF* is the inflation, *INTR* is the interest rate and *EXCH* is exchange rate. Thesymbol β is the slope coefficient associated with the explanatory variables, μ_i is the unobserved bank-specific effect and ε_{it} is the error term that is independently and identically distributed among the banks and years. There is a considerable controversy surrounding the treatment of the bank-specific effect, μ_i, and hence the choosing of the appropriate techniques between fixed effects (FE) and random effects (RE) models. However, in the present study the Durbin Watson test and Hausman specification is used to choose between FE and RE.

ANALYSIS AND RESULTS

The results demonstrate the trend of profitability measurements; ROA, ROE over the period 2010–2019. The results reveal that ROA, ROE, each range between minimum values of -4.2 and -44. Maximum values of 10.23 and 31.37 and with a mean of 1.17, 10.16 and respectively. This signifies negative skew distribution during 2010-2019. The results in Table 1 also indicate that there is a variation between the mean values and standard deviation of both bank-specific and macroeconomic variables for the same period. Bank specific determinants have an average value of 12.65 for LNAS, DEP 71.55%, with standard deviation of 1.69%, 18.52%.

Table 1

Variable	Min	Max	Mean	Median	Std. Dev
ROA	-4.21	10.23	1.17	1.06	1.27
ROE	-44.37	31.37	10.16	10.97	9.78
LNAS	5.89	17.11	12.65	13.25	2.24
AQ	-0.34	4.42	3.92	4.08	0.47
LIQ	2.65	4.56	3.65	3.59	0.28
DEP	9.98	92.25	71.55	81.00	18.52
GDP	3.89	10.26	7.33	7.11	1.81
INF	4.91	11.99	8.32	8.86	2.40
INTR	41.49	67.18	52.94	48.30	8.73
EXCH	4.75	8.00	7.10	7.58	1.06

On an average, AQ, LIQ have values of 3.92%, 3.65% with standard deviation of 0.47 %, 0.28% respectively. From macroeconomic context, GDP ranges between a minimum value of 3.89 and a maximum value of 10.26 with a mean value of 7.33. Similarly, inflation fluctuates between a minimum value of 4.91 and a maximum value of 11. 99 with a mean value of 8.32. More specifically interest rate has a mean value of 7.10 with a standard deviation of 1.06 and (Min. = 4.75, Max. = 8.00). Exchange rate also has an average value of 52.94 (Min. = 41.49, Max. = 67.18).

CORRELATION MATRIX

Table 2 demonstrates Pearson correlation matrix for profitability measurements, bank- specific and macroeconomic variables. Concerning bank-specific variables, the results indicate that AQ and LNAS have a negative association with ROA. In same manner DEP and LIQ show a negative relation with ROA and ROE. This may be translated that DEP and LIQ contribute negatively to the profitability of the Indian banks. About macroeconomic variables, the results indicate that all macroeconomic determinants except for INTR have a negative correlation with all profitability measures; ROA and ROE. EXCH, GDP, and INF show a negative association with ROA and ROE. However, INTR has a positive association with the three measures of profitability: ROA and ROE. The results also show that the highest value of correlation exhibited in one variable is 0.67 which was found in case of LNAS which indicates the absence of multicollinearity issues among variables.

Table 2

	ROA	*ROE*	*LNAS*	*AQ*	*LIQ*	*DEP*	*GDP*	*INF*	*INTR*	*EXCH*
ROA	1									
ROE	0.54	1								
LNAS	-0.39	0.09	1							
AQ	-0.32	-0.11	0.49	1						
LIQ	-0.14	-0.11	0.01	-0.25	1					
DEP	-0.11	-0.04	0.00	0.06	0.05	1				
GDP	-0.08	-0.14	0.05	-0.04	0.01	0.03	1			
INF	-0.17	-0.33	0.15	0.09	0.01	0.09	-0.19	1		
INTR	0.01	0.02	-0.04	-0.04	0.07	-0.04	-0.04	0.14	1	
EXCH	-0.1	-0.19	0.1	0.03	-0.08	0.13	0.36	0.43	0.14	1

RESULTS OF MODEL

As illustrated in the random effect model in Table 3 for ROA, among bank-specific factors, and LNAS are found to have statistically significant impact on ROA. LNAS is significantly high at the level of 5% (P value = 0.02 < 0.05). They are all found significant at the level of 1% significance level. The coefficient of LNAS is found to be positive revealing that they have a statistically significant positive impact on ROA. This is consistent with (Menicucci and Paolucci, 2016; Chowdhury and Rasid, 2017) who reported that banks with greater assets size led to higher profitability but is inconsistent with Athanasoglou et al. (2008) who revealed that bank size does not significantly influence a bank's profitability.

Concerning the impact of bank-specific determinants on ROE, the results reveal that AQ ratio, and LNAS have statistically significant positive impact on ROE. This impact is consistent in all the models applied fixed and random across the profitability measurements. Further, study shows liquidity has statistically no significant impact on ROA and ROE. This contradicts (Mauricio Jara-Bertin et al., 2014; Petria et al., 2015; Bougatef, 2017) who foundthat a bank's profitability is positively related to liquidity.

Regarding the effect of macroeconomic determinants on the profitability of Indian banks, the results show that all macroeconomic determinates except GDP have statistically significant effect on ROA. EXCH rate and INTR rate has a significant and negative effect onROA revealing an inverse contribution to the profitability of Indian banks. Furthermore, EXCH rate and GDP show statistically significant effect on ROE. EXCH rate shows negative

effect while GDP shows a positive impact on ROE. Overall, EXCH rate shows statistically significant negative impact on the three profitability measures; ROA and ROE across the three models conducted.

Table 3

Dependent Variable	ROA				ROE			
	Fixed Effect		*Random Effect*		*Fixed Effect*		*Random Effect*	
Variable	*Coefficient*	*Probability*	*Coefficient*	*Probability*	*Coefficient*	*Probability*	*Coefficient*	*Probability*
C	-0.14	0.00***	-0.11	0.02**	-1.82	0.00***	-2.07	0.00***
LNAS	0.50	0.00***	0.45	0.02**	6.68	0.00***	8.27	0.01***
AQ	0.01	0.14	0.00	0.92	0.09	0.03**	0.19	0.04**
LIQ	-0.01	0.21	-0.01	0.31	0.05	0.13	0.06	0.34
DEP	0.00	0.68	0.00	0.72	0.01	0.56	0.01	0.90
GDP	0.04	0.01***	-0.03	0.27	0.59	0.00***	0.06	0.00***
INF	0.04	0.000***	0.05	0.00***	0.53	0.00***	0.57	0.83
INTR	-0.04	0.00***	-0.08	0.00***	-0.34	0.00***	-0.59	0.52
EXCH	-0.01	0.01***	-0.02	0.07*	-0.28	0.00***	-0.26	0.03**
Adj. R-squared	0.66		0.53		0.46		0.22	
F-statistic	15.69		54.67		7.39		14.83	
Prob (F-statistic)	0.00		0.00		0.00		0.00	
Durbin-Watson	2.33		2.39		2.21		1.91	
Hausman Test			0.38				0.93	

Note: *significance at ***1, **5, *10 percent levels.*

CONCLUSION

This paper investigated the impact of bank related and macroeconomic determinants on banks' profitability. Banks' profitability as measured by ROA and ROE. Regarding bank- specific determinants, the results revealed that Indian commercial banks' profitability as measured by ROA has a positive relationship with assets size. Results in macroeconomic perspective also found that while inflation rate has a positive relationship, interest rate, exchange rate, and GDP have a negative relationship with Indian commercial banks' profitability as measured by ROA.

Concerning the effect of bank-specific determinants on Indian commercial banks' profitability, as measured by ROE, the results found that assets quality ratio, liquidity ratio, and all macroeconomic factors have a significant effect on ROE. The results also indicate that there is a negative association between ROE and exchange rate, inflation rate, and interest rate. However, a positive relationship was exhibited between ROE and assets quality ratio, liquidity ratio, and GDP.

The outcomes of the present study have significant contributions to the existing stock of literature by comprehensively clarifying and critically analyzing the current state of Indian commercial banks' profitability. More specifically, this study provides an evidence of the factors that may affect Indian banks' profitability during a period under study.

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CHAPTER 6

Macroeconomic Indicators and Stock Market: With the Study of pre-covid and Covid era

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ABSTRACT

Covid-19 pandemic had not only influenced the lives of the people but also the stock market, investors and the economy as a whole. Certain economic variables/indicators, such as, Prices of Gold, Price of Crude Oil, Exchange Rate, and Foreign Investments (FI), play a decisive role in determining the movement of stock market index globally. Other than market sentiments, which is a qualitative phenomenon, these quantitative variables have always remained a matter of study amongst the scholars. In this paper, I have tried to analyse the relation between the aforesaid five macroeconomic indicators and the Indian stock market index (Sensex). The data has been collected for the last three financial years for all the variables. Taking Sensex as the dependent variable and macroeconomic indicators as independent variable, the study has been performed using Descriptive and Inferential Statistics using tools like Correlation model, Regression model and Coefficient of Determination. As per the number of IVs, five hypotheses have been tested and a meaningful conclusion has been drawn. The results are useful to understand the relation between two broad indictors of the economy- macroeconomic variables and the stock market index.

Keywords: *Macroeconomic indicators; Sensex; DII; FII; Exchange Rate; Correlation; Coefficient of Determination.*

INTRODUCTION

Every investor wants to know that how he can predict the movement in the stock exchanges. There are many researchers and theories in this regard which try to exemplify and predict the upcoming movements and trends in the stock market index. Past few years have remained very volatile and challenging for the Indian stock market and in the same period the entire economy has seen and faced the major dent due to the Covid-19 virus and the implemented nationwide lockdown. It is evident in the general masses that the economy has faced a setback in this period. And there are many researchers that has come out to assess the impact of this biological warfare on the economy as a whole. Apart from this, since very beginning it has been a matter of study among the researchers in the field of finance that how the broad macroeconomic variables play their role in deciding the movement of the Stock Exchange. The fundamental concept of the movement of stock indices lies in this demand and supply factor. When there are more buying the stock index rises and when there are more selling the share market falls down. Now it also depends upon the volume of shares bought and sold. This buying and selling from the investors and institutional players depends on their short-term sentiment and

the news coming out of the economic market. Since sentiment is a psychological phenomenon, it becomes hard to investigate. And therefore the researchers in this regard focuses on assessing the relationship between macroeconomic indicators and the stock market index.

SIGNIFICANCE OF THIS STUDY

Apart from the researches done to measure the effect of broad economic indicators on the stock market, this study is important to understand and observe the impact in the tough time. the objective of this study is not only to assess the impact in the short term but also to assess the impact in pre COVID and post code. The study is also important to understand and judge the general sentiment of the people regarding the movement of the Stock Exchange index.

LIMITATIONS OF THIS STUDY

The study has been conducted based on 36 observations which is quite small. The 36 months data has been collected on monthly basis and all the statistical analysis has been done thereupon. For more precise study one can go with daily data also.

The time period taken for the study is only three years because the researcher wants to assess the impact in short term. Also the Covid is not very old.

Another important limitation of this study is that it is based on five macroeconomic indicators. Further study can be done which can focus on including more such variables.

OBJECTIVES OF THE STUDY

The primary objective of this study is to investigate the relation between Bombay Stock Exchange proxy index SENSEX and Five Macroeconomic Variables which are Gold Prices, Crude Oil Prices, Exchange Rate, Foreign Institutional Investment (FII), and Domestic Institutional Investment (DII).

The study aims to examine the existence of correlation between aforesaid five microeconomic variables and Indian stock market index in the pre COVID and COVID era.

The overall objective of this study is to assess the impact of some major macroeconomic variables on Indian stock market index.

LITERATURE REVIEW

Bahmani and Sohrabian (1992) studied the causal relationship between U.S. stock market (S&P 500 index) and effective exchange rate of dollar in the short period of time. Their theory established bidirectional causality between the two for the time period taken. However, cointegration analysis failed to identify any long run relationship between the two variables.

Bhattacharya and Mukherjee (2002) investigated the nature of the causal relationship between BSE Sensitive Index and the five macroeconomic aggregates in India. By applying the techniques of unit–root tests, co-integration and the long–run Granger non–causality test their major findings suggested that there was no causal linkage between stock prices and money supply, national income and interest rate while IIP lead the stock price, and there was two- way causation between stock price and inflation rate.

Adam and Tweneboah (2008) This study examines the effects of macroeconomic variables on the movement stock prices in Ghana. They analyze both long-run and short-run dynamic relationships between the stock market index and macroeconomic variables. Further tests indicate that, in the short-run, inflation and exchange rates matter for share price movements in Ghana, however, interest rate and inflation prove very significant in the long-run.

Ahmed (2008) This study investigates the nature of the causal relationships between stock prices and the key macro-economic variables representing real and financial sector of the Indian economy for the period March, 1995 to March, 2007 using quarterly data. The study indicates that Indian stock market seems to be driven not only by actual performance but also by expected potential performances. The study reveals that the movement of stock prices is not only the outcome of behaviour of key macro-economic variables but it is also one of the causes of movement in other macro dimension in the economy.

Dasgupta (2012) has attempted to explore the long-run and short-run relationships between BSE Sensex and four key macroeconomic variables of Indian economy by using descriptive statistics, ADF tests, Johansen and Juselius's cointegration test and Granger causality test. The Granger causality test has found no short-run unilateral or bilateral causal relationships between BSE Sensex with the macroeconomic variables.

STATEMENT OF HYPOTHESES

A. There is no significant relation between the Macro Economic Variables and BSE index.

In order to check this hypothesis, the following five sub-hypotheses has been tested-

(i) There is no significant relation between GOLD PRICE and SENSEX

(ii) There is no significant relation between CRUDE OIL PRICES and SENSEX

(iii) There is no significant relation between EXCHANGE RATE and SENSEX

(iv) There is no significant relation between FOREIGN INSTITUTIONAL INVESTMENT and SENSEX

(v) There is no significant relation between DOMESTIC INSTITUTIONAL INVESTMENT and SENSEX

B. There is no significant relation between the Macro Economic Variables and BSE index in Pre-covid period.

C. There is no significant relation between all the aforesaid Macro Economic Variables and BSE index in Covid period.

DESCRIPTION OF VARIABLES

Dependent Variable

1. **Sensex**. There are currently two major stock index in our country- the first is the Sensex of the Bombay Stock Exchange (BSE) and the second is Nifty50 from National Stock Exchange (NSE). Sensex stands for **Sen**sitivity Ind**ex** and is the major stock index of Bombay Stock Exchange. It is the flagship index of India and considered as the barometer of Indian Economy. It represents the weighted average of free-float market capitalized stock of top 30 companies of all the major sectors of our country. Stock Market indices are sometimes considered as the face of economic movement and activities. In our study SENSEX has been take as the dependent variable.

Independent or Predictor Variable

1. **Gold Prices.** In India the prices of gold can have both direct and indirect influence on the stock market movement. Gold acts as a substitute or alternative investment platform for the Indian investors. It has majorly been followed that when the gold price rises, the investors in India tend to invest lesser in stock market and they become more inclined towards gold which causes sometimes the stock market prices to fall. In the Covid period, it was evident that when the stock market crashed in the month of March-April 2020, the investors started keeping their money into the gold which causes the gold price to rise. Therefore, this is very important macroeconomic variables.

2. **Crude Oil Prices.** The prices of crude oil play a very major role in deciding the level of inflation in our country. Since India is a major importer of crude oil and therefore our production, manufacturing, distribution, and a large part of economic activities are dependent over the crude oil prices. Therefore a higher crude oil price can lead to a negative impact on the economy or on the indicator of economy which is the stock market.

3. **Exchange Rate (ER).** The third macroeconomic variable that is used in this study is the exchange rate between Indian Rupee and U.S. dollar. Dollar has remained to be the most dominating foreign currency in the foreign exchange market and in the contrast of this, if the Indian currency depreciates it can lead to a fear of inflation because of our imports. This can further show its impact over the stock prices and the stock market index. Exchange rate also influences the value of the portfolio of institutional investors.

4. **FII.** Foreign Institutional Investment (FII) includes an investor or investment agency from a country outside India investing in our stock market. It consists of hedge funds, insurance companies, and mutual funds mainly. In the Indian financial market, the foreign institutional investors invest a huge fund both in the form of equity and debt. This makes them impactful in the rise and fall of our stock market indices. It has mostly been seen that there is a direct relation between the inflow of FII and rising Sensex and vice versa. They contribute to the volatility in the stock market movement.

5. **DII.** Domestic Institutional Investors. DII includes the same institutions which are in FII with the only difference being established and registered in India. The Indian mutual funds, pension funds, hedge funds, and insurance companies also invest in Indian stock market and in the same way they also play the role of influencer.

METHODOLOGY OF RESEARCH

Period of study

The period of study is medium term and specifically for past three years. The study ranges from April 2018 up to March 2021. Among these 36 months data (36 Observations), the data up to December 2019 can be considered as pre-Covid data and from January 2020 up to March 2021 can be considered as the data of Covid era.

TOOLS USED

In order to study the data descriptive statistics has been used which mainly contains *Mean, Standard Deviation, Variance, Skewness, and Minima-Maxima*. In order to assess the direction and strength of relationship *Simple Correlation and Multiple Correlation* has been used along with *Scatter Plot* with *Line of Fit* for graphical visualization. In order to better understand the relationship between the variables, *Simple Regression Model* along with *Multiple Regression Model* has been used. The *Hierarchical Multiple Regression* table has been drawn out using SPSS which step-by-step collectively studies the significant strength of relationship. *Coefficient of determination* or *R-square* has also been used to understand the variation in Dependent variable explained by Independent variable(s). A simple line graph has also been included to understand the movement of all the six variables in the concerned period of study. All the analysis has been performed using software SPSS and Microsoft Excel

DATA COLLECTION

The secondary data has been collected from the utmost reliable and authentic sources. The Sensex data has been collected from the website of Bombay Stock Exchange. The data of the rest of the variables has been collected majorly from *investing.com* and *money control*. All the data has been collected for the period of the study and compiled in MS Excel.

THEORETICAL FRAMEWORK

In order to accomplish the predetermined set of objectives the collected data has been analyzed through the stated tools. The *Descriptive Statistics* shows the nature and characteristics of the variables used in this study. After that *Inferential Statistics* is used to draw inferences from the data. *Correlation Matrix Analysis* is included this finds the direction and strength of association between dependent and independent variables. *Linear Regression Model* which consists of both *Simple Regression* and *Multiple Regulation* has been used which can create a mathematical model that can be used to predict the values of dependent variable from the predictor or independent variables. In order to test the hypothesis the value of *significant F* is used with 95% confidence level. The broad null hypothesis of the study is that there is no relationship between stock market index and the selected macroeconomic variables. Now this hypothesis has been tested using correlation matrix and the regression analysis with 5% level of significance **($\alpha = 0.05$)**. For this the software SPSS has been used. For specifically testing that whether the change or movement in Independent variables (selected macroeconomic indicators) impacts the change in Dependent variable (Sensex), all the variables has been computed as the change from the previous observation. Thus, the Delta sign **(Δ)** has been assigned to all the variables.

Description of some important tools

Correlation matrix

Correlation is a well-known statistical tool which is used to measure the strength of relationship between two variables. Multiple correlation can be used if we have more than two variables. The value of correlation coefficient ranges from -1 to +1 representing the relationship between perfectly negative to perfectly positive respectively. A value of 0 means no existence of relationship. In our study only Karl Pearson coefficient of correlation ***r*** has been used. If X is our independent variable and Y is our dependent variable then the correlation coefficient can be calculated using the following formula-

$$r = \frac{Cavariance(X,Y)}{S.D_X * S.D_Y}$$

REGRESSION MODEL

Regression analysis is an inferential statistical tool which is used to create a mathematical model in the form of an equation where the value of dependent variable Y can be predicted using the known value of independent variable X. Therefore in regression analysis the independent variables are also called predictor variables. The equation remains in the form of $\boldsymbol{Y = a + \beta X}$, where Y is the value of dependent variables, a is the constant or intercept, β is the slope of the regression line which represents the direction and strength of relationship, X is the value of

independent variable. We can also include an error term in this equation. All these values have been reported in this study with the analysis using the SPSS software. For one independent and one dependent variables simple regression is performed and for more than one independent variable multiple regression is performed.

COEFFICIENT OF DETERMINATION (R SQUARED)

R square is also known as the coefficient of determination and is considered as the model fit of the regression equation. It is simply the square of Correlation coefficient ***r***. R square tells the percentage of variation in the dependent variable explained by the independent variable. In other words, it shows how well the independent variables are predicting the dependent variable. In the SPSS output, the value of R square comes in decimal which can be multiplied by 100 to get the percentage.

EMPIRICAL RESULTS AND INTERPRETATION

Table-1 Descriptive Statistics Table

Statistics							
		Δ Sensex	**Δ Gold**	**Δ Crude**	**Δ ER**	**Δ FII**	**Δ DII**
N	Valid	36	36	36	36	36	36
	Missing	0	0	0	0	0	0
Mean		.013433	.010903	.020562	.003402	3.350330	-6.408899
Std. Deviation		.0636275	.0429237	.2141572	.0184606	18.0753213	31.9089814
Variance		.004	.002	.046	.000	326.717	1018.183
Skewness		-1.327	.315	1.998	-.664	5.441	-4.123
Std. Error of Skewness		.393	.393	.393	.393	.393	.393
Minimum		-.2305	-.0640	-.4851	-.0583	-8.7213	-158.0121
Maximum		.1442	.1115	.9498	.0386	105.2471	23.6165

Table-1 presents a summary of descriptive statistics of all the five variables included in this study. Descriptive Statistics is important to understand the nature and properties of the data. The number of observations in all the four variables is 36 because the time period of this study is three years or 36 months. There are no missing values as the data has been collected from valid and authentic sources. The entire Data represents the change from the previous figure or observation in decimal form. Or we can say that the data represents the return earned in a particular month over the previous month. The mean row shows the average change in the variables over the previous month. The average change in Sensex gold and crude oil prices has remained 1.34%, 1.09%, and 2.05% respectively. The mean of exchange rate change is not very much high because the rupee-dollar exchange rate does not change drastically in a small or medium span of time. The average change in FII & DII data is very much higher because these institutional investors tend to invest and withdraw money Indian market very frequently. The standard deviation of Sensex, gold and exchange rate data is quite low whereas that of crude oil prices is high and of FII & DII data is extremely high because of the aforesaid reason. And thus the variance data has also shown the similar results. Three of the variables that is Sensex, Exchange Rate, and DII data have shown negative skewness while the rest three have shown positives skewness.

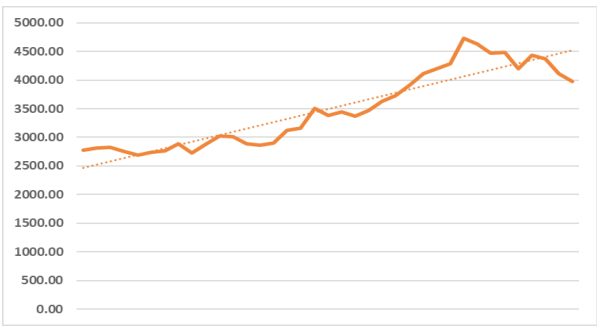


Fig.1.1 Sensex Graph

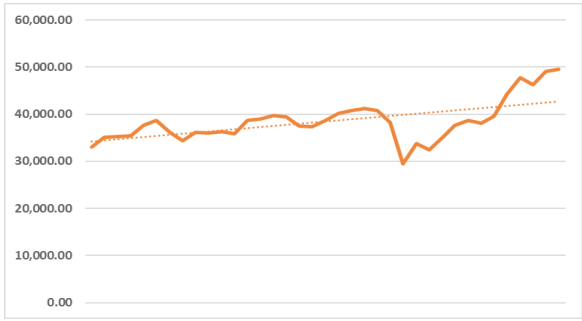


Fig.1.2 Gold Graph

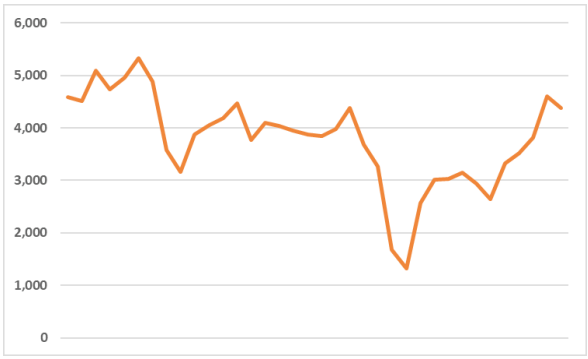


Fig.1.4 Crude Oil Graph

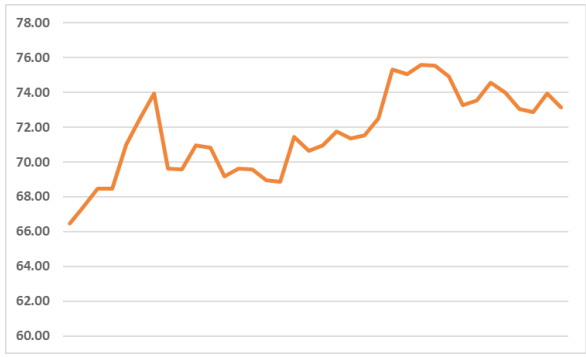


Fig.1.3 Exchange Rate Graph

Fig.1.5 FII Net Invest. Graph

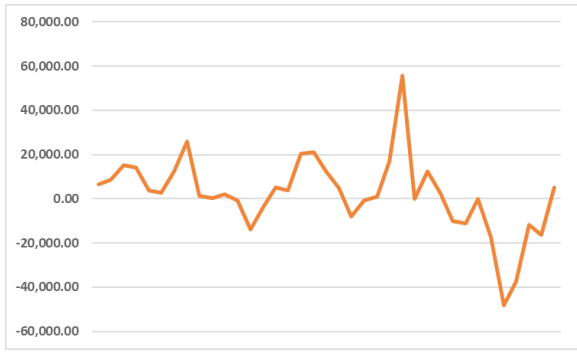


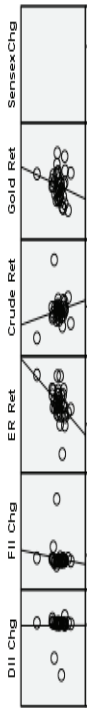
Fig.1.6 DII Net Invest. Graph

In order to Understand the movement of the data and see whether it is stationary or non-stationary, the simple graph has been used. The graph for all the variables has been reported and by the visualization it can be interpreted that the monthly rate of SENSEX, GOLD PRICES and EXCHANGE RATE shows a steep rise and upward trend, while that of CRUDE OIL PRICES, FII Net Investment and DII Net Investment have shown some big movements but does not show any significant upward or downward trend.

Table-2 Correlation Table

Correlation	
	Δ Sensex
Δ Sensex	1
Δ Gold	-0.204
Δ Crude	0.188
Δ ER	-0.452
Δ FII	-0.119
Δ DII	0.0027

Table-2 represents the correlation between SENSEX and all the other independent variables. In order to understand the relation between the dependent variable and predictor variable, correlation study is very important. I have used Karl Pearson correlation coefficient with two tailed at 5% significant level. For the entire 36 months observations figure the correlation matrix shows that *there is no strong correlation between the Sensex and any predictor variable, except the variable ER* which has shown a negative correlation of -0.45, and can be said in the concerned period there exists some weak correlation between the two variables. The correlation coefficient among the microeconomic independent variables and SENSEX as the dependent variable has shown very low and weak relationship. The correlation between SENSEX and GOLD, ER and FII is negative while with CRUDE OIL prices and DII is positive. Although the direction of relationship is evident but the strength of relationship does not seem strong.



In order to understand the correlation better in a visual manner the scatterplot matrix has been reported. The scatterplot shows the plotted data correlation between the SENSEX and another five independent variables. The scatter plot has been reported along with the *line of fit*, both using SPSS. In all the figure there are some data which rely on extremes while there are data points which remain along the trend line of fit. As reported in the correlation matrix the scatter plot also does not reveal any uphill pattern or downward trend between the dependent and independent variables.

Fig.2 Scatter Plot Matrix

Table-3 Simple regression between Δ SENSEX and Macroeconomic Variables

	R-Square	Intercept (a)	Slope	F-sign	H_0
Δ GOLD	0.041	0.017	-0.302	**0.234**	*Accepted*
Δ CRUDE	0.035	0.012	0.056	**0.273**	*Accepted*
Δ ER	0.204	0.019	-1.557	**0.006**	*Rejected*
Δ FII	0.014	0.015	0.000	**0.489**	*Accepted*
Δ DII	0.000	0.013	5.461E-6	**0.987**	*Accepted*

Econometric regression analysis is the tool ahead of correlation to check the effect of independent variables over the dependent variable. Simple regression analysis has been performed in this study to check the effect of macroeconomic variables on the Stock Exchange index to understand whether the Sensex, which is the dependent variable, is predicted by the macroeconomics indicators (independent variables) are not. The ANOVA table from the simple regression analysis is used to test the null hypothesis on the basis of significant F.

Table-3 shows simple regression between the SENSEX another five microeconomic independent variables. The results are drawn from the analysis conducted in SPSS. With the alpha value of **0.05,** the null hypothesis is tested. If the sign-F value is less than 0.05, we can say that the independent variable reliably predicts the dependent variable, Or, there is a significant relation between the two variables and thus our null hypothesis will get rejected.

With this we can see that from the analysis only one independent variable was found in significant relationship with the dependent variable. *With the F value off 0.006, the Null hypothesis in this case gets rejected* and can be said that the variable ΔER (change in exchange rate) predicts the change in Sensex. ΔGOLD, ΔCRUDE, ΔFII & ΔDII were not found significantly related with the BSE index. So *for the rest for independent variables our Null hypothesis gets accepted.*

The SPSS regression results also provide the value of R square which is the coefficient of determination. R square depicts the percentage of dependent variable explained by independent variable. With the F significant value of 0.006 we found that the exchange rate data (ER) predicts the SENSEX in the concerned period of analysis. Now from the R square we see that the variation in the exchange rate data is explaining 20.4% of the variation in

SENSEX data. Intercept and slope value are also reported so that a predicting regression equation can be formed in the form of Y = a + βX + e., where e is the error term. The figures reported in Table-3 are compiled from the regression analysis results from SPSS where all the five independent variables are analyzed one by one to see its impact over the dependent variable SENSEX.

Table-4 Hierarchical Multiple Regression Table

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	.006	1	.006	1.470	**.234**[b]
	Residual	.136	34	.004		
	Total	.142	35			
2	Regression	.010	2	.005	1.248	**.300**[c]
	Residual	.132	33	.004		
	Total	.142	35			
3	Regression	.035	3	.012	3.490	**.027**[d]
	Residual	.107	32	.003		
	Total	.142	35			
4	Regression	.038	4	.009	2.817	**.042**[e]
	Residual	.104	31	.003		
	Total	.142	35			
5	**Regression**	**.038**	**5**	**.008**	**2.198**	**.081**[f]
	Residual	**.104**	**30**	**.003**		
	Total	**.142**	**35**			

a. Dependent Variable: Δ Sensex

b. Predictors: (Constant), Δ Gold

c. Predictors: (Constant), Δ Gold, Δ Crude

d. Predictors: (Constant), Δ Gold, Δ Crude, Δ ER

e. Predictors: (Constant), Δ Gold, Δ Crude, Δ ER, Δ FII

f. Predictors: (Constant), Δ Gold, Δ Crude, Δ ER, Δ FII, Δ DII

After performing Simple Regression, Multiple Regression has been performed to check the joint effect of predictor variables over the dependent variable. Table-4 shows the output from the SPSS which showcase the *Hierarchical Multiple Regression* table. Two things have been reported from the output- ANOVA and Model Summary.

The significant values of F will be used to accept or reject the hypothesis. After performing the multiple regression analysis I have observed that in collaborative way the predictor variables have put a greater influence on the dependent variable. Earlier when we had performed Simple Regression only one predictor variable was found significantly related with the dependent variable. Now after performing Multiple Regression analysis, we come to the result that the joint effect of GOLD, CRUDE, and ER (Model 3) and GOLD, CRUDE, ER, and FII (Model 4) were found significantly predicting the SENSEX. The significance value of Model 3 is 0.027 and that of Model 4 is 0.04, which means that in both the cases we can reject the null hypothesis.

But when we see the joint effect of all the five independent variables the result does not show a significant relationship. Under Model 5, the significance value comes to 0.08 which is a little higher than the alpha value of 0.05. Therefore, we cannot reject the null hypothesis in this case. Model 5 shows that in the concern period of the study our dependent variable Sensex is not found significantly impacted by the five macroeconomic indicators.

Table-5 Multiple Regression Summary

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.204a	.041	.013	.0632042
2	.265b	.070	.014	.0631820
3	.497c	.247	.176	.0577614
4	.516d	.267	.172	.0578981
5	.518e	.268	.146	.0587964

a. Predictors: (Constant), Δ Gold

b. Predictors: (Constant), Δ Gold, Δ Crude

c. Predictors: (Constant), Δ Gold, Δ Crude, Δ ER

d. Predictors: (Constant), Δ Gold, Δ Crude, Δ ER, Δ FII

e. Predictors: (Constant), Δ Gold, Δ Crude, Δ ER, Δ FII, Δ DII

Table-5 showed some very interesting results. It shows the Multiple Regression summary of model specifically depicting the correlation coefficient (R) and coefficient of determination R Square.

Model 1 which consist only GOLD as the predictor variable shows the correlation of 0.204 and it explains only 4.1% variation in the dependent variable. As we go on increasing from Model 1 to Model 5, Model 5 shows the correlation of 0.518 and it explains 26.8% of variation in dependent variable. So the results show very interestingly that as we go on increasing the macroeconomic indicators in this study the value of R Square becomes strong. Model 1 and Model 2 shows the R square value of less than 10% while after including the variable ER the value of R square gets drastically increased to 24.7%. including FII & DII variable increases the value of R square but not very significantly.

The value of R Square when more than 0.7 is considered strongly affecting, between 0.5 to 0.7 is considered as moderately affecting, while from 0.3 to 0.5 is considered as low affecting. So from the results we can conclude that the variation in the Sensex could not be explained by the Macroeconomic Indicators statistically significantly as the value of coefficient of determination is very low.

Table-6.1 Pre-Covid Correlation Table

Correlation	
	Δ Sensex
Δ Sensex	**1**
Δ Gold	**-0.4451**
Δ Crude	**-0.1391**
Δ ER	**-0.3618**
Δ FII	**-0.2457**
Δ DII	**0.2171**

Table-6.2 Post-Covid Correlation Table

Correlation	
	Δ Sensex
Δ Sensex	**1**
Δ Gold	**-0.0993**
Δ Crude	**0.2508**
Δ ER	**-0.6916**
Δ FII	**-0.0626**
Δ DII	**0.0018**

Pre-covid under this study means the data from Apr'18 upto Dec'19 and post-Covid/covid era means that from Jan'20 to Mar'21. Table-6.1 presents the correlation of the 21 months data pertaining to pre-covid. And Table-6.2 presents the correlation for the 15 months data of post-covid. In the pre-covid, four of the variables were found negatively correlated with the Sensex while in the post-covid, three variables were found negatively correlated with the Sensex. Although the strength of relationship is not very much high in the pre-covid correlation table, but the correlation of SENSEX with GOLD and that with ER shows correlation with very low strength. While in the post-Covid correlation table, only the variable ER shows a strong negative correlation with the SENSEX. So we can interpret that during the covid except ER no other variable shows this significant correlation with Sensex.

Table- 6.3 Multiple Regression Summary between Δ SENSEX and all Predictor Variables

	N	R	R Square	Sign F	H_0
Pre Covid	21	0.559	0.312	0.292	*Accepted*
Covid	15	0.708	0.501	0.207	*Accepted*

Table-6.3 shows Multiple Regression summary between SENSEX and all other predictor variables collectively. This has been included to test the hypothesis. With the value of R we can interpret that in the pre covid period there exist moderate strength correlation between SENSEX and all other predictor variables while in the covid period, with the correlation coefficient of 0.7, we can say that the correlation between SENSEX and all other variables is strong. The R square value doesn't show greater strength during the covid. In the pre covid era, 31.2% of the variation in SENSEX is predicted by the independent variables while in post covid period 50% of the variation in SENSEX is predicted by the same. In spite of this, on the basis of the value of significant F, the null hypothesis is rejected in both the cases of period. So neither in the pre-covid nor in the post-covid there exist influential relationship between macroeconomic indicators and Sensex.

CONCLUSION

Table-7 Conclusive Summary of Hypotheses

	Hypotheses	Result
A	There is no significant relation between the Macro Economic Variables and BSE index.	*Accepted*
B	There is no significant relation between the Macro Economic Variables and BSE index in pre-covid period.	*Accepted*
C	There is no significant relation between all the aforesaid Macro Economic Variables and BSE index in Covid period.	*Accepted*

Table-7 shows the conclusive summary of all the hypothesis tested in this study. With this it is evident that for the concern period of the study the collected data shows that there is no significant relationship between the selected macroeconomic variables and Sensex. Although during this study it has been found that some variables are able to significantly impact and predict the Sensex, but when we consider all these five selected independent variables, the relationship didn't come significant. Neither in the post-covid nor in the pre-covid data, any significant relationship between the stated variables is found. Hence, we can conclude that the stock market movement is more or less unpredictable as per our study.

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CHAPTER 7

A Study on the Effect of Increasing Usage of Fintech in Financial Services Sector in India

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ABSTRACT

Fintech, as the word suggests, has been made from two simple words i.e. Financial and Technology. It refers to the services related to financial sector provided with the help of technology. It may be explained as: the services related to financial sector with the modern means and innovative technologies.

New technological innovations and process disruptions have recently emerged in the financial services industry. The entire industry and many fintech start-ups are looking for new ways for successful business models, for creating an improved customer experience and for approaches that lead to a service transformation. Industry and academic observers believe this is more of a revolution than a less influential series of changes, with financial services overall being driven by significant efficiency improvements. At stake is the longstanding dominance of large companies that cannot understand how to work effectively with the "fintech revolution". The primary objective of present research paper is to create an empirical study about the use of fintech in financial services in India and secondly to observe the change in the pattern of financial services adopted by introduction of fintech.

Keywords: *Financial Services, Fintech Revolution, Operations, Payments, Technology Disruption and Innovation etc.*

INTRODUCTION

We are living in 21st century, where we can get anything just on one click. Though, India is a developing economy, yet it has gained prime importance in the field of digitalization. Prior to 2016, though we were using technology but after demonetization, technology has reached to its great height and still it's increasing day by day. In order to be at the pace, we have to match the standards. On November 8, 2016, our Prime Minister Shri Narendra Modi announced the demonetization of 500/- and 1000/- rupees notes, due to which, though for a short time but there was a huge crisis of money in the economy. People used to stand in the long queues for the exchange of notes. But due to limited printing of 2000/- and 500/- rupee notes many of them has to go empty handed. But at that time of crisis, going digital was one of the blessings which had constructed and illusioned the gap between the men and the money. Many digital tools were introduced for payments and purchases like Paytm, Googlepay, Phonepe, UPI, BHIM etc. which helped the people and the government to overcome from this tough time. Now

it has become the lifeline of the economy. Be it a bank transaction, fees for the children, insurance premiums, insurance policy to be chosen, payments for purchasing a plane to the vegetables all can be done online while sitting at home. This I would say a revolution, has changed the complete life style of people. The time is saved due to which we can do many other work which earlier were not able to be done due to the lack of time. These services are provided by the financial service providers and that blanket is known as 'Financial Technology' or we can simply say 'Fintech'.

Fintech, as the word suggests, has been made from two simple words i.e. Financial and Technology. It refers to the services related to financial sector provided with the help of technology. It may be explained as: the services related to financial sector with the modern means and innovative technologies. These companies are established to improve the financial services of the companies and the banks working through traditional methods. Digital banks can somewhere come as fintech companies as they also use new and innovative as well as advanced level of core banking solutions. It can be seen in almost every sphere and sector which uses traditional methods of customer dealing. People today are very much aware of the techniques and methods of digital financing. Various methods can be used for loan borrowing/lending, insurance, payments, purchases, online shopping, online investment etc. Earlier, for example, people used to stand in long queues for bill payment of say telephone or electricity, now they can pay the amount within seconds while sitting at home. This technology has saved lot of time to many of the people and exhaustion.

FEATURES OF FINTECH

FINTECH is one of the best technologies which in today's time prove as a blessing to each and every person who is conducting the usage.

- Wireless technology- this is the technology which does not require the wires. It is in the pocket of the individual.
- Time saving- using the techniques of fintech, it is a time saving method. One can save his/her lot of time while transacting at home instead of standing in long queues.
- Boost the economy at the time of demonetization: fintech is one of the most helpful methods which proved itself at the time of money crisis. If we see at today's time also, at the time of covid19, we can transact or we can consult doctors via online technology and can pay fees.
- Simply user base- Fintech has led to much easy task and it is also very easy to use and understand.
- Easy accessibility- some of the companies are very common in use is because the usage is very clear to the customers. They are very much clear about the usage of the tool.
- Integration of various fintech applications- customers are using the technology for their ease. They would prefer those applications which could be stored in less space and can be used for various activities. For example, application such as Curve allows all the accounts of the customer into a single dashboard.
- Artificial intelligence-Millennials have poor money management skills compared as to other groups. Fintech attempts to cover this problem by helping users pinpoint the negative spending patterns. It is a good example of how "smart technology" is used in an application.
- Block chain security – It allows immediate, secure, the sharing of data across different platforms. Although it is at its early stage of technology, yet it has been seen a significant affiliation.
- Personalization-now a day's people are enjoying their banking activities or the dealing activities as compared to prior situation. Earlier it seemed to be very difficult in the field of finance but now not more. Fintech companies have resolved this issue.

ORIGIN OF FINTECH FINANCIAL SERVICES

Fintech was first used in 1866 via transatlantic cable which provided the fundamental infrastructure. In 1918, fedwire was introduced which a wireless transfer system was operating with the help of telegraph. Later on, in 19th century, credit cards were introduced by American Express and Diners Club. The era between the year of 1866 and 1967 was termed as Fintech 1.0, where though being so advanced in technology it was purely based on analogue. The second fintech era started from 1967, Fintech 2.0, where first ATM was introduced. This era led to digitization of finances due to digital technology and transactions. World's first digital stock exchange and SWIFT was introduced which marked the beginning of the financial markets in the world of digitization.

Third phase, Fintech 3.0, which we are living in, has started since 2008. There was a huge financial crisis in that year which again forced people to work in the traditional form. But in the very next year, it was a drastic change in the history of financial sector. Bitcoins were introduced which were followed by many other cryptocurrencies.

People of today's generation wants everything in their pockets, they are not interested in carrying the bulk luggage along with them. This thought process led to many companies to think over this situation which led to many mobile applications. Some parts of Asia and Africa have entered in Fintech3.5, with the excess use of fintech in day to day operations.

There are various types of activities which are performed by Fintech companies.

Lending Facility

There are various methods of lending available via Fintech. Such as:

- **Crowd Funding:** It implies raising funds for any project from different sources instead of professionals. In alternate words, raising funds with the use of internet through various sources of small amount rather than raising funds from banks or financial institution.
- **Peer to peer lending:** direct contract between the one borrower and the multiple lenders with the use of internet.
- **Equity Crowd funding:** this is one of the most interesting and important method of raising funds. In this method, investors invest in the start-ups and the small companies issue the equities to the investors and the investors buy these shares.
- **Payment Facility**
- There are many fintech companies which provide the facility of payment while sitting at home on a one click basis. Some of them are as follows:
- **Paytm**
- **Phonepe**
- **Googlepay**
- **BHIM**
- **UPI etc.**

These and many more have helped the people to operate their day to day activities in a very simple manner.

- **Insurance Facility**
- There are various companies which helps the people to compare the policies provided by different companies. Customers can easily compare the policies available and can choose the one which suits them.
- These companies are;
- **Policy bazaar**
- **Acko**
- **Mantra labs**
- **Toffee insurance**
- **Pentation analytics etc.**
- **Cryptocurrencies:**

Significance of Study

In today's competitive era, where everyone is trying to keep himself at the fast pace, one cannot go and wait for his turn in queues. He has to act smartly so that he could lead forward. Seeking this behaviour, the idea came of FINTECH.

- Fintech is universal in nature. It means that today in every country, in every state, in every home every one or the other person is using the benefits of fintech. No matter which country it is, one can reap the benefits of this technology.
- It is cheaper as compared to services provided by the banks.
- Fintech is more secure as compared to any random applications. It has certain regulations according to which it has to perform its activities.
- Time saving: using technology is always a pleasure to save time as lot of work can be done in a speedily manner. One is just away from one click.

- It helps in economic growth: with the growing usage of fintech apps, the economy of the country is increasing.
- Empowering business
- It helps the companies to convert data into information.

LITERATURE REVIEW

Many studies have been conducted through which it can be easily conducted that to study and apply the use of fintech is the need of the hour. One must understand the importance of financial technology for our day to day activities. It saves not only time but one can be multi-tasking at a same time. (Shweta & Shachi, 2017) has discussed about the changes and the innovations which creates connectivity among people living in different or remote locations. The biggest challenge that fintech has to face is the trust of the customer that is lacking. Fintech has to work very hard in order to get the value in the eyes of the customers. "DR. Mahesha Kempegowda Associate professor & head department of management Bangalore Institute of Technology - MBA V.V.PURA in **Time value of money: issues & challenges with reference to e-payment services in private banking companies in Bangalore** also found that there are many factors which influence the behaviour of investors or the layman regarding the use of fintech. One can only study some factors taking into account for the technical use of financial perspective. After the research he found that out of 10 factors that he studied, only 3 factors worked in the favour of fintech, rest of them somehow created problems for the use of it. Though it is not a new concept for the European countries and most of the countries are using fintech in a successful manner yet some of the developing nations like India, is yet to speed up the pace of its use. There is too much room for the innovation in the field of financial technology. **Dr. C. Vijai; Assistant Professor, Department of Commerce, St.Peter's Institute of Higher Education and Research, Chennai, INDIA** in his paper has found that it is difficult to reach the growing phase in the business cycle. Collaboration and adoption rate is quite less. Integration of many other techniques like Blockchain management, cryptocurrency is not still in a niche stage in India. He observed the result although India faces many challenges in the field of fintech yet there is a huge scope for the growth if they come up with the challenges. While studying this paper it is observed that there is huge opportunity available in the economy to be worked upon. But he didn't apply any practical implications in his research paper. Many research papers have been found which explains the theoretical aspect but doesn't show any practical implications. This is a huge gap which can be seen in mist of the research papers. Many of the papers explain the use and ease of financial technology. Fintech is very helpful in the period of covid-19 as people are not able to go out for the purchase for which they can buy the goods and pay online for example doctor's appointment, medicine purchase etc. this is trending in today's scenario. As mentioned in "Convergence and digital fusion lead to competitive differentiation by **Ashish Thomas Department of Management"** that "The studies identify that organizational innovation and creative solutions are a result of ecosystem turbulence, environmental force diversity, competitive pressure and the need for differentiation. Organizations that harness the power of digital fusion and convergence of management, systems and data generate a competitive advantage." In the paper "Determining factors in the adoption and recommendation of mobile wallet services in India: Analysis of the effect of innovativeness, stress to use and social influence" (Singh, 2020)expressed the importance of recommending the use of mobile wallet services. The significant value obtained in the research confirms the consumer's perceived satisfaction and recommendation to use mobile wallet technology. (Kapoor & Williams, January 2014) explored the attributes that can better predict the adoption of interbank mobile payment services in the Indian context in 2015. Among them, compatibility, complexity, trial ability, voluntariness, provability of results, social recognition, cost, and dissemination significantly predict users' willingness to use interbank mobile payment services; cost and behavioural intentions significantly predict banks The adoption of inter-bank mobile payment services; however, for inter-bank mobile payment services, observe ability, visibility, visibility, and risk are considered trivial adoption attributes. (Slade & Dwivedi, 2013) compared the UTAUT and UTAUT2 models in the use of mobile payment, and concluded that the latter is more suitable for analysing the adoption of this technology. Subsequently, (Slade & Dwivedi, 2013) and (Kapoor & Williams, January 2014) applied UTAUT and expanded more consumer-related structures to explore factors that influence the intent of non-users in the UK to adopt remote mobile payment; their research results show that performance expectations, Social influence, innovation, and perceived risk significantly affect non-users' intention to adopt mobile payments, but hard work expectations have not. In addition, (Slade, Y.K, & Piercy N.C & Williams, 2015) evaluated the potential of a new consumer technology adoption model and its expansion with trust and risk structure to explain non-users' adoption of short-distance mobile payment; their research results show that the extended model explains the change in behavioural intentions. Many differences, but performance expectations are still the strongest predictors of the two models.

RESEARCH PROBLEM

Fintech, though it is an old concept in European countries but it got prevalence in India in 20th century only. There is a vast area for its development still remaining. People in India, are not yet aware about the advantages of using the financial through technology. They have the fear of being cheated via cybercrime. People of 70's or 80's are not willing to use the financial technology as they have a trust issue. Moreover they are happy with the traditional method of dealing with banks or insurance sectors etc. they have the opinion that it is safe to let the work be done through physical presence. The behaviour of an individual is also one of the reasons which is creating the hindrance for the success and development of financial technology. Moreover the collaboration as well as acceptance rate is quite unsatisfactory in India.

Fintech not only includes the digital payment system but also has a vast area in Blockchain technology, which has still to go through many challenges. Blockchain technology is one of the most important technology through which an investor can invest in different currencies with the method of cryptocurrency. As, this method of investment got the green signal in March'20 itself, so there is a huge gap between the investor's trust and the dealing with this method.

Moreover, such type of innovation has a limited reach among the people. As more than half of the total population lives under safety and security needs (Maslow's need hierarchy theory). Before the "JAN DHAN YOJANA" only around 50%-60% have the bank accounts that can avail such facility. After demonetization, there emerged the need for the growth of fintech. Still there are many amongst us who need to understand the need of such technology. Fintech now, is at its growing stage and in order to create the rise, one should understand its use.

NEED FOR STUDY

India being a developing country has to undergo many changes in its prevailing system to chase the development. One of the most important parameters is the Indian Financial System which is the backbone of any economy. Government has to take many initiatives for making a developing economy to developed economy. This is a vital opportunity for India to grab such chance by adopting financial technology. Being in 21st century, it is difficult to move forward with the traditional methods of working. As our Prime Minister have also started many new techniques to make India a digital economy. To name few of them such as "make in India", "Jan dhan yojana", "cashless economy" etc.

Financial Technology, though not a new term, yet there is a lot to study and understand. India is in its beginning stage of financial technology and people are not much aware about it. In order to make it a success, people need to understand its positive side. What are the benefits of fintech, how it can be used, and various modes of its usage etc. needs to be understood? There are some research papers which explains the features and modes and areas of its use but there are lot more information which needs to be gathered and to be delivered to the investors and individuals. Fintech is not only for the purpose of investment but it can be used in day to day life activities.

No or very less empirical analysis is done in the field of financial technology. Without proper statistical tools it is difficult to understand the future of fintech.

TYPES OF FINANCIAL SERVICES USING FINTECH

Now-a-days, every sector is using the fintech for fulfilling their needs. Be it payment gateways, digital methods for purchasing and lending, transactions for deposits, etc. all need the technology to fulfil the financial needs. As it can be easily seen that there exists a synergy between the finance and technology, so it would not be wrong to say that today, finance is incomplete without technology. People are so busy now-a-days, that they do not have time to show their physical presence for completing the transactions. So, fintech minimises the gap between the two.

There are many technologies which can be used for the implementation of fintech. Some of the following are:

- Artificial intelligence
- Data analytics
- Blockchain

APPLICATION OF FINANCIAL SERVICES

- Insurance
- Banking transactions
- Mobile wallets
- Crowd funding

- International money transfers
- Regtech

There are many fintech companies like lendingkart, moneytap, razorpay; Paytm, policy bazaar etc. which are working like magic in the economy in creating GDP. These have become an inseparable part of the Indian Financial System. Hardly there is any sector where such services are not being used. Even in temples also, donations can be taken and given through these services. Today economy is so dynamic that nothing is constant. In order to curb this situation, fintech is presented as a boon to the society.

Though fintech is not a new concept but it is taking place in India especially after demonetization. When our prime minister announced the ban on 500 and 1000 currency notes, there was a kind of havoc in the whole nation, but slowly and gradually the economy came back in pace with the use of financial services. Digital financing helped many sectors, let it be poor or the rich class, everyone had and still using these services. This has now become the habit of individuals. Initially, people were not confident about such services, this is yet a big challenge to make people trust on such services. Though with this distrust, people are still using these type of services.

RESEARCH QUESTIONS

1. What are the various factors which affect the use of financial technology?
2. Which area of fintech has the highest impact on the financial services?
3. How fintech leads to economic growth in India?
4. What impact fintech would leave in the financial services of the industry in India?
5. How time affects the use of fintech in an economy?
6. Does fintech have the future security in India?

RESEARCH OBJECTIVE

There are various reasons to such study, main objectives of this study are:

a) To compare the types of trading with digital methods prevailing in the society from years.

b) To analyse the difference what fintech has created amongst the minds of society

c) To find the reasons though being very simple and easy in use, people are abstaining from the use of financial technology.

Conceptual discussion on Fintech Services

Fintech being the most advanced and one of the recent ways to transaction has changed the overall scenario of the country's dealing system. But this was not an easy task to introduce. Much knowledge and patience was needed to use this type of technology where one is betting upon his hard earned money. The money one earns cannot be seen or touched but it can be spent easily. But still there is a lot of room that needs to be improved and make people aware about its usage. People are still not aware of its proper and optimum use.

Still many amongst us prefer to use hard cash and ready to stand in long queues for the banking or the atm transactions. They feel security in such type of transactions. Somewhere they are right also as people are not aware about the safety and security of such transactions. Much of the research is still needed in this field. There are many people who are earning that much which could help them to live their livelihood. How can such people gamble with that money? This gives a big question mark on such types of services. Though there being a regulatory body to control the things still they need to work hard.

FUTURE OF FINTECH FINANCIAL SERVICES IN INDIA

India being a developing country, is trying to run at a great pace. Especially after the demonetization, monetary transactions have changed its shape. People can now transact anytime, anywhere and in any condition. What not can be done with these services? One can purchase groceries, can purchase medicines, clothes, can consult and pay online to doctors etc. people are ready to change their point of view if they are provided with adequate knowledge. But the irony is framing of policies are satisfactory but its implementation is indeed a reason of distrust among the people for such transactions. Earlier there were many restrictions while doing banking transactions especially with RTGS, NEFT. But now these limitations have also been removed. Now, people can transact on real time and without waiting in long queues.

Many more improvements can be done once people start believing online transactions are safe to use. With the passage of time, the use of such technology is increasing day by day. This helps in creating the skilled personnel

to handle and improve such opportunities. A great career can be seen in the Fintech. One should avail this opportunity.

CONCLUSION OF THE PAPER

Being descriptive in nature, the researcher can conclude that there is a vast sea of opportunities in the area of fintech. But the problem lies that the people are not adapt to such change wholeheartedly. Everything that exists has its own limitation. Main problem lies under the poor people who are earning their bread and butter. If a person is earning 400 or 500 rupees a day, and during his return to home, he wants to purchase some eatables, then what is the guarantee that the shopkeeper uses any type of these services? This makes the users refrain from such dynamicity. But some are the areas where people have embraced such changes. They are contented with these types of services as it is helping them to save lot of time which they can use more productively. This leads to one of our limitation that such things cannot be generalized. And due to dynamicity prevailing unforeseen circumstances do affect the usage of fintech.

MANAGERIAL IMPLICATIONS OF THE STUDY

Fintech is a new and challenging concept for developing economies. And in order to grow at high speed, economies need to adapt with changes. This technology can create a revolution if adopted optimally. India being the second largest economy population wise, can excel if taken a chance. Lot of talent is available which can create miracles. Proper training and knowledge should be given to every section of society for easy accessibility of such technologies.

People should be made aware about the advantages of fintech. Meaning, use of these transactions can be explained which can lead to more innovation and creativity.

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CHAPTER 8

EMERGING TRENDS OF MUTUAL FUNDS IN INDIA

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ABSTRACT

Fintech, as the word suggests, has been made from two simple words i.e. Financial and Technology. It refers to the services related to financial sector provided with the help of technology. It may be explained as: the services related to financial sector with the modern means and innovative technologies.

New technological innovations and process disruptions have recently emerged in the financial services industry. The entire industry and many fintech start-ups are looking for new ways for successful business models, for creating an improved customer experience and for approaches that lead to a service transformation. Industry and academic observers believe this is more of a revolution than a less influential series of changes, with financial services overall being driven by significant efficiency improvements. At stake is the longstanding dominance of large companies that cannot understand how to work effectively with the "fintech revolution". The primary objective of present research paper is to create an empirical study about the use of fintech in financial services in India and secondly to observe the change in the pattern of financial services adopted by introduction of fintech.

Keywords: *Financial Services, Fintech Revolution, Operations, Payments, Technology Disruption and Innovation etc.*

ABSTRACT

The Indian Capital market provides a variety of investment options to the investors to help them put their resources to productive uses and earn profitable returns. According to the financial experts, mutual fund ensures the greatest return with least dangers to the financial investors. A Mutual Fund is considered to be a trust that pools together the savings of a number of investors who have a common financial goal. Mutual fund is a financial service organization that operates on the concept of mutual benefit by receiving money from the savers and invests the same in diversified portfolio so as to enjoy appreciated values. Over the past few decades, mutual funds have increasingly become the investor's best choice for long-term investments. The reason for their increasing popularity is that the Mutual Fund companies function as financial intermediaries by providing financial services to small investors through mobilization of their funds, when they invest in a mutual fund. The

investors on buying shares or units of the mutual fund become a shareholder of the fund. So, Mutual funds are accepted as one of the best investments especially by the small investors because they are very cost efficient and very easy to invest in. In India the Mutual fund industry has seen brilliant development in the recent years.

But the year 2020 proved to be painful for the Indian mutual fund industry. The outbreak of COVID-19 pandemic and the nationwide lockdown left life of the people in worse condition where the entire focus of the people was on their lives, jobs, savings, investments and livelihood. This condition of the Indian economy deleteriously affected the mutual fund industry.

The present paper focuses on the mutual fund industry, and its condition in the emerging scenario of financial instability, threat to lives and livelihood and worldwide uncertainty. The purpose of present study is to analyze the changes in the mutual fund industry in India due to the virus outbreak from December 2019 to May 2021i.e. both in the pre-COVID and post-COVID period.

INTRODUCTION

Investments are varies from person to person. The perception about a person about a person is different form one person to another person. Some expects security and other expects return. Some interested with taking of risk and other may not.

The saving habits of people are increasing gradually nowadays, because of the various investment opportunities. The market opens with the lot of investment opportunities to the new investors with low risk and moderate return.

In the views of growing competition in the mutual funds industry, it is necessary to study the investor's orientation towards the mutual funds. It helps to investors to know about the risks in mutual funds investment and preferences on various schemes of mutual funds etc.

Mutual fund is one of the financial instruments. Mutual fund investments are made by the professional on behalf of their investors. It is a cluster investment, because the amount collected from different investor for single investment. The investor enjoys proportional gain as well as loss not up to equity shareholder. Mutual fund is an opportunity to invest in share and bonds together, But not an alternative to share or bond investment.

HISTORY OF MUTUAL FUNDS IN INDIA

The mutual fund industry in India started in 1963 with the formation of Unit Trust of India, at the initiative of the Government of India and Reserve Bank of India. The history of mutual funds in India can be broadly divided into four distinct phases

First Phase - 1964-1987

Unit Trust of India (UTI) was established in 1963 by an Act of Parliament. It was set up by the Reserve Bank of India and functioned under the Regulatory and administrative control of the Reserve Bank of India. In 1978 UTI was de-linked from the RBI and the Industrial Development Bank of India (IDBI) took over the regulatory and administrative control in place of RBI. The first scheme launched by UTI was Unit Scheme 1964. At the end of 1988 UTI had Rs. 6,700 crores of assets under management.

Second Phase - 1987-1993 (Entry of Public Sector Funds)

1987 marked the entry of non-UTI, public sector mutual funds set up by public sector banks and Life Insurance Corporation of India (LIC) and General Insurance Corporation of India (GIC). SBI Mutual Fund was the first non-UTI Mutual Fund established in June 1987 followed by Canbank Mutual Fund (Dec 87), Punjab National Bank Mutual Fund (Aug 89), Indian Bank Mutual Fund (Nov 89), Bank of India (Jun 90), Bank of Baroda Mutual Fund (Oct 92). LIC established its mutual fund in June 1989 while GIC had set up its mutual fund in December 1990.

At the end of 1993, the mutual fund industry had assets under management of Rs. 47,004 crores.

THIRD PHASE - 1993-2003 (ENTRY OF PRIVATE SECTOR FUNDS)

With the entry of private sector funds in 1993, a new era started in the Indian mutual fund industry, giving the Indian investors a wider choice of fund families. Also, 1993 was the year in which the first Mutual Fund Regulations came into being, under which all mutual funds, except UTI were to be registered and governed. The erstwhile Kothari Pioneer (now merged with Franklin Templeton) was the first private sector mutual fund registered in July 1993.

The 1993 SEBI (Mutual Fund) Regulations were substituted by a more comprehensive and revised Mutual Fund Regulations in 1996. The industry now functions under the SEBI (Mutual Fund) Regulations 1996.

The number of mutual fund houses went on increasing, with many foreign mutual funds setting up funds in India and also the industry has witnessed several mergers and acquisitions. As at the end of January 2003, there were 33 mutual funds with total assets of Rs. 1,21,805 crores. The Unit Trust of India with Rs. 44,541 crores of assets under management was way ahead of other mutual funds.

Fourth Phase - since February 2003

In February 2003, following the repeal of the Unit Trust of India Act 1963 UTI was bifurcated into two separate entities. One is the Specified Undertaking of the Unit Trust of India with assets under management of Rs. 29,835 crores as at the end of January 2003, representing broadly, the assets of US 64 scheme, assured return and certain other schemes. The Specified Undertaking of Unit Trust of India, functioning under an administrator and under the rules framed by Government of India and does not come under the purview of the Mutual Fund Regulations.

The second is the UTI Mutual Fund, sponsored by SBI, PNB, BOB and LIC. It is registered with SEBI and functions under the Mutual Fund Regulations. With the bifurcation of the erstwhile UTI which had in March 2000 more than Rs. 76,000 crores of assets under management and with the setting up of a UTI Mutual Fund, conforming to the SEBI Mutual Fund Regulations, and with recent mergers taking place among different private sector funds, the mutual fund industry has entered its current phase of consolidation and growth.

Indian Mutual Funds in the Times of Covid-19

The start of 2020 appears to be a double whammy for mutual funds. First, there is the COVID-19 pandemic, and then there is a sudden drop in international crude oil prices. Panic in global markets ensued these events. A series of measures were taken by the Indian capital market regulator SEBI and the mutual fund industry body AMFI to protect and safeguard the investors and the mutual fund industry. Understanding market trends, particularly during periods of crisis, is a necessary trait for academic researchers, capital market enthusiasts, distributors, and those seeking a career in the asset management industry.

Mutual Funds Experience Outflows: The scary fall in the stock markets has resulted in investor panic that ran to make MF redemptions. The net outflows are to a tune of Rs. 2.13 lakh crore in March 2020. Much of the damage was because of outflows in the debt segment that saw the highest outflows ever seen in the Indian Debt MF segment in a financial year. Equity investment base managed by MFs got cut by a quarter. With this, the total AUM by all the 44 AMCs fell from Rs. 27.23 lakh crores at the end of February 2020 to Rs. 22.26 lakh crores by the end of March 2020.

SIPs Continue to Be Sweet: SIP inflows continue to go up touching record highs. SIP inflows rose from Rs. 92,963 crores for the FY 2018-19 to Rs. 1,00,084 crores in FY 2019-20. Mutual funds, being DIIs, were absorbing the selling of FIIs so far – thanks to the continuous and increasing inflows from SIPs. However, the lockdown and potential slowdown that follows could lead to tightening of employment and salaries and hence might impact Mutual fund SIP inflows, putting a test to AMCs.

Some Schemes Open Doors: It is not uncommon for schemes to stop taking new investments when the valuations are extremely expensive and vice-versa. Back in 2018, some AMCs such as DSP, SBI, and Nippon India, had restrictions on the purchase of units in their smallcap schemes. With fall in market and valuations of small-caps turning attractive, these schemes began to allow both lumpsum and systematic investment based transactions into the schemes.

Gold Etfs Gain Attention: With global equity sell-off, gold being a hedge asset class began to perform well. The inflows into Gold ETFs were up for four months, but outflows in Gold ETFs too came in during March 2020. The average returns from Commodity-Gold category were at 42.6 percent in the last one year Equity-Largecap category gave -19 percent returns (as of April 10, 2020). Gold ETFs were able to garner Rs. 1,600 cr during 2019-20.

Negative Returns in Debt Funds: Investments always carry market risks. Debt fund investors tend to forget this until they experience this first hand, which, of course, happens rarely. Liquid funds are no exception to this. There are several reasons for this. FIIs sold aggressively in the short-term bond market, and so did corporates to get cash for paying advance tax. Stockbrokers' activity was low due to lockdown.

Meanwhile, RBI disappointed by not cutting rates but chose to use the LTROs route instead. There was no "special window" for mutual funds, as was provided in 2009 and 2013. These factors led to an increase in yields and decreased bond returns.

Temporary Closure of Offices: Lockdown has forced front office operations of AMCs and RTAs to be almost shutdown. AMFI directed all transactions to be done in electronic format only. Some AMCs such as IDFC AMC are encouraging their employees to work from home to provide essential customer support services. Mutual funds are mostly distributor-sold products. Unlike SEBI-registered companies providing financial services, distributors are not given permission to move out during the lockdown, and hence distributor-led operations mainly got affected. While electronic transactions are allowed, investors such as senior citizens and retired still use offline and transact with cheques. Such investors could not transact because of the lockdown.

Changes to Nav Cut-Off Timings: Cut off timings for various mutual fund transactions have been advanced as a result of RBI reducing trading hours for money market and forex markets. Subscription and redemption requests for Liquid and Overnight funds are changed to 12:30 Noon and 1:00 PM, respectively. For all other schemes, the cut-off time is changed to 1:00 PM for both subscriptions and redemptions.

Smart Beta Funds: Smart beta products are relatively less popular in India. However, their outperformance over the broader market-cap indices in these turbulent times is catching investor attention. For example, the Nifty 100 Low Volatility-30 gave a -16 percent return as against Nifty 100 that gave a -23 percent return during the last one year. There are three index funds and six ETFs that benchmark against smart beta indices. The outperformance does attract investor interest, but the lack of volumes for the ETFs is still a deterrent.

DDT Rules Steps in: Starting April 1, 2020, the new Dividend Distribution Tax (DDT) rules begin to apply. MF schemes will no longer charge DDT. So, there will be an increase in dividend payout. Dividend-receiving investors have to add it to their total income and pay tax according to their slabs. A blessing in disguise is that dividends of Rs. 10 lakhs and above will not have to pay an additional 10 percent tax now. Because of the new rules, there is a possibility that investors will flock from Dividend plans to Growth plans. Regular dividend seeking investors who are ealier with dividend payout option will get replaced with STP options.

Other Factors: Other topics of study in the context of COVID are about Pass-Through Certificates (PTC), portfolio changes, and their impact on turnover ratios of schemes, amongst others. The crisis situation also made the industry become innovative and explore newer features. AMFI is asking fund houses to provide a Pause SIP feature on their respective websites.

CONCLUSION

Investment professional and the effective planner are the source can afford the small level investors to gain them in this competitive market. Mutual fund scheme allows the professionals to collect or pool the investments from different investors and allows them to invest in different securities in the market.

Mutual funds are the tool to invest broad rage in securities. It also limits risk of loss to the investors. Mutual funds maintain the interest of investors by overcoming the risk of loss.

Investors and the shareholders were allowed to receive information related to their transactions as a report in year to date basis. It also avails the investor to know the information's related to pricing of shares as well as the asset value through its own websites and through the investors mobile phone.

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CHAPTER 9

Profitability and Liquidity Trade off (A Case Study of Hindalco Industries Limited)

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ABSTRACT

Liquidity and profitability trade-off have become a crucial issue among any organisation. The important part in managing working capital is maintaining liquidity on a day-to-day basis to ensure the smooth running of the organisation and to meet its obligations. Hence, it is very important to keep a close eye on the liquidity position of the company, as without it, the company cannot survive. But efforts to increase the profitability would tend to reduce firms' liquidity and too much attention on liquidity would tend to affect profitability. A firm always tries to maximise profitability by maintaining liquidity. However, increasing profits at the cost of liquidity might cause serious problems for the firm including financial insolvency. Thus, an effective Working Capital Management would be needed to strike a balance between the two core objectives of the firm. It is essential that the firm's liquidity should be properly balanced because excessive liquidity on one hand indicates the accumulation of idle funds that don't fetch any profits for the firm and on the other hand, insufficient liquidity might damage the firm's goodwill, deteriorate the firm's credit standing, which may lead to forced liquidation of the firm's assets. Hence, a trade-off needs to be maintained between liquidity and profitability.

It is all about managing your current assets and current liabilities in such a way so that profitability will be optimum. As the company desires to have more and more current assets and least current liabilities, the profitability of the organisation adversely affected. In this research paper we, along with our theoretical background, tries to evaluate the association between liquidity and profitability trade off in HINDALCO Industries Limited, India`s biggest aluminium producer.

Keywords: *Liquidity, Profitability, Current Assets, Current Liabilities, Working Capital*

INTRODUCTION

Liquidity and profitability trade-off is a crucial issue among any organisation. It is all about managing current assets and current liabilities in such a way so that profitability will be optimum. As the company desires to have more and more current assets and least current liabilities, the profitability of the organisation adversely affected. Profitability can be considered as the final measure of economic success achieved by a company in relation to the capital invested in it.

Thus, efficient liquidity management involves planning and controlling current assets and current liabilities to eliminate the risk of insolvency by not meeting the short-term obligations on time. Besides, liquidity is one of the most important control variables that accounts for firm profitability as well.

Liquidity ratios mostly represent the summarized indirect results of financial decisions related with the financial structure. From this point of view, as the market conditions restrict the capabilities of decision makers in terms of working capital management, they could not have the opportunity to determine the level of current assets according to liquidity-profitability trade-off mechanism. The reality is that liquidity management focuses on profitability in good times but in troubled times systematic risk put pressure on profitability and firms need sufficient liquidity positions to survive.

COMPANY PROFILE

HINDALCO Industries Limited is the metals flagship company of the Aditya Birla Group. A US$18 billion metals powerhouse, HINDALCO is an industry leader in aluminium and copper.

HINDALCO's acquisition of Aleris Corporation in April 2020, through its subsidiary Novelis Inc., has cemented the company's position as the world's largest flat-rolled products player and recycler of aluminium.

HINDALCO's state-of-art copper facility comprises a world-class copper smelter and a fertiliser plant along with a captive jetty. The copper smelter is among Asia's largest custom smelters at a single location.

In India, the company's aluminium units across the country encompass the gamut of operations from bauxite mining, alumina refining, coal mining, captive power plants and aluminium smelting to downstream rolling, extrusions and foils. Today, HINDALCO ranks among the global aluminium majors as an integrated producer and a footprint in 9 countries outside India.

The Birla Copper unit produces copper cathodes and continuous cast copper rods, along with other by-products, including gold, silver, and DAP fertilisers. It is India's largest private producer of gold.

HINDALCO has been accorded Star Trading House status in India. Its aluminium is accepted for delivery under the High-Grade Aluminium Contract on the London Metal Exchange (LME), while its copper quality is also registered on the LME with Grade A accreditation.

LITERATURE REVIEW

The management of working capital is one of the most important aspects of Financial Administration, according to Gitman (2003, p.608), net working capital is the amount by which a firm's current assets exceed its current liabilities. If the company fails to keep a satisfactory level of working capital, it will probably become insolvent. The current assets of enterprises must be at a level that can cover the liabilities at reasonable margin of safety.

According to Chandra (2001, p.72), normally a high liquidity is considered to be a sign of financial strength, however according to some authors as Assaf Neto (2003, p.22), a high liquidity can be as undesirable as a low. This would be a consequence of the fact that current assets are usually the less profitable then the fixed assets. It means that the money invested in current assets generates less returns then fixed assets, representing thus an opportunity cost. Besides that, the amounts employed in current assets generate additional costs for maintenance, reducing thus the profitability of the company.

However Arnold (2008, p.537) points that holding cash also provides some advantages, such as (1) provides the payment for daily expenses, such as salaries, materials and taxes. (2) Due to the fact that future cash flows are uncertain, holding cash gives a safety margin for eventual downturns. And finally (3) the ownership of cash guarantees the undertaken of highly profitable investments that demands immediate payment.

Thus it is an important task for the financial manager to achieve the appropriate balance between the adequate liquidity and a reasonable return for the company. Thus, according to Perobeli, Pereira and David (2007, p3) the decision about the liquidity level should be based in the following dilemma:

- The larger the applied resources in current assets, the lower the profitability (however also is lower the solvency risk);
- However a lower level of Net working capital by the same time that it increases the profitability it also increases the solvency risk of the firm, by reducing the long term funds that could be transferred to less profitable assets.

Also, according to the economic theory, risk and profitability are positively related (the more risky the investment, the higher the profits it should offer), thus since higher liquidity means less risk, it would also mean lower profits.

According to Assaf Neto (2003, p.22), the greater the amount of funds invested in current assets, the lower the profitability, and by the same time the less risky is the working capital strategy. In this situation, the returns are lower in the case of a greater financial slack, in comparison to a less liquid working capital structure. Conversely,

a smaller amount of net working capital, while sacrificing the safety margin of the company, by raising its insolvency's risk, positively contributes to the achievement of larger return rates, since it restricts the volume of funds tied up in assets of lower profitability. This risk-return ratio behaves in a way that no change in liquidity occurs without the consequence of an opposite move in profitability.

This way each company should choose an amount of net working capital that better fits its risk accessibility and profit margins.

Marques and Braga (1995) confirmed this inverse relationship between liquidity and profitability for a sample of food companies. Blatt (2001), also called a negative relationship between liquidity and profitability, measured by Dynamic Model and profitability.

However, Perobelli et al. (2007, p.7) argue that on the long-term there is a necessity to achieve a balance between the financial and economic profile. For these authors, liquidity and financial position reflected in return on equity, which also contains the effect of financial leverage, are two sides of a coin which is the economic and financial health of companies. One thing to note is that the appropriate return allows the selffinancing of business operations through the retained portion of net profit. Thus, good profitability increases the liquidity and marketability promotes proper growth and future profitability.

Thus the Optimal level for liquidity would be obtained by a trade-offs between the low return of current assets and the benefit of minimizing the need for external finance (Kim, Mauer, and Sherman, 1998, p.335).

Eljelly (2004) examined the relation between profitability and liquidity measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies in Saudi Arabia using correlation and regression analysis. They found a negative relationship between profitability and liquidity indicators, and it was found that CCC had a bigger impact over profitability then Current ratio. Also it was observed that there was great variation among industries with respect to the significant measure of liquidity.

García-Teruel and Solano (2007) studied the effects of working capital management over companies ROA. They observed 8872 enterprises and found out that shortening cash convertion cycle had significant effect over companies' profitability.

Smith and Begemann (1997) studied if the maximization of the firm's returns could threaten its liquidity, and the pursuit of liquidity had a tendency to dilute returns. They analyzed the relation between working capital measures and return on investment (ROI) for a sample of industrial firms listed on the Johannesburg Stock Exchange (JSE). The statistical test results showed that a traditional working capital leverage ratio, current liabilities divided by funds flow, displayed the greatest associations with return on investment. Traditional liquidity ratios as current and quick ratios registered insignificant associations.

Raheman and Nasr (2007) studied the relationship between Working Capital Management and profitability for 94 Pakistanian companies listed on Karachi Stock Exchange. Between their findings, it was observed a significant negative relationship between companies liquidity and profitability.

Thus we observe that the literature considers that there is an inverse relationship between liquidity and profitability, and this relationship has been tested and confirmed in several studies in different markets.

RESEARCH METHODOLOGY

The present study is based on secondary data. For the purpose of our study Data the last five year of HINDALCO Industries Limited have been collected.

The objective of the study is to establish relationship between Profitability and Liquidity during the same period.

Hypothesis of the study: a null hypothesis has been framed, i.e. There is no impact of liquidity over profitability.

ANALYSIS

Liquidity Position of the Company:

Liquidity means one's ability to meet claims and obligations as and when they become due. In the context of an asset, it implies convertibility of the same, ultimately, into Cash. It has two dimensions time and risk. The time dimension of liquidity is concerned with the speed with which an asset can be converted into Cash.

Usually, the amount of Working Capital is considered as an indicator of liquidity position. Needless to say that a firm having a higher amount of Working Capital enjoys better position in relation to meet its obligation as soon as it becomes due.

We know that measurement in absolute figure does not convey the real situations. But even then working capital may be considered as an index for measuring short-term liquidity position. That is why; Working Capital is the excess of current assets over current liabilities/ short-term obligations.

The short-term liquidity is measured more accurately with the help of following ratios used as independent variables in this paper for analysis:

(a) Current Ratio

(b) Liquid Ratio

(c) Cash Ratio

(d) Stock to Working Capital Ratio

Profitability Position of the Company:

Profitability is a measure of efficiency and control. It indicates the efficiency or effectiveness with which the operations of the business are carried on. Poor operational performance may result in poor sales and, therefore, low profits.

Low profitability may be due to lack of control over expenses resulting in low profits. Profitability Ratios are employed by management in order to assess how efficiently they carry on business operations. Profitability is the main base for liquidity as well as solvency.

Return on Capital Employed is taken as dependant variable for measurement of profitability.

Table 1: Components of Liquidity Position

Year	Current Assets	% Change	Inventory	% Change	Cash and Cash Equivalent	% Change	Current Liabilities	% Change
2015	22,929		8,821		984		13,093	
2016	24,152	5.06	8,412	-4.86	218	-351.83	12,352	-6.00
2017	29,508	18.15	9,268	9.24	4,335	94.98	18,425	32.96
2018	21,882	-34.85	10,738	13.69	1,821	-138.02	12,950	-42.28
2019	23,443	6.66	11,394	5.76	1,580	-15.28	14,007	7.55
2020	24,273	3.42	11,225	-1.51	3,280	51.83	15,414	9.13
Average	24,364	0	9,977	4	2,036	-72	14,373	0

Source: Extracted from Annual Reports of HINDALCO Industries Limited

It is depicted from the table 1 that there is a major fluctuation in current assets during 2016 to 2018. HINDALCO has reduced its current Investments in Government or Trust Securities at Fair Value; this is the main reason of huge reduction in Current Assets. Inventory has increased by 4 % as an average during the period. In Financial year 2014-15 to 2016-17, cash and cash equivalent has reduced drastically. In the immediate year there is a huge increase. Overall, throughout the period cash has reduced by 72 %.

These changes are easily visible in the figure 1.

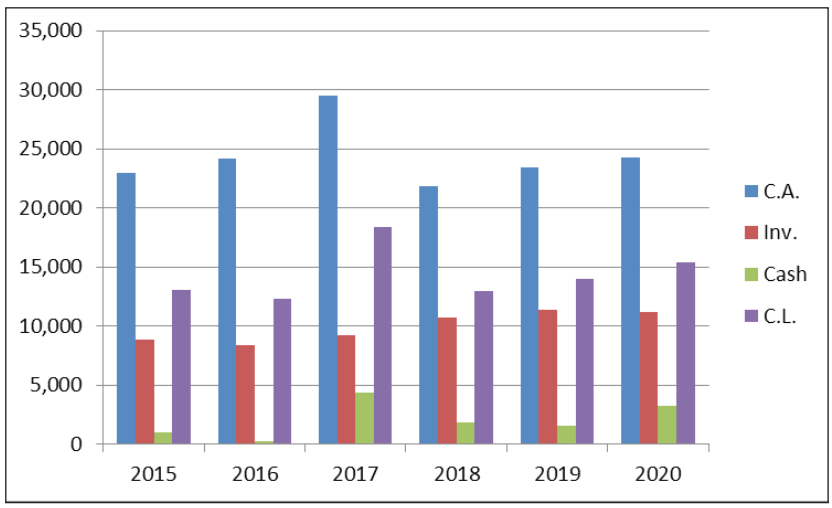

Figure 1: Components of Liquidity Position

Table 2: Determinants of Profitability Position

Year	EBIT		Capital employed	
2015	3,417		66262	
2016	3346	-2.12	70835	6.46
2017	4814	30.49	74483	4.90
2018	5124	6.05	69748	-6.79
2019	4246	-20.68	68092	-2.43
2020	3664	-15.88	68538	0.65
Average	4,102	-0.43	69,660	0.56

Source: Extracted from Annual Reports of HINDALCO Industries Limited

For the purpose of Profitability calculation, Earning before Interest and Tax (EBIT) has been taken as profit and it is compared with capital employed of the company. It can be easily seen in the table that EBIT has reduced continuously from the year 2018, whereas capital employed has been merely affected during the same period.

Figure 2 shows the difference between investment and return throughout the study period.

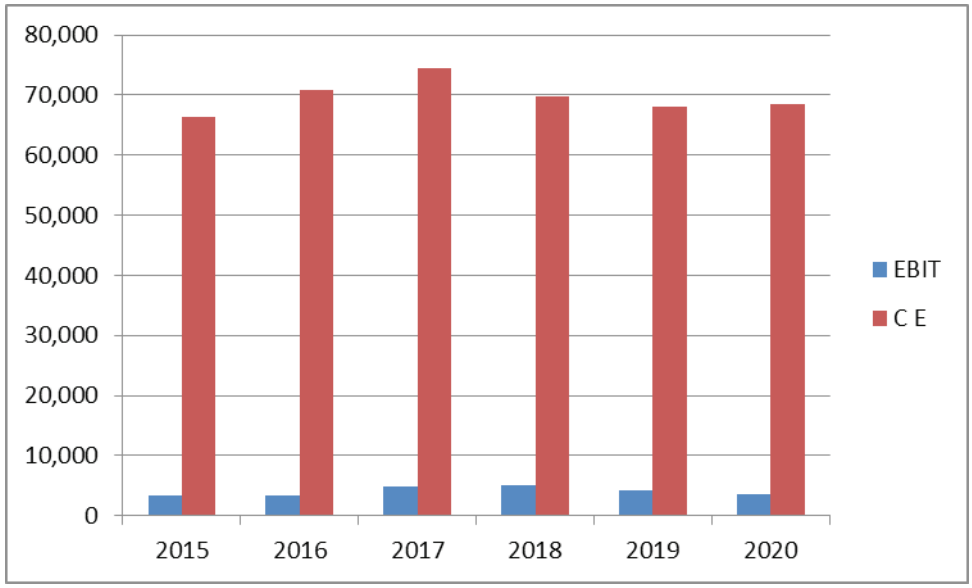

Figure 2: Determinants of Profitability

Table 3: Ratio of Liquidity and Profitability

(Value of ROCE in % and other ratios are in times)

	ROCE	Current Ratio	Liquid Ratio	Cash Ratio	STWC
2015	**5.16**	1.75	0.78	0.04	0.90
2016	**4.72**	1.96	0.93	0.01	0.71
2017	**6.46**	1.60	1.09	0.15	0.84
2018	**7.35**	1.69	0.86	0.08	1.20
2019	**6.24**	1.67	0.86	0.07	1.21
2020	**5.35**	1.58	0.84	0.13	1.27
Average	5.88	1.71	0.89	0.08	1.02
SD	0.98	0.14	0.11	0.05	0.23
Range	2.62	0.38	0.31	0.14	0.55
Correlation		-0.52	-0.12	0.44	-0.63

Table 3 depicts that Return on Capital Employed (ROCE) reached from 4.72% to 7.35% during the period. The range of ROCE is 2.62% and variation is less than 1% i.e. 0.98%.

Current Ratio is moving around its average as it is shown from the table. The SD is only 0.14%. Correlation between ROCE and Current Ratio is negatively moderate. The average Liquid Ratio is 0.89 and it is negatively correlated to ROCE with 12% only. Average Cash Ratio shows low cash maintained by the company, with only 5% of working capital. It is fluctuating vastly throughout the study period. The involvement of Stock in Working Capital has increased during the study period. Stock to Working Capital (STWC) has increased from 0.90 times to 1.27 in 2020. The correlation is negative and moderate at 63%.

No variable is highly correlated with the profitability.

REGRESSION ANALYSIS

In the analysis, Liquidity Ratios i.e. Current Ratio (CR), Liquid Ratio (LR), Cash Ratio (Cash R) and Stock to Working Capital (STWC) are taken as independent variables and ROCE is used as dependent variable. The multiple regression equation used is:

$ROCE=\alpha+\beta_1 CR+ \beta_2 LR+ \beta_3 CashR+ \beta_4 STWC + \varepsilon$

Where a, β_1, β_2, β_3 and β_4 are parameters to be estimated

Table 4: Regression Statistics

Multiple R	**.555**				
R Square	**.308**				
	Coefficients	*Standard Error*	**Standardized Coefficients Beta**	*t Stat*	*P-value*
Intercept	24.827	43.731		.568	.671
CR	-13.665	23.611	-2.006	-.579	.666
LR	7.532	15.145	.864	.497	.706
Cash Ratio	-35.794	63.879	-2.038	-.560	.675
STWC	-.150	6.403	-.037	-.023	.985

Table 4 shows that Multiple R is the Correlation Coefficient, which tells moderate linear relationship at 55% only.

R squared presents that only 31% of the variation of ROCE around the mean is explained by the independent variables.

One unit change in current ratio decreases ROCE by 67%, which is statistically insignificant at 5% level of significance. Similarly one unit change in Cash ratio decreases Profitability by 71%, not significant at 5% level. One unit change in liquid ratio increases ROCE by 68%, this is also not significant at 5% level of significant. Impact of Stock to Working Capital on ROCE is also not significant.

Thus it can be proved that null hypothesis is accepted.

CONCLUSION

Liquidity plays a vital role in the organization's operations and requires the efficient management. The liquidity position concerns the management of money, inventories, accounts receivable and accounts payable. It is necessary for an organization to monitor its liquidity position properly and maintain its balance at appropriate level. Lack of liquidity may lead to loss of production and sales. From this study it is concluded that maintaining efficient level of liquidity is very important not only for HINDALCO for all other companies as well. The result of study shows that there no is significant relationship between profitability and liquidity. The correlation analysis shows that ROCA has negative relationship with Current Ratio, Liquid Ratio and Stock to Working Capital ratio. Likewise, ROCA has positive relationship with Cash Ratio. The negative relationship between CR, LR, STWC and ROCA indicates that higher liquidity lowers the profitability and vice versa. Regression analysis has been used to check the significant impact on the profitability. The result shows that CR, LR, Cash Ratio and Stock to Working Capital have no impact Return on Capital Employed.

LIMITATION OF THE STUDY

The study is based on secondary data

The study is limited to only one Company that is HINDALCO Industries Limited

Sample size is limited to 6 years only.

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CHAPTER 10

Access to Institutional Credit in Punjab: Status and Performance

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ABSTRACT

Agricultural production is typically associated with a substantial time gap between cultivation-r, more generally, the period during which initial investments are made and inputs are purchased-and harvesting/marketing the output. Several layers of risk and uncertainty are also involved in the production process. Thus, access to credit markets potentially plays a crucial role in smoothing out these risks, achieving sustainable agricultural productivity growth, and supporting more efficient production decisions. Recognizing the importance of the agricultural sector in the national economy, the Government of India (GoI) has undertaken a number of initiatives to strengthen the agricultural credit system and these initiatives have had a positive impact on the flow of agricultural credit and the ratio of agricultural credit to agricultural gross domestic product (GDP) has increased from 10 percent in 1999–2000 to about 43 percent in 2016–17. However, about half of agricultural households still have no access to credit services in the country. Limited access to credit squeezes investment in agriculture and other productive activities. In Punjab 53.2 percent of agricultural households have a loan, slightly higher than the all India estimate of 51.9 percent (NSSO, 2014).Majority of the loans disbursed were 'crop loans', i.e., working capital loans to finance one season of cultivation, in contrast, term loans were 30 percent of the total loan disbursed in 2018-19, raising concerns about the capacity of farmers to undertake long term investment on their farms. As per the primary data collected from different farm categories of rural households from 30 tehsils of Punjab, institutional agencies were the most important source of credit for farm households but still about 9 per cent of the farmers availed credit from informal sources (Market agents, mahajans, large farmers, relatives and friends) which formed about 5.26 per cent of the total credit availed. About 68 per cent credit availed was for crop production only of which about 66 per cent was in the form of cash. About 5 per cent of the total credit was availed especially by the marginal and small farmers at an interest rate of as high as 24 per cent indicating their dependence on the non-institutional agencies which charge exorbitant rate of interest. The average debt per household was estimated to be Rs 122855 and per hectare it was to the tune of Rs 41878. The debt per hectare was found highest among the marginal farmers. Besides, the farmers also reported large number of problems in availing institutional credit which drives them to fall into the debt trap of the crafty and exploitative non-institutional sources of credit. Therefore, the existing credit delivery system should be strengthened to accelerate the growth of the farming sector for evacuating the peasantry from the debt trap.

Keywords: *Access, Credit, Institutional, Purpose, Rate of Interest.*

INTRODUCTION

Agriculture remains the mainstay of the Indian economy despite a decline in its share in the country's domestic product, on account of its central role not only in generating purchasing power among the rural population by creating on-farm and off-farm employment opportunities but also through its contribution to price stability. Agricultural production is typically associated with a substantial time gap between cultivation—or, more generally, the period during which initial investments are made and inputs are purchased—and harvesting/marketing the output. Several layers of risk and uncertainty are also involved in the production process. Thus, access to credit markets potentially plays a crucial role in smoothing out these risks, achieving sustainable agricultural productivity growth, and supporting more efficient production decisions. Agricultural growth includes increased use of agricultural inputs, technological change and technical efficiency. With savings being negligible among the small farmers, agricultural credit appears to be an essential input along with modern technology for higher productivity and enhanced farm income

Recognizing the importance of the agricultural sector in the national economy, the Government of India (GoI) has undertaken a number of initiatives to strengthen the agricultural credit system and these initiatives have had a positive impact on the flow of agricultural credit and the ratio of agricultural credit to agricultural gross domestic product (GDP) has increased from 10 percent in 1999–2000 to about 43 percent in 2016–17. However, about half of agricultural households still have no access to credit services in the country. Limited access to credit squeezes investment in agriculture and other productive activities. Timely availability of credit at affordable rates is a precondition for improving rural livelihood and fast-tracking rural development (Kumar *et al.,* 2015). The direct agriculture credit amount has a positive and statistically significant impact on agriculture output and its effect is immediate (Das *et al*., 2009).

Credit constraints have significant adverse impact on farm efficiency, productivity and profitability (Feder 1990; Guirkinger and Boucher 2008). Besides, there exists a significant positive relationship between variable inputs usage and disbursement of production credit (Sidhu *et al*., 2008, Kumar *et al*., 2013, Karlan *et al*., 2014). A 10 percent increase in the credit flow in nominal terms leads to 1.7 percent increase in fertilizers consumption, 5.1 percent increase in pesticides consumption and 10.8 percent increase in tractor purchases (Narayanan, 2016). Prior literature reports enhancement in farm performance and acreage due to removal of credit constraints (Blancard *et al*., 2006, Dong *et al.,* 2010). Role of institutional credit in the economic wellbeing of farm households is well documented (Das *et al*., 2009, Narayanan 2016, Kumar *et al*., 2017). Lack of access to institutional credit can adversely affect the adoption of modern technology and capital formation.

Punjab agriculture has undergone a significant structural change since the advent of green revolution since mid-1960s. Traditional agriculture has progressively given way to modern and commercial agriculture. Technology and inputs were the main underpinnings of this transformation. The agricultural policy that ensured easy access to inputs through credit and subsidies and an assured market with minimum support and procurement prices helped successfully translate the new technology into increasing agricultural production, thereby, increase in per capita income (Satish, 2006).The state of Punjab was at the forefront of adopting new agricultural technology, which resulted in a large increase in the use of capital inputs to realise the benefits of this technology (Kaur and Singh, 2010).But, farmers have to spend huge amounts of cash on purchasing market-supplied farm inputs to carry out their production operations (Kaur, 2011). Rising costs along with stagnant technology and a near freeze in the minimum support price of wheat and paddy, which turned the already adverse terms of trade from bad to worse, has reduced returns on foodgrain production (Sajjad and Chauhan 2012), thus, the farmers are facing difficulties in meeting both farm and domestic expenditure (Sharma *et al.,* 2015). The demand for agricultural credit has enhanced manifold in the state. The institutional source meets only 51 per cent of the credit requirement of the farm sector (Rao, 2003). Therefore, the non-institutional sources are largely approached by the farmers due to lack of their security assets, frequent needs, inadequate supply of institutional credit, undue delay, sophisticated procedure and malpractices adopted by the institutional lending agencies (Nahatkar, 2002). Misutilisation of loans availed for agriculture by the farmers particularly marginal/small farmers results in their inability to increase their income level from crop production and they remain poor (Sharma and Rani, 2017 and Mehmood *et al*., 2012).

In the backdrop of this, the paper examines the performance of agricultural credit flow in India vis-a-vis Punjab, along with its availability, coverage and problems faced by the farmers in obtaining institutional loan in Punjab.

METHODOLOGY

Both primary and secondary data were used to meet the stipulated objectives of the study. Secondary data were obtained from various published sources viz. Agricultural Statistics at a Glance published by the Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India (GoI); Economic Survey, published by Ministry of Finance, GoI. Besides, the study also used the unit level data of debt and investment

survey carried out by National Sample Survey Organisation (NSSO), 2003 (59th round) and 2014 (70th round). The primary were data collected from a sample of 300 farm households in 30 tehsils spread across the three agro-climatic zones of Punjab state with personal interview method. From each zone, farmers were selected using three-stage stratified sampling technique, with tehsil as stage one, a village/cluster of villages as stage two and operational holdings within the clusters as stage three. From each cluster, a sample of ten operational holdings i.e. marginal (< 1 hectare (Ha)), small (1-2 Ha), semi-medium (2-4 Ha), medium (4-6 Ha) and large (≥ 6 Ha) were selected randomly. Information from each surveyed agricultural household i.e. 60 farmers from each of the five farm categories was collected relating to amount of loan outstanding along with source, purpose, nature of the loan and problems faced by the farmers in availing institutional agricultural credit.

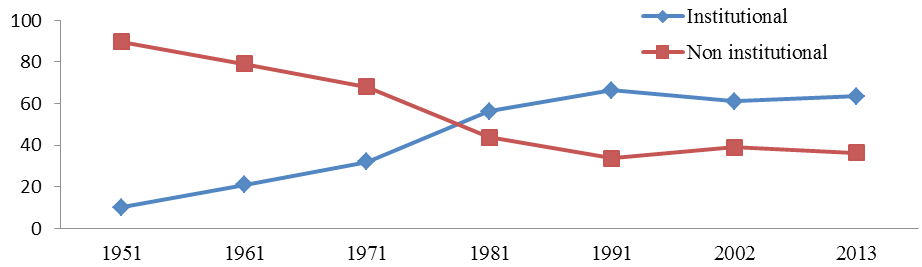
RESULTS AND DISCUSSION

A. Performance of agricultural Credit in India

India has a va t network of financial institutions, with the co-existence of dual (institutional and non-institutional) financial systems that both operate in the rural credit market. A large number of (institutional and non-institutional) agencies lend money to farmers for their short and long-term needs. The institutional agencies include cooperatives, Regional Rural Banks, Scheduled Commercial Banks, nonbanking financial institutions, self-help groups, microfinance institutions, and other government agencies while the non institutional sources comprise moneylenders, friends, relatives, traders/shopkeepers, employers, and others. The share of agricultural credit from both the sources i.e. institutional and non-institutional has been presented in Fig. 1.

Over the years share of various institutional agencies in total agricultural credit is increasing continuously and the dependency on non-institutional sources is decreasing. The share of non-institutional credit dropped from 89.8 per cent in 1951 to 36.44 per cent in 2013 while institutional credit has increased from about 10 percent to 63.56 percent. It is also clear that the shift from non-institutional credit to institutional credit was very fast from 1951 to 1980. After that this rate of shift has slowed down and now it is shifting very slightly. There is need to encourage farmers for institutional loans so that their reliance on non-institutional sources i.e. money lenders can be reduced. This will improve the financial status of the farmers.

Fig 1 : Share of agricultural credit from institutional and non-institutional sources in India (% share)



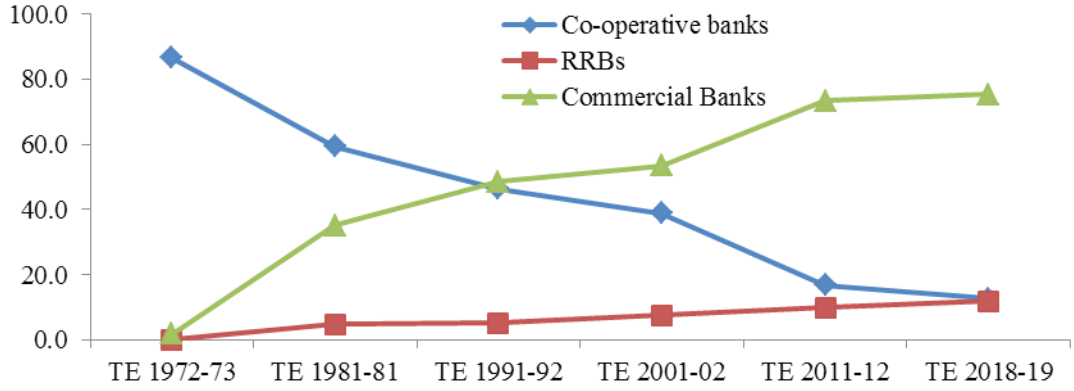
Source: All India Debt and Investment Surveys, Various Issues, NSSO

Among informal or non-institutional sources of rural credit, professional moneylenders share the largest loan volume for agricultural households (64 %). Friends and relatives, who usually do not charge interest, provide 24 percent of informal loans. Shopkeepers account for 4.9 percent of informal loans to the agricultural sector while the share of employers or landlords is negligible. Among formal sources, Banks are the dominant force followed by cooperative societies and government sources.

- **Flow of Institutional Credit to agriculture sector**

Institutional agricultural credit started depicting a growth after bank nationalization and it has been growing continuously since then as sown in Fig 1. With time, structural change has been observed in the institutional agricultural credit flow. The share of scheduled commercial banks (SCBs) has increased from a mere 1.9 per cent in TE 1972-73 to 75 per cent in TE 2018-19 as shown in Fig 2. Prior to nationalization, the commercial banks were virtually not lending credit to the agricultural sector. The share of RRBs in institutional credit disbursement increased from about 5 per cent during TE 1981-82 to 12 per cent during TE 2018-19. On the other hand, the co-operative banks which were the primary source of institutional credit to agriculture have witnessed a sharp decline in their share in agricultural credit, which has consistently declined from 86.7 per cent in TE 1972-73 to 12.76 per cent in TE 2018- 19.

Fig 2: Flow of institutional agricultural credit in India (% share)



Note: During TE 1972-73, remaining 11.6 per cent of total loan was issued by the state government

Sources: (a) Anjani et al., 2010

(b) From 2011-12 onwards, calculations based on Agricultural Statistics at A Glance, 2019

In absolute terms the agricultural credit from the cooperative banks has increased Rs 824 crore in 1972-73 to Rs 1.48 lakh crore in 2018-19 though their share in total institutional credit has declined with time (Table 1).

Table 1: Flow of institutional credit to agriculture sector in India

(Rs. crore)

Year (TE)	Source of credit			
	Cooperative Banks	Regional Rural Banks	Commercial Banks	Total
1972-73	824 (86.70)	0 (0.00)	18 (1.90)	952 (100.00)
1981-82	2109 (59.40)	168 (4.70)	1254 (35.00)	3553 (100.00)
1991-92	4763 (46.30)	526 (5.10)	4988 (48.50)	10277 (100)
2001-02	20923 (39.00)	4082 (7.60)	28709 (53.40)	53713 (100.00)
2008-09	42162 (17.50)	23866 (9.90)	174775 (72.60)	240803 (100.00)
2011-12	76527 (16.83)	44654 (9.82)	333431 (73.35)	454612 (100.00)
2018-19	148495 (12.76)	137947 (11.86)	877253 (75.38)	1163695 (100.00)

Source: Agricultural Statistics at A Glance, various issues

Note: Figures in parentheses are percentages to their respective totals.

Similarly, the credit disbursed for agricultural purpose by commercial banks increased from mere Rs 18 crore to about Rs 8.77 lakh crore and that for RRBs from nil to about Rs 1.38 lakh crore during 1972-73 to 2018-19.

Thus, the structure of the sources of credit has witnessed a clear shift and commercial banks have emerged as the major source of institutional credit to agriculture in the recent years.

➢ **Indebtedness of agricultural households**

The perusal of Table 2 reveals the average amount of outstanding loan per agricultural household by size class of land possessed for major States.

Table 2: Average amount of outstanding loan per agricultural household by size class of land possessed in India

State	Average amount of outstanding loan (Rs '00) per agri. hhs belonging to the size class of land possessed (ha)								Esd. no. agri. households having outstanding loan (00)	Proportion of indebted agricultural households
	<0.01	0.01 to 0.04	0.04 to 1	1.01 to 2	2.01 to 4	4.01 to 10	10.01 & above	All		
Andhra Pr.	2409	739	893	1049	1623	3500	2494	1234	33421	92.9
Assam	4	8	24	67	71	173	0	34	5995	17.5
Bihar	73	138	132	341	279	424	1494	163	30156	42.5
Chhattisgarh	0	48	93	79	202	239	0	102	9538	37.2
Gujarat	69	120	247	311	826	1624	1148	381	16743	42.6
Haryana	95	192	737	900	1573	1162	4681	790	6645	42.3
Jharkhand	0	56	46	85	92	200	0	57	6464	28.9
Karnataka	355	778	633	987	1248	2321	3673	972	32775	77.3
Kerala	1690	1592	1944	3467	6070	7505	15726	2136	10908	77.7
Madhya	91	119	152	270	629	1168	1952	321	27414	45.7
Maharashtra	102	453	232	455	582	2071	3869	547	40672	57.3
Odisha	88	167	337	181	326	1302	22281	282	25830	57.5
Punjab	131	246	516	1641	2292	3266	9274	1195	7499	53.2
Rajasthan	1694	334	431	678	1031	1548	1528	705	40055	61.8
Tamil	377	674	1192	1200	2147	3224	4512	1159	26780	82.5
Telangana	563	578	794	1033	1097	1369	2690	935	22628	89.1
Uttar	219	160	218	457	1075	1248	2178	273	79081	43.8
West	57	146	197	330	329	435	2760	178	32787	51.5
India*	311	239	354	548	949	1827	2903	470	468481	51.9

Source: NSSO 2014

** based on all States and UTs, including States and UTs not shown in the Table*

About 52 percent of the agricultural households in the country were estimated to be indebted. The average amount of outstanding loan per agricultural household was about Rs.47000. Among the major States, Andhra Pradesh had the highest share of indebted agricultural households in the country (92.9 percent) followed by Telangana (89.1 percent) and Tamil Nadu (82.5 percent). Assam (17.5 percent), Jharkhand (28.9 percent) and Chhattisgarh (37.2 percent) were the major States with lowest share of indebted agricultural households. The average amount of outstanding loan was highest for Kerala (Rs.213600/-) followed by Andhra Pradesh (Rs.123400) and Punjab (Rs.119500). Assam (Rs.3400), Jharkhand (Rs.5700) and Chhattisgarh (Rs.10200) were the States with lowest amount of average outstanding loan.

At national level as per NSSO 2014, informal sources of rural credit account for about 36.4 percent of the loan volume for agricultural households, and professional moneylenders (64 percent) are the largest source of informal credit. Friends and relatives, who usually do not charge interest, provide 24 percent of informal loans. Shopkeepers account for 4.9 percent of informal loans to the agricultural sector, and the share of employers or landlords providing informal credit to agricultural households is negligible. Nearly 64 percent of the credit is from formal sources. Banks have been the dominant force (71 percent) in issuing formal credit, followed by cooperative societies (25.4 percent) and government sources (3.6 percent)

- **Extent of Debt**

At national level, there is debt of about Rs 511 lakh on each indebted land holding (Table 3). Among different farm categories, maximum debt belongs to large farmers i.e. about Rs 1921 lakh and the least for marginal i.e. about Rs 342 lakh. The average debt on each thousand hectare area ranged from about Rs 239 lakh for marginal farmers to about Rs 67 lakh for large farmers.

Table 3: Distribution of institutional agricultural credit according to size of landholdings in India

Farm category	Rs Lakh per indebted operational holding	Rs lakh per 000ha of operational area
Marginal (< 1 Ha)	342.24	239.23
Small (1-2 Ha)	514.17	156.75
Semi-medium (2-4 Ha)	755.87	132.27
Medium (4-10 Ha)	1213.01	114.82
Large (10 Ha & above)	1921.11	67.11
All	510.84	154.15

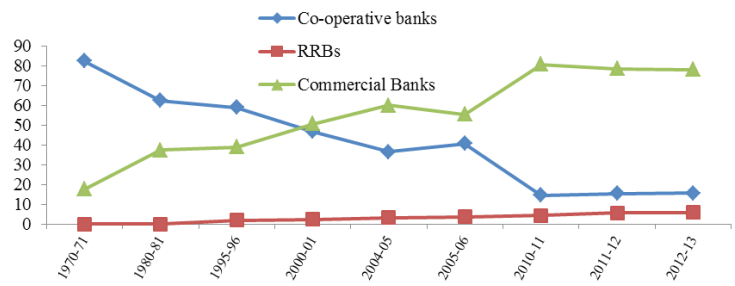
Source: Agricultural Statistics at A Glance, 2019

Thus, the average debt per indebted household increased with operational area while the amount of debt outstanding declined with rise in operational area in the country.

B. Performance of agricultural credit in Punjab

Institutional credit has been used as an important policy instrument for growth and development of agriculture sector in the state. The institutional credit agencies in Punjab not only encouraged adoption of green revolution technology but also escape the farmers from moneylenders by providing credit to the farmers at low rate of interest (Satish, 2006). The share of institutional credit by different agencies has been shown in Fig 3.

Fig 3 : Flow of institutional agricultural credit in Punjab (% share)



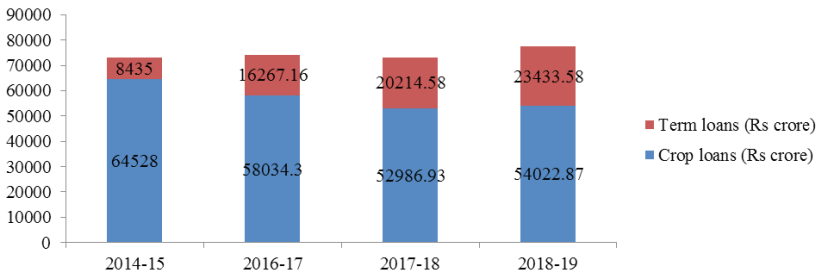
Source: Kaur and Pavneet, 2015

The spread of institutional agencies has led to a considerable increase in the share of agricultural credit. Over the period of time the share of commercial banks has increased from 17.62 per cent to 78.11 per cent and share of co-operative banks has declined from 82.38 per cent to 15.83 from 1970-71 to 2012-13 respectively. The share of RRBs has also increased to 6.06 per cent during this time period. At state level, among institutional sources commercial banks has emerged as the dominant force followed by cooperative societies and government sources.

➢ Disbursement of agricultural loans in Punjab

According to the Situation of Agricultural Households in India (NSSO, 2014), 53.2 percent of agricultural households in Punjab have a loan, slightly higher than the all India estimate of 51.9 percent. However, loans disbursed show a dip in 2017-18 and 2018-19.Another feature is that the majority of the loans are 'crop loans', i.e., working capital loans to finance one season of cultivation. In contrast, term loans were 30 per cent of the total loan disbursed in 2018-19, raising concerns about the capacity of farmers to undertake long term investment on their farms.

Fig 4 : Agricultural loans disbursed during different years in Punjab



➢ **Banking offices in Punjab**

Number of banking offices in different districts of Punjab during the year 2020 shows that commercial banks comprise large number of banks followed by co-operative and Punjab national banks (Table 4). State bank of India has comparatively less number of banks. As most of the agricultural credit is provided by co-operative banks and commercial bank due to its easy availability so, this is the main reason of their more branches in the state.

Table 4: District-wise number of Banking offices in Punjab

(as on 31st December, 2020)

District	Name of Bank					No. of banks per NSA (000Ha)
	State Bank of India	Punjab National Bank	Other Commercial Banks	Co-operative Banks	Total	
Amritsar	68	113	398	57	636	2.90
Barnala	28	21	81	16	146	1.17
Bathinda	88	60	194	39	381	1.30
Faridkot	21	18	98	24	161	1.27
Fatehgarh	26	16	121	25	188	1.84
Faridkot	25	36	111	29	201	0.80
Firozpur	28	36	121	23	208	0.95
Gurdaspur	29	54	216	34	333	1.59
Hoshiarpur	44	99	256	66	465	2.28
Jalandhar	83	140	581	71	875	3.62
Kapurthala	27	60	204	41	332	2.52
Ludhiana	118	160	658	54	990	3.31
Mansa	27	20	85	22	154	0.83
Moga	26	50	154	47	277	1.43
Pathankot	32	24	87	10	153	3.26
Patiala	103	77	273	42	495	1.93
Rupnagar	22	17	119	25	183	2.26
S.A.S.nagar	54	60	331	21	466	6.05
S.B.S.nagar	19	32	134	47	232	2.42
Sangrur	65	51	209	46	371	1.18
Shri Muktsar Sahib	31	24	125	22	202	0.88
Tarn taran	19	31	116	40	206	0.95
Punjab	983	1199	4672	801	7655	1.86

Source: Statistical Abstract of Punjab, 2020

On an average, there were 2 banks per thousand hectares of net sown area in the state. In 10 districts there were more than 2 banks per thousand hectares of NSA whereas in 13 districts the number of banks are less than state average. The number of existing banks per unit of NSA were as high as 3.62 in Jalandhar and was lowest in Fazilka (0.80). Thus, at state level, commercial banks are the leading source of agricultural credit.

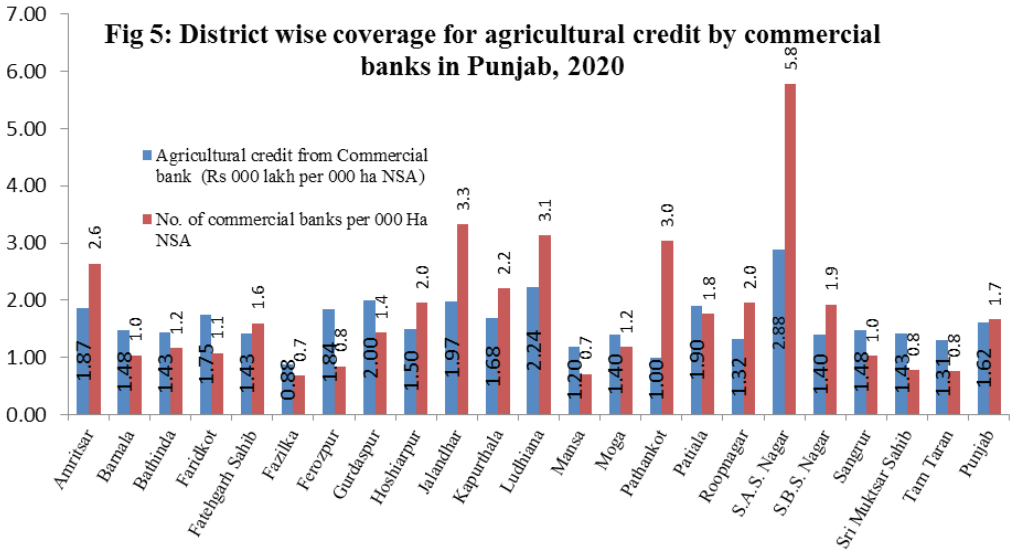
District wise analysis for agricultural credit provided by commercial banks indicated that outstanding credit for each unit of NSA was the maximum for S.A.S nagar (Rs 2.88 lakh) followed by Gurdaspur (Rs 2 lakh), Patiala (Rs 1.90 lakh), Amritsar (Rs 1.87 lakh), Firozpur (Rs 1.84 lakh), Kapurthala (Rs 1.68 lakh) while for other districts it lied below state average of Rs 1.52 lakh per unit of NSA (Table 5).

Table 5: District-wise classification of outstanding credit of Scheduled Commercial banks, 2020

(Rs 000 million)

Districts	Agriculture	Direct	Indirect	Total agricultural credit (Rs 000 lakh per NSA)
Amritsar	40.93	39.79	1.14	1.87
Barnala	18.46	17.99	0.47	1.48
Bathinda	42.04	42.04	42.04	1.43
Faridkot	22.17	21.38	0.79	1.75
Fatehgarh	14.57	14.32	0.25	1.43
Faridkot	22.17	21.38	0.08	0.88
Firozpur	40.12	37.90	2.22	1.84
Gurdaspur	41.75	40.96	0.79	2.00
Hoshiarpur	30.62	30.25	0.37	1.50
Jalandhar	47.72	45.51	2.21	1.97
Kapurthala	22.19	20.22	1.98	1.68
Ludhiana	66.84	62.26	4.58	2.24
Mansa	22.12	21.56	0.57	1.20
Moga	27.19	26.29	0.90	1.40
Pathankot	4.69	4.61	0.08	1.00
Patiala	48.75	46.97	1.78	1.90
Rupnagar	10.68	10.30	0.37	1.32
S.A.S.nagar	22.17	18.53	3.64	2.88
S.B.S.nagar	13.45	13.21	0.24	1.40
Sangrur	46.52	45.15	1.37	1.48
Shri Muktsar Sahib	32.64	31.61	1.03	1.43
Tarn taran	28.47	28.07	0.40	1.31
Punjab	625.33	600.52	66.14	1.52

Source: Statistical Abstract of Punjab, 2020



Source: Statistical Abstract of Punjab, 2020

At state level for each thousand hectares of NSA there exist about 2 commercial banks (CB) with an agricultural credit outstanding of 1.52 lakh (Fig 5). Among districts, S A S nagar has highest number of CBs with least being for Fazilka and Sri Muktsar sahib (each 0.8). Also the agricultural credit outstanding is the highest for S A S nagar while it the lowest for Fazilka.

C. Agricultural credit in Punjab- Insights from field survey

On the basis of field survey, estimates of the agricultural credit was made per sample farm household and category-wise from different sources and the same have been presented below.

- **Agricultural credit availed**

Analysis of data from field survey indicated that the average credit availed per household was about Rs 122855 while it was Rs 41878 per hectare (Table 6).

It was interesting to note that the agricultural credit availed was the highest in terms of per household for the large farmers while for each hectare it was the highest for the small farmers.

Table 6: Farm category wise distribution of agricultural credit

Farm category	Volume of agricultural credit	
	Per household	Per hectare
Marginal	51001.69	38370.43
Small	59772.36	86638.46
Semi-medium	48835.85	100489.6
Medium	42567.49	149310.4
Large	34780.05	198142.9
Overall	41878.21	122854.8

Fig 6a: Distribution of respondents according to different sources of credit followed (% share)

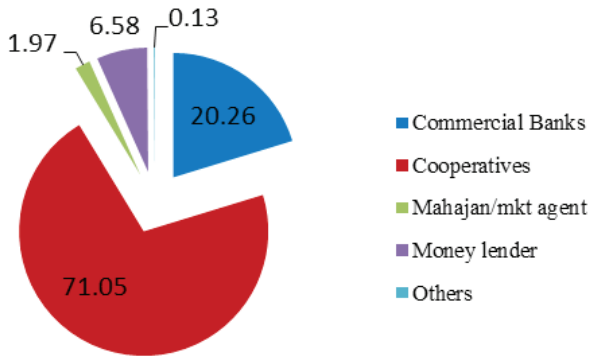
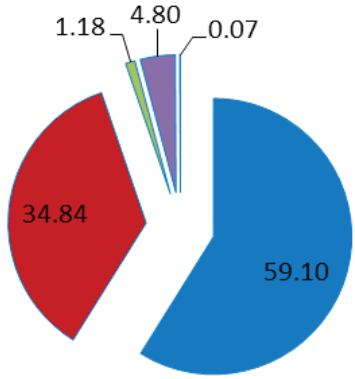


Fig 6b:Distribution of agricultural credit availed according to different sources (% share)



Further analysis indicated that the most preferred source of agricultural credit (Fig 6a) was the cooperative societies as about 71 per cent farmers were availing credit from them followed by commercial banks i.e. 20.26 per cent while among other non-institutional sources, money lender was most preferred (6.58%) followed by market agents and friends and relatives. Farm category wise analysis indicated that among all the categories, cooperatives remained the most preferred source followed by commercial banks, money lender and market agents (Table 7a). Only marginal farmers were availing credit from other sources.

Table 7a: Distribution of respondents according to different sources of agricultural credit (% share)

Farm category	Source of credit				
	Commercial banks	Cooperatives	Mahajan / market agent	Money lender	others inc relatives n friends
Marginal	16.82	70.09	6.54	5.61	0.93
Small	22.56	63.16	1.50	12.78	0.00
Semi-medium	17.34	75.14	1.73	5.78	0.00
Medium	24.42	72.67	0.58	2.33	0.00
Large	19.43	72.00	1.14	7.43	0.00
Overall	20.26	71.05	1.97	6.58	0.13

On the basis of amount of agricultural credit availed, the major share came from the commercial banks (59.10%) as the farmers were getting credit from the banks for purchase of capital items from this source only (Fig 6b) followed by cooperatives (34.84%). Money lender was meeting about 5 per cent of the credit requirements of the respondents. Money lenders met about 1 per cent of the credit requirement and from other sources only 0.07 per cent credit was availed.

Table 7b: Distribution of agricultural credit according to different sources (% share)

Farm category	Source of credit				
	Commercial banks	Cooperatives	Mahajan / market agent	Money lender	others inc relatives n friends
Marginal	52.73	37.55	2.14	5.87	1.70
Small	72.21	21.27	1.39	5.13	0.00
Semi-medium	59.71	33.91	0.89	5.49	0.00
Medium	64.52	33.89	0.39	1.21	0.00
Large	51.19	40.20	1.73	6.88	0.00
Overall	59.10	34.84	1.18	4.80	0.07

Farm category wise analysis indicated that though maximum number of farmers were approaching cooperatives for availing agricultural credit yet the maximum share of credit supplied belonged to commercial banks only and it was so for all the farm categories. It was the large farmers who were mainly benefitted by credit facility from the cooperatives as well as money lenders while marginal farmers were enjoying it this facility the maximum from market agents and other sources.

- **Purpose of availing agricultural credit**

The purpose for which a loan is taken / spent is an important indication of its potential to be repaid. Productive loans included purchase of current agricultural inputs (seed, diesel/mobile oil and agro-chemicals) and capital items (purchase of tractors, harvest combines and farm machinery) y and non-farm production activities (seed shop, spare parts shops, mini buses, etc.). It was observed that about 68 per cent of agricultural credit was availed for arranging farm inputs like fertilisers etc only while about 27 per cent was engaged for meeting multi-purpose needs (Table 8). About 3 per cent of the credit availed was for capital items like buildings, buying implements etc and rest about 2 per cent was used for crop production. Similar results were found in a study for Punjab as an average farm household in the state was found to incurr 74.8 per cent on productive and 25.2 per cent on unproductive purposes (Singh *et al.,* 2009).

Table 8: Distribution of agricultural credit according to purpose

(% share in credit availed)

Farm category	Purpose of agricultural credit			
	Crop production	Capital items	Inputs	Others
Marginal	8.28 (2.80)	4.14 (2.80)	61.13 (81.31)	26.45 (13.08)
Small	0.00	12.67 (1.50)	66.69 (85.71)	20.64 (12.78)
Semi-medium	1.07 (1.73)	0.00	78.67 (86.13)	20.26 (12.14)
Medium	0.46 (1.16)	1.50 (1.16)	70.25 (84.88)	27.79 (12.79)
Large	3.89 (2.29)	2.88 (0.57)	62.24 (80.88)	30.98 (17.14)
Overall	2.14 (1.58)	3.23 (1.05)	68.00 (83.68)	26.63 (13.68)

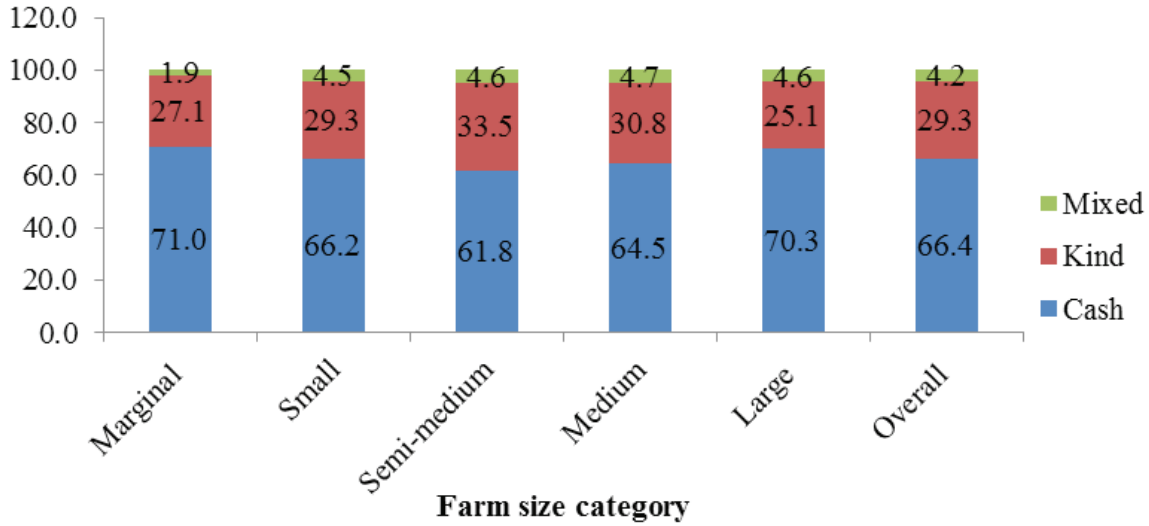
Note: Figures in parentheses indicate percent share of respondents

Farm category wise analysis indicated that the majority of the respondents had availed the credit to meet their requirement of agricultural inputs only (83.68%) and it was so for all the farm categories.

- **Type of credit availed**

The respondents were getting credit mainly in cash form (66.4%) while about 29 per cent preferred it in kind form followed by about 4 per cent in mixed form including both cash and kind (Fig 7).

Fig 7: Distribution of respondents according to type of agaricultural credit availed (%)



Farm category wise analysis indicated that cash form of credit was preferred by all the farm categories as more than 62 per cent respondents from each category were doing so with rest getting it in kind and mixed forms. Of the total credit availed, maximum was bought at an interest rate of 7 per cent only (Table 9) followed by another 14.1 per cent at 12 per cent rate of interest, 10 per cent at interest rate of 11 per cent. About 5 per cent was taken at a high interest rate of 24 per cent and the major source was the money lenders for it.

Table 9: Distribution of agricultural credit according to rate of interest charged

Farm category	Rate of interest charged (%)					Average credit/ household
	7	11	12	18	24	
Marginal	40833.0 (85.98)	0	20000.0 (0.93)	25000.0 (1.87)	23250.0 (11.21)	38370.4
Small	72290.4 (82.71)	730000.0 (1.50)	453333.3 (2.26)	13995.8 (4.51)	55583.3 (9.02)	86638.5
Semi-medium	89772.3 (89.60)	500000.0 (1.16)	281000.0 (2.89)	0	96818.2 (6.36)	100489.6
Medium	105184.4 (88.95)	521446.2 (3.49)	756250.0 (4.65)	100000.0 (0.58)	77375.0 (2.33)	149310.4
Large	160893.1 (83.43)	650000.0 (3.43)	537500.0 (4.57)	260781.3 (2.29)	176500.0 (6.29)	198142.9
Overall	99400.7 (86.32)	593042.3 (2.11)	525400.0 (3.29)	98238.5 (1.71)	85240.0 (6.58)	122854.8
Per cent share in total credit	69.8	10.2	14.1	1.4	4.6	

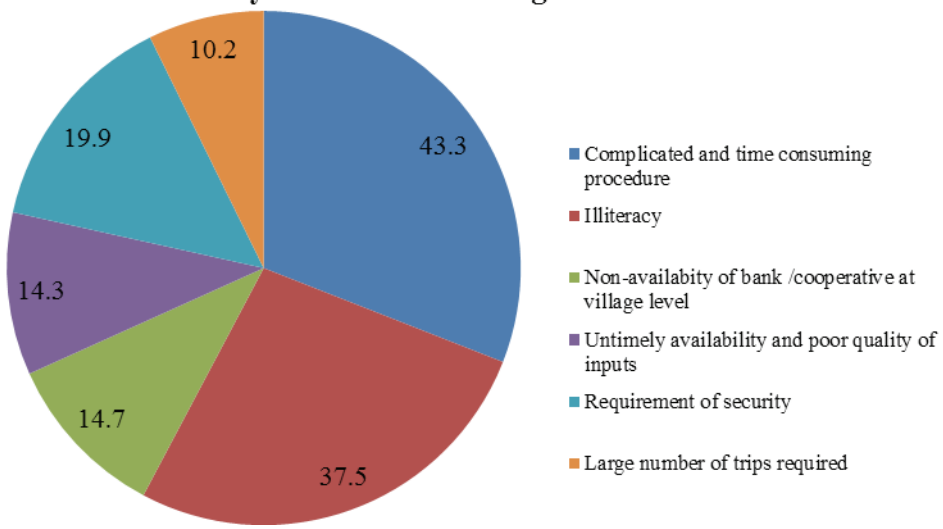
Note: Figures in parentheses indicate percent share of respondents

D. Farmers' Perception Regarding Institutional Borrowing

In Punjab, farm households in their zest to make high capital investments to sustain high output growth rate and incomes for maintaining their improved living and social standards intended to borrow from both institutional as well as non-institutional sources. They had their own perceptions about the source of borrowing, problems they face in availing the institutional loans and why they prefer non-institutional loans. They also made some suggestions to improve the institutional credit delivery system

About 43 per cent farmers reported the complicated and time-consuming procedure as the main grudge in availing the institutional agricultural credit (Fig 8). The illiteracy of farmers making them hesitant to approach the banks for loans, was reported by about 38 per cent farmers and about 20 per cent reported that the loan was not available without surety /security. As many as 15 per cent farmers reported about bank /cooperative branch not being in the village.

Fig 8: Problems Faced by Farmers in Availing Institutional Credit



Various reasons were also reported by the farmers behind approaching the non-institutional agencies for meeting their deficit credit requirements. The non-institutional loan was 'easier to avail' and 'no formality and surety/ security was needed' was opined by almost all the farmers and were the major reasons reported for preference to the non-institutional loans.

E. Conclusions and Suggestions

The study has concluded that although the institutional credit for agriculture has increased rapidly in recent years in Punjab, it still lacks behind the productive needs of the Punjab farmers. They have to resort to non-institutional sources to meet part of their productive as well as un-productive needs. Some important policy implications emerging from the study are:

- There is need for capacity building of borrowing farmers by imparting training to borrowers regarding procedural formalities of financial institutions could be helpful in increasing their access to institutional credit. In addition, application form should be made simple and in the local language.
- The banking system is hesitant on various grounds to provide credit to small and marginal farmers. The situation calls for concerted efforts to augment the flow of credit to agriculture, alongside exploring new innovations in product design and methods of delivery, through better use of technology and related processes.
- All banks should fix one day in a week to deal with and help the farmers in filling up of the application form and completing the formalities, and to minimize the time gap between date of applying for loan and its disbursement, proper maintenance of records with respect to receipt of applications and disbursement of loan should be made mandatory. Computerization of land records by the state government can further facilitate institutional lendings.
- The weaker sections of the society like SCs smallholders are more exposed to non-institutional sources for their borrowings and thus end up paying higher rates of interest, which have a negative bearing on their economic situation. This needs to be ameliorated by strengthening the on-going special schemes for these groups.
- The role of the state government is very important for distribution of direct finance, not merely because agriculture is a state subject, but also because it is important that the remedial measures be converted into more efficient contributions through proper execution.

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CHAPTER 11

A Study of Performance Analysis of Selected Airways Companies Using Z-Score and Zmijewski Model

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ABSTRACT

The financial position of the company depends on the adequate availability of the funds and proper utilization of the funds which helps the company to progress. Financial Analysis and Financial Statements are the two main tools which can help to plan the future availability and utilization of the firm. The present research report is based on the financial performance analysis of selected Airways companies with the help of Z-Score Model and Zmijewski Model. The Z-Score Model was developed by Edward Altman in 1968 and Zmijewski Model was developed by Mark E Zmijewski. The researcher has used the model to analyze the solvency status of the of the selected Airways Companies. Mainly The present research is based considering the Secondary Data of the companies. The data had been collected from financial statements of the companies and from different websites like moneycontrol.com, rediffmoney.com and annual reports of the selected companies. In present study the companies from Airways Industry have been considered by the researcher. The companies were selected by Lottery Method by the researcher. The researcher will apply two independent Sample T -Test. The researcher found that models help and guide a lot in knowing the solvency status of the companies. The researcher also concluded that models could help a lot to the management in taking various decisions.

Keywords: *Solvency, Financial Analysis, Financial Statements, Z-Score Model, Zmijewski Model*

INTRODUCTION

The success of any company depends on effective financial practices which starts from proper procurement of funds and ends by proper utilization of funds, this is possible when the financial activities of the firms are analyzed. Thus, financial planning, financial analysis and financial statements helps the firms to know the strength and weakness of the companies. So, after financial planning, financial analysis is the crucial step for a company to be successful. The main tool for financial analysis is the financial statements of the companies. Financial Analysis is a process, combination and summarization of financial and operational data represented in the financial statements with a view to get an insight into the operational activities of a business concern. As per Helfert Erich A. "The main purpose of financial analysis is to provide reasonable clues and answers to specific questions posed by problems of interest to analyst. It cannot be over emphasized that financial analysis is not an automatic or standardized process, rather it is flexible approach tailored to suit the needs of the specific

situations." Financial Statement is an original collection of data arranged according to logical and consistent accounting principles. Financial statements are prepared from the accounting records maintained by the firms. Financial statements are the end products of the financial accounting process.

INTRODUCTION TO Z-SCORE MODEL

Z-Score Model has been established by Edward Altman in the 1960s, he was an assistant professor of finance at New York university during that period. The model was prepared by Altman based on the research work done by considering the data of banks and have provided the bankruptcy model. In his study he considered 22 ratios and finally stated or formed the model considering 5 ratios which help to measure bankruptcy of the firms. This model helps to evaluate the general trend in the financial health of an enterprise over a period. Many accounting ratios are used to know financial health of the enterprise. Edward Altman established Z-Score model, he combined many accounting ratios (liquidity, leverage, activity and profitability) to form an index of profitability. A lower score of Z-Score Models depicts higher odds of bankruptcy. The model helps to analyze the financial solvency status of the firms and helps to take correct decisions regarding not entering the solvency Zone or Distress Zone, with the help of parameters given by Edward Altman.

Edward has developed different Models for Different Business and Firms.

The original model was developed further to know the financial soundness and financial solvency status of the private firms.

Table- 1

Model	Parameters	Description
Z- Score Estimated for Private Firms **$Z= 0.717 X_1 + 0.847 X_2 + 3.107 X_3 + 0.420 X_4 + 0.998 X_5$**	**Z > 2.9 Safe Zone** **1.23 < Z < 2.9 Grey Zone** **Z<1.23 Distress Zone**	X_1 = Working Capital / Total Assets X_2 = Retained Earnings / Total Assets X_3 = Earnings Before Interest and Tax / Total Assets X_4 = Book Value of Equity / Total Liabilities X_5 = Sales / Total Assets

INTRODUCTION TO ZMIJEWSKI MODEL

This model is a probit model adopted by Zmijewski in 1984 by using 40 bankrupt and 800 non-bankrupt industrial firm's data for the period from 1972 to 1978. It is a model used to predict firm's bankruptcy in 2 years.

Zmijewski Model = -4.336 – 4.513X1 + 5.679X2 + 0.004X3

X1 = Net Income / Total Assets

X2 = Total Liabilities / Total Assets

X3 = Current Assets / Total Liabilities

If the Score is greater than or equal to 0.5 than company is considered as bankrupt or financially distressed.

If the Score is less than 0.5 than company is considered as Solvent.

LITERATURE REVIEW

Altman, E. (1968) has studied the theory of Traditional Ratio Analysis and Multiple Discriminant Analysis with the help of this method the researcher has developed Z-Score Model combining the ratios. The researcher has taken into consideration 66 corporations with 33 firms in each group. The researcher has analyzed the several factors which affect the firms. To measure the financial soundness the researcher has derived Z-Score Model. The researcher has reached the conclusion that discriminant ratio model proved to be accurate in predicting bankruptcy perfect in 94% of the sample of 1st 33 units and 95% of all firms in the bankrupt and non-bankrupt groups assigned to their actual group classification. The researcher also suggested the practical and theoretical implications of model. The researcher also told that the subject need to further researched and investigate the problems and even the model.

Pakdaman, H. (2018), the researcher in the paper titled "Investigating the ability of Altman and Springate and Zmijewski and Grover Bankruptcy Prediction Models in Tehran Stock Exchange" has researched with a motive to know which prediction model among Altman, Springate, Zmijewski or Grover will be best to predict the financial conditions of the companies listed in Tehran Stock Exchange. The researcher even wanted to know the financial status of the company and issue of the continuity of their activities. The research was also undertaken

so that it can help the stakeholders to take better decisions. The researcher has taken into consideration the data of 35 companies from textile and ceramic industry group which have been listed on the Tehran Stock Exchange. The researcher has taken into consideration the data of 5 years to study and find the results which test will be best to prove the financial crises of the company. The researcher has considered the time period between 2011-2016 for the study. The researcher has collected the data from the financial statements of the company. The researcher has framed 8 hypotheses to further know which model can help to predict the financial crises of the companies. The researcher has used Correlation test to examine the significance of each bankruptcy Model and further have used multiple Linear Regression to find out the best fit Model. The researcher found that Grover Model was the best Model for forecasting financial crises in Tehran Stock Exchange. The researcher also suggested that Stock Exchange should be organized in order to provide the data as per Grover Bankruptcy Pattern and even auditors can use this model in predicting and commenting for the future continuity of the companies listed on Tehran Stock Exchange.

Panigrahi, A. (2019) the researcher in the paper titled "Validity of Altman Z Score Model is predicting financial distress of Pharmaceutical Companies" aims to examine the financial distress status and financial health of some selected pharmaceutical companies using Altman Z- Score Model. The researcher has taken into consideration the data of 4 pharmaceutical companies for the study i.e. Aurobindo Pharma, Lupin Pharma, Dr. Reddy's Laboratories and Sun Pharma. The researcher has taken the data of 5 years for the study i.e. 2012-13 to 2016-17. The researcher has collected the data from annual reports and from the website moneycontrol.com. The researcher has used Z-Score Model to analyze the data. The researcher has done calculations as per Altman's Z-Score test for solvency Analysis. The researcher has even calculated average of the industry calculating upon 5 ratios that are considered in Z-Score Model. The researcher has calculated the average Z-Score of the pharmaceutical industry which shows that pharmaceutical industry is financially sound. The researcher also concluded saying that the highest average was of Dr. Reddy's followed by Lupin Pharma, Sun Pharma and lastly Aurobindo Pharma. The researcher also concluded that study shows Aurobindo Pharma was found in Distress Zone in 2013-14 than probably they were able to reach the safe zone by 2016-17. The researcher has also said that this research would be helpful to investors in making certain decisions on which they can decide the current and future position of the company. The researcher in the concluding remarks added that if the risk of default and bankruptcy increases when a firm adopts more aggressive working capital policies which shows that company may be facing bankruptcy and serious financial crisis.

Yadav, C. and Pallapothu, V. (2015) the researcher in the paper titled "Predicting Bankruptcy: An Empirical Study Using Multiple Discriminant Analysis Models" have researched on predicting the best MDA model which accurately predicts the bankruptcy. The researcher has analyzed the data using 2 MDA models – Altman Z-Score Model and Springate Model. The researcher also aims to find and help the users to make the right choice among the model to find the solvency status of the companies. The research was also undertaken with an objective to the analyze the dimension and to get an idea in which area improvement is needed. The researcher also wanted to find out whether healthy companies are performing significantly as compared to non-healthy companies using statistical tools. The researcher has considered a sample of 45 companies for the study. The researcher has collected the data from the financial statements of the companies. The researcher has considered the data of 5 years for the study. The researcher has used T-test to analyze the data. The researcher has performed T-Test on the values of Z-Score and Springate Score of healthy and Distress companies. The researcher concluded that Altman Z-Score is more conservative in nature.

OBJECTIVES OF THE STUDY

1) To study the solvency status of companies using Z-Score and Zmijewski Model
2) To compare the performance of Selected Sample units by comparing Z-Score and Zmijewski(X-SCORE)

RESEARCH METHODOLOGY

Hypothesis of the study

The following Hypothesis were formulated for the study.

H_0 – There is no significant difference in the variances.

H_0 – There is no significant difference in Z-Score of Spice Jet and Jet Airways

H_0 – There is no significant difference in the variances.

H_0 – There is no significant difference in X-Score of Spice Jet and Jet Airways.

Title of the Study

The title of the study is as under

A study of performance analysis of selected airways companies using Z-Score and Zmijewski model

Sample Size

The study is undertaken by considering the data of different companies associated with Airways Industry. The study includes Spice Jet and Jet Airways companies.

Method of Data Collection

The researcher has used secondary data for the analysis. The details of different ratios are taken from www.moneycontrol.com. The details have been collected from the Annual Reports of the company. The researcher has considered the data of last 5 years for the study from 2014 to 2018.

Tools and Techniques

The researcher has used statistical tools for analysis and interpretation of calculated Z-Score and Zmijewski of 2 Airways companies. The researcher has used T-Test to analyze the difference and to test the hypothesis.

Limitations of Present Research Paper

The main limitations of the present research project are.

1) The method of data collection is secondary, so the analysis has been done from the data that has been available in the financial statements of the company.
2) The data has been collected for 5 years only so the result is not applicable for coming years.
3) The outcomes are only available for the above companies and not the other companies.

Analysis and Interpretation

Z-SCORE ANALYSIS

TABLE – 2: A table showing calculation of Z-Score of Spice Jet

Z Score = $0.717X_1+0.847X_2+3.107X_3+ 0.420X_4+ 0.998X_5$						
Year	**$0.717X_1$**	**$0.847X_2$**	**$3.107X_3$**	**$0.420X_4$**	**$0.998X_5$**	**Z Score**
2014	-0.513	-0.458	-0.933	0.057	2.107	0.260
2015	-0.527	-0.720	-0.708	0.065	1.977	0.087
2016	-0.490	-0.487	0.541	0.065	1.750	1.378
2017	-0.425	-0.342	0.461	0.070	2.023	1.786
2018	-0.378	-0.132	0.485	0.060	1.859	1.894

TABLE – 3: A table showing calculation of Z-Score of Jet Airways Limited

Z Score = $0.717X_1+0.847X_2+3.107X_3+ 0.420X_4+ 0.998X_5$						
Year	**$0.717X_1$**	**$0.847X_2$**	**$3.107X_3$**	**$0.420X_4$**	**$0.998X_5$**	**Z Score**
2014	-0.7780	-0.2576	-0.7321	0.0023	1.8276	0.0622
2015	-0.7084	-0.3988	-0.1027	0.0021	1.8761	0.6683
2016	-0.5906	-0.2817	0.5461	0.0022	1.8853	1.5612
2017	-0.4931	-0.6084	0.3843	0.0025	2.1481	1.4335
2018	-0.4086	-0.4995	-0.0529	0.0024	1.7820	0.8234

Table – 4: A Table Showing Overall Interpretation of Z- Score

Year	2018	2017	2016	2015	2014
SpiceJet Airways	1.894 **(Grey Zone)**	1.786 **(Grey Zone)**	1.378 **(Grey Zone)**	0.087 **(Distress Zone)**	0.260 **(Distress Zone)**
Jet Airways Ltd.	0.823 **(Distress Zone)**	1.433 **(Grey Zone)**	1.561 **(Grey Zone)**	0.668 **(Distress Zone)**	0.062 **(Distress Zone)**

DESCRIPTIVE ANALYSIS

Table – 5: A Table showing Descriptive Statistics.

COMPANY		N	Mean	Std. Deviation	Std. Error Mean
Z-SCORE	Spice Jet	5	1.081	0.853	0.381
	Jet Airways	5	0.909	0.609	0.272

The above table 4 shows the mean, standard deviation, standard Error Mean values of the selected Airways Companies. The Table shows different means of the companies based on the Z-Score calculated by the researcher, among the 2 selected companies Spice Jet shows the highest mean as compared to Jet Airways.

STATISTICAL ANALYSIS

Table – 6: A Table showing results of T-Test.

		Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F	2.013	
	Sig.	0.194	
T-test for Equality of Means	T	0.366	0.366
	Degree of freedom	8	7.237
	Sig (2-tailed)	0.724	0.725
	Mean Difference	0.1716000	0.1716000
	Std. Error Difference	0.4685534	0.4685534
Interval	Lower	-0.9088860	-0.9290397
	Upper	1.2520860	1.2722397

H_0 – There is no significant difference in the variances.

To check the equality of variances the researcher has used Levene's Test for Equality of Variances. As the F- Value is more than significant value, it shows that hypothesis is Accepted.

As the hypothesis is accepted researcher has used the result of equal variances assumed for checking the result of another hypothesis.

H_0 – There is no significant difference in Z-Score of Spice Jet and Jet Airways Company

As per the Levene's test for equality, the result shows no significant difference in the variances. Further results of T-test show significant value is more than T-Test, so the hypothesis is accepted. So, the result of T-test shows that there is no significant difference among the Z-Score of Spice Jet and Jet Airways Company

Zmijewski Score Analysis

TABLE – 7: A table showing calculation of X-Score of Spice Jet Airways

X Score = -4.3360 - 4.513X1 + 5.679 X2+ 0.004X3				
Year	**X1**	**X2**	**X3**	**X-Score**
2014	9.5295	7.6520	0.000467	-6.21
2015	18.8781	11.3642	0.000076	-11.85
2016	33.1031	15.5114	0.000013	-21.93
2017	67.0942	18.6702	0.000003	-52.76
2018	125.0018	18.8648	0.000001	-110.47

TABLE – 8: A table showing calculation of X-Score of Jet Airways Limited

X Score = -4.3360 - 4.513X1 + 5.679 X2+ 0.004X3				
Year	**X1**	**X2**	**X3**	**X-Score**
2014	8.2646	13.3922	0.0008	0.7924
2015	15.5364	32.0058	0.0002	12.1336
2016	29.3488	68.5566	0.0001	34.8718
2017	63.1718	143.5515	0.0000	76.0438
2018	112.7971	226.9004	0.0000	109.7673

From both the above tables it can be interpreted that X-Score value is more than 0.5 so both the companies are bankrupt and financially distressed.

DESCRIPTIVE ANALYSIS

Table – 9: A Table showing Descriptive Statistics.

Company		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
X-SCORE	Spice Jet	5	-40.644800	42.9760502	19.2194739
	Jet Airways	5	46.721800	45.4993650	20.3479346

The above table 8 shows the mean, standard deviation, standard Errors X-Score values of the selected Airways Companies. The Table shows different means of the companies based on the X-Score calculated by the researcher, among the 2 selected companies Jet Airways shows the highest mean as compared to Spice Jet.

STATISTICAL ANALYSIS

Table – 10: A Table showing results of T-Test.

		Equal variances assumed	**Equal variances not assumed**
Levene's Test for Equality of Variances	F	0.100	
	Sig.	0.760	
T-test for Equality of Means	T	-3.121	-3.121
	Degree of freedom	8	7.974
	Sig (2-tailed)	0.014	0.014
	Mean Difference	-87.3666000	-87.3666000
	Std. Error Difference	27.9897592	27.9897592
Interval	Lower	-151.9111005	-151.9111005
	Upper	-22.8220995	-22.8220995

H_0 – There is no significant difference in the variances.

To check the equality of variances the researcher has used Levene's Test for Equality of Variances. As the F- Value is more than significant value, it shows that hypothesis is Accepted.

As the hypothesis is accepted researcher has used the result of equal variances assumed for checking the result of another hypothesis.

H_0 – There is no significant difference in X-Score of Spice Jet and Jet Airways Company

As per the Levene's test for equality, the result shows no significant difference in the variances. Further results of T-test show significant value is more than T-Test, so the hypothesis is accepted. So, the result of T-test shows that there is no significant difference among the Z-Score of Spice Jet and Jet Airways Company

FINDINGS

- From the present study the researcher found that among the 2 selected companies both companies lie distress zone and on the verge of Bankruptcy.
- It was found by the researcher that both companies are not financially sound
- It was found that with help of both model's solvency stage was found but Z-Score Model gave more precise results.

CONCLUSION

From the present research work we can conclude that there lies no difference in the Z-Score and X-score of the companies. Mainly it was found that Spice Jet and Jet Airways are financially distressed and almost bankrupt. Actually, they are bankrupt and models proved that they are bankrupt. The researcher found that both the models gave actual results of bankruptcy stage.

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CHAPTER 12

Role of Financial Inclusion in Realising Sustainable Development Goals (SDGs)

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ABSTRACT

Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, those related to poverty, inequality, climate, environmental degradation, prosperity, peace and justice. The United Nations General Assembly adopted the 2030 Agenda for Sustainable Development along with the development goals that are collectively called the Sustainable Development Goals (SDGs) on 25 September 2015. The Agenda was endorsed by all 193 member nations of the General Assembly, both developed and developing—and applies to all countries. Though the SDGs directly do not target financial inclusion, access of financial services to the masses is a key enabler for many of the goals. There are 17 SDGs which enhance economic development. Economic development requires sound foundations. Universal access to education and health services, access to financial and insurance services, new technologies and affordable bank loans, and improved distribution of resources are all important components of sound economic development. In early 1990s India took a giant leap by liberalizing its economy and eventually, the 2000s have seen India make its economic development just and socially progressive by bringing in a number of Financial Inclusion policies and initiatives. A good economy is both a necessary condition as well as the goal of any Financial Inclusion Initiative. Financial inclusion models can support overall economic growth and the achievement of broader development goals. Digital Finance has played a major role in the delivery of financial services to the vulnerable groups through mobile phones, personal computers, the internet or cards linked to reliable digital payment system. The objective of the paper is to study the role of financial inclusion in achieving Sustainable Development Goals (SDGs) and also the impact of digitalisation on the same.

Keywords: *Sustainable Development Goals, Economic Development, Financial Inclusion, Digitalisation, Digital Finance*

INTRODUCTION

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, gives a blueprint for peace and prosperity for people and the planet, for the present as well as the future. The Agenda is to alert all the developed and developing countries to focus on the 17 Sustainable Development Goals (SDGs), which is the need of the hour in a global partnership. In the 1970s and the 1980s, the inequalities gaps were on the rise amongst the people, the phrase, rich are becoming richer and the poor are becoming poorer was very

relevant at those times and it was a cause for a global concern. The United Nations Organisations then in the 2000 developed the Millennium Development Goals (MDGs), for tackling the problem of inequality and rooting for overall development at all levels. The United Nations MDGs consisted of 8 goals that the members had agreed to achieve by 2015. The goals mainly focused on combatting poverty, hunger, disease, illiteracy, environmental degradation and discrimination against women. The MDGs were successful in some aspects by 2015, but the result was not satisfactory due to poor monitoring, lack of reliable data, poor governance and lack of funds in the developing countries for proper implementation of the goals. The UN and its members were not satisfied with the result and they realised that the MDGs cannot alone solve the main objective of eradicating inequality. Thus, the UN launched the Sustainable Development goals (SDGs) also known as the global goals. The SDGs consist of 17 goals that the UN and its members plan to achieve by the year2030. The main objective of the SDGs is to eradicate poverty, hunger and disease in all developed and developing countries. These goals can be achieved with the assistance of financial inclusion. Higher the inclusion of the poor into the formal financial sector, higher the economic growth of the country. This paper aims to study the role of financial inclusion in achieving 4 of the SDGs.

LITERATURE REVIEW

Sarma (2008) had conducted the research on Index of Financial Inclusion. The purpose of the study was to develop an Index which can be used to measure the extent of financial inclusion in a country. For the purpose of calculating the index three dimensions were considered viz, bank penetration, banking services and usage of banking services. It was found that the index developed could be used to determine the relationship between development and financial inclusion.

Park and Mercado (2015) did a study on Financial Inclusion, Poverty and Income inequality in developing Asia. The purpose of the study was to examine the correlation between Financial Inclusion, poverty and income inequality. The required data were collected from 37 selected developing Asian economies. They developed a financial inclusion indicator for the purpose of the study. They found that per capita income and demographic characteristics affects financial inclusion in Asia. The paper concluded that there is a significant correlation between higher financial inclusion and lower poverty and inequality.

Patil (2016) did a study on Financial Inclusion in India- An overview. He examined the scenario of financial inclusion at global and national level and covered the basic concepts of financial inclusion. He proposed that integrated efforts should be formulated by the government, RBI and the implementing agencies to develop methods and measures to take forward financial inclusion.

Voica (2017) in his study explained that FI is considered as a part of social inclusion driver and social inclusion is a driver for sustainable development and on this basis he concluded that FI is a driver for sustainable development. He proposed that international initiatives should promote financial inclusion in an effective manner for the overall growth of the economy.

Sujhlana and Kiran (2018), conducted a research on A study of status of financial inclusion in India. The study aimed to provide an overview of the status of financial inclusion in India in the past few years. It is found that financial inclusion is in progressive stage in India and efforts towards overall inclusive growth need to be given a concrete shape with proper implementation of the various initiatives for the purpose of overall development of the people in the rural areas.

Soyemi , Olowofela and Yunusa 2020, in their study evaluated the impact of financial inclusion on sustainable development . For the purpose of their study they used error correction model and fully modified ordinary least square. The study proposes that more number of bank branches should be opened in the rural areas and the rural people should be oriented in regards to the importance of having a bank account and indirectly contributing to the growth of the country.

Makau and Olando 2021 conducted a research on Digital Banking Strategy and Financial Inclusion among commercial banks in Kajiado County, Kenya. The study aimed to analyse the gap which is present during the process of realising financial inclusion and evaluated the effects of digital banking strategy on financial inclusion midst the commercial banks in Kajiado country. It is found that at 5% error level, digital banking channels, digital financial infrastructure and convenience of digital banking services have a statistical positive significant effect on financial inclusion.

OBJECTIVES OF THE STUDY

- To examine the key indicators in achieving financial inclusion.
- To study the role of Financial Inclusion in achieving SDGs.
- To identify the challenges in achieving SDGs through financial inclusion.

RESEARCH METHODOLOGY

The study is descriptive in nature. For the purpose of the study secondary data was used from various government and World Bank websites. Various news articles, journals and authentic internet sources were extensively used for the study.

Financial Inclusion

Financial Inclusion (FI) is considered as an evaluative benchmark of development and well-being of society. As a result of renewed thrust on FI, an inclusive financial system is widely recognized in policy circles as a proactive measure and has become a basic priority in many countries – including India. The span of financial services include the provision of basic savings accounts and access to adequate credit at affordable costs to vulnerable groups such as the excluded sections of the society and low-income households. Financial inclusion expands the asset base of the financial framework by developing a culture of savings among a large section of the rural population and plays its own role in the process of economic development. Further, by bringing low-income groups within the perimeter of the formal banking sector; financial inclusion protects their financial wealth and other resources in critical circumstances. The banks have opened more branches in the rural areas and have set up ATMs and kiosks to enable them to utilize these services with ease. Further, the banks have provided the facility of no-frills accounts and deployed bank correspondents for convenience of people living in these areas. There are various government plans and policies which cater to the needs of the marginalized communities and help them into the financial sector. According to World Bank, the indicators required to measure financial inclusion are divided into 3 categories viz.

- Access Indicators which examines the extent to which financial services have reached the rural population. Access indicators include bank penetration, ATM availability and point of sale devices in rural areas.
- Usage Indicators measures the usage of the financial services by the rural dwellers on a regular basis. Usage indicators include number of people using payment products, saving product, credit product, insurance product and pension product and the frequency of use.
- Quality Indicators measure the awareness levels of the rural dwellers. Quality indicators mainly focus on the information availability of various schemes under financial inclusion to the rural poor.

FI as A Catalyst for Realising SDGs

The financial inclusion policies aim at including larger number of the poor into the formal sector and this has a positive effect on the overall development and economic growth of the country. FI is an enabler to achieve few of the sustainable development goals 2030. The SDG 1 which focuses on eliminating poverty has been assisted by the Governments flagship scheme Pradhan Mantri Jan Dhan Yojana (PMJDY) which was launched in the year 2014. PMJDY is India's biggest financial inclusion drive which provides access to financial services viz., a basic savings & deposit accounts, remittance, credit, insurance, pension in an affordable manner. Under PMJDY, 42.40crore beneficiaries have been banked with a total deposit amounting to 14 crores up to May 19th 2021 within a span of 6 years which can be seen in table 1. The scheme provides benefits viz., accidental covers of 200,000 along with rupay debit cards, an overdraft facility up to Rs.10000, old age pension and eligibility for direct benefit transfer (DBT). The adult population in the formal financial sector has doubled since 2011, and 80% of the credit for this massive growth is because of the Jan Dhan scheme.

Pradhan Mantri Jan - Dhan Yojana

(All figures in Crore)

Beneficiaries as on 19/05/2021

Bank Name/ Type	No. of Beneficiaries at rural/semi urban centre bank branches	No. of beneficiaries at urban metro centre bank branches	No. of Rural-Urban Female Beneficiaries	No. of Total beneficiaries	Deposits in Accounts (in crore)	No. of Rupay Debit Cards issued to beneficiaries
Public Sector Banks	20.62	12.92	18.40	33.54	114093.83	26.43
Regional Rural Banks	6.65	0.95	4.40	7.60	28079.98	3.45
Private Sector Banks	0.69	0.56	0.69	1.25	4485.06	1.11
Total	27.97	14.43	23.49	42.40	146658.88	30.99

Source: Department of Financial Services, Ministry of Finance, GOI Table .1

The SDG 2 focuses on zero hunger. The Antyodaya Ann Yojana (AAY) which was first announced in the year 2000, to assist the poor and needy with ration at lower prices. The scheme prevails even now with the aim of providing food grains at lower cost to all the below poverty line (BPL) card holders. In this scheme the poorest of the poor are entitled to receive 35 kgs of food grains per household per month. The scheme helps in eradicating hunger in the most remote areas of the country.

The SDG 3 promotes good health and wellbeing. The initiative designed to focus on SDG3 in India is Ayushman Bharat, a flagship scheme of Government of India. It comprises of two inter related components viz., Health and Wellness centres (HWC) and Pradhan Mantri Jan Aarogya Yojana (PM-JAY). Health and Wellness Centres provide an expanded range of services to address the primary health care needs of the entire population in their area, expanding access, universality and equity close to the community. PM-JAY is the largest health assurance scheme in the world which aims at providing a health cover of Rs. 5 lakhs per family per year for secondary and tertiary care hospitalization to over 10.74 crores poor and vulnerable families (approximately 50 crore beneficiaries) that form the bottom 40% of the Indian population. The households included are based on the deprivation and occupational criteria of Socio-Economic Caste Census 2011 (SECC 2011) for rural and urban areas respectively.

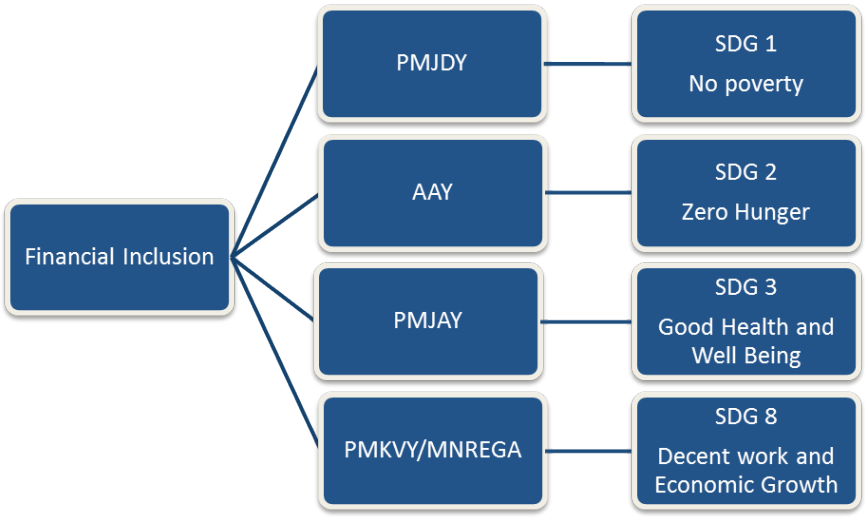

Fig.1 Financial Inclusion and SDGs

Source: Author

The SDG 8 focuses on decent work and economic growth. The Pradhan Mantri Kaushal Vikas Yojana (PMKVY) is an employment scheme which provides skill training to the 10 million poor unemployed youth to help them get a better lifestyle. Similarly, Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) ensures better living in rural areas by providing a minimum of 100days of employment on regular wages. Currently there are 141 million active workers under MNREGA. The income earning opportunities for the people in these areas can bring about a positive effect on the economic growth of the country. All in all, though the SDGs directly do not focus on financial inclusion, the benefits of financial inclusion have paved a way for realizing SDGs.

Issues and Challenges in Achieving SDGs Through FI

There has been greater inclusion in the past years; however, there is still a large number of the unbanked population residing in the remote areas that are not inclined towards the formal financial system. Some of the issues and challenges are discussed below.

1. **Dormant Accounts**

   In spite of the rising number of accounts in the PMJDY scheme, many of them are dormant. Merely opening an account in the scheme would not suffice. Having an account that is dormant with zero transactions and zero balance will not help the economy as well as the account holder. According to the World Bank Gallop Global Findex survey, the dormant or inactive bank accounts under the scheme were 6.60 crores, i.e. 17.8 percent as of September 2019. Lack of money is the main reason behind the dormant accounts. The purpose of the SDGs is to eliminate poverty and promote inclusion. The zero transaction accounts are no way close to eliminating poverty. The overall development can take place only when there is a flow of money from and to the accounts.

2. Credit Access

In the rural areas, there is credit access from informal sources. The people in these areas are more comfortable taking credit from moneylenders who charge a very high rate of interest. The lack of awareness about borrowing from the formal sectors and trust issues is a major challenge faced by the people.

3. Digital Divide

The digital divide is defined as the gap between those who have easy access to technology and those who lack access. Initially, access to technology was considered as the only criteria to define the gap, but now with the digital penetration, the gap includes those who have more and less bandwidth and people who have more or fewer skills. As India is a multicultural, multi-lingual, and multi-regional country with complex socio-economic conditions, there are many difficulties in serving the rural communities such as poverty, unemployment, age, and education. The digital divide between the rural and urban population is quite prominent and the growth is biased in favor of the urban areas. The growing population, insufficient funds, affordability, and delays in implementation of government policies and programs have been some of the challenges that have led to unequal development in society, which is responsible for the digital divide.

4. Digital and Financial Illiteracy

The lack of awareness about the benefit of saving and having a bank account is one of the reasons for financial exclusion in remote areas. Around 1 billion people globally cannot read or write or digitally transact using their mobile phones. The lack of skill in using computer and communication technology also prevents people from accessing digital information which in turn widens the digital divide.

5. Infrastructure Barriers

There are still some remote villages that remain disconnected from the facility of digital penetration. There is also an inadequate facility of proper infrastructure in terms of electricity and mobile towers and poor access to computer and communication technology. Lower bandwidth in rural areas is also a major challenge.

6. Security Barriers

The marginalized communities value personal relationships particularly when it comes to money. They do not trust technology except for very basic payments. The regulatory environment and consumer protection provisions are too weak to gain the trust of the rural dwellers.

FINDINGS AND SUGGESTIONS

Based on the study, it is clearly evident that as more and more people in the rural areas have a bank account and actively participate in the financial activities, the more positive impact this will have on achieving the global goals. The financial assistance provided by the banks and government to the rural dwellers will eventually benefit the overall development of the economy.

There are mostly daily wage workers residing in these areas who are employed in the informal sector. The government should make it mandatory to credit the daily wages of the rural dwellers to their bank account irrespective of the amount. This will prompt them to open an account with the bank and the others who do not use the accounts will be more inclined to transact using their Rupay debit cards.

The most significant challenge in attaining more inclusiveness is high level of financial and digital illiteracy in the rural areas. Seminars, workshops, digital literacy drives should be organised in larger number by the banking professionals and the government on the utilisation of e-banking services for the people living in the rural areas. The digital literacy drives should be in the regional language of the rural dwellers for their better understanding. It is stated that financial inclusion and financial education go hand in hand, thereby promoting financial stability.

The quality, quantity and reliability of infrastructure is the need of the hour. Heavy investments in telecommunication infrastructure, increase in road connectivity, and improvement in power supply are needed for inclusive, sustainable and diversified rural development along with the right governance.

CONCLUSION

SDGs advocate a more inclusive society for a sustainable future. SDGs greater focus has been to provide greater access to the financial services in the rural areas. Financial Inclusion has brought a large number of unbanked population into the formal financial sector. It is capable of being an enabler in achieving many of the goals directly or indirectly. Through the various schemes curated by the government under the umbrella of FI, there has been a massive impact in promoting a sustainable future. On this basis, we conclude that there exists an

alliance between FI and overall sustainable development of the economy and that is why there should be greater emphasis on achieving FI in an effective manner. Nevertheless, according to Universal Financial Access 2020, there are 2 billion people who still cannot use the formal and digital banking services to their advantage. There are few challenges in achieving these goals through financial inclusion, like financial and digital illiteracy, inadequate infrastructure, digital divide, uneven credit access and security barriers. To overcome these challenges, periodic monitoring of the schemes under financial inclusion is required and continuous digital development in the rural areas will help to achieve greater financial inclusion effectively.

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CHAPTER 13

A Study of IPO Performance in India During 2015-2019

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ABSTRACT

Initial public offering (IPO) is the way through which worldwide all the investors are making investments for both short-run and long-run profit earnings. Initial Public Offer (IPO) is treated as the most favourable avenue for investment purpose in respect to the investor. In last few years, many organizations used this technique to solve its capital requirement issue. They raised capital by way of IPO issue. IPO is one of the risky methods for increasing the capital value because market is very fluctuated and unpredictable nature. "Execution of the IPO differs as per the market, for example, bullish to bearish". Premiums of financial specialists are wedged by the market pattern and, in this manner, the presentation of the IPO. Initial public offerings can be a risky venture. It's very hard to predict the future performance of any stock or any IPO on its exchange day. Basically, the paper discusses initial trading day performance and also examine how much percentage of market-adjusted abnormal return is comprehended on the starting day of exchange of the Indian IPO in the National Stock Exchange (NSE). Data for 127 Indian IPOs that listed in NSE from 2015 to 2019 is taken as a sample in the study. The results have shown that normal market adjusted abnormal return for above notification IPOs was 26.14%, & the t-test uncovered that the market adjusted abnormal return of test IPOs was not altogether equivalent to zero. "The backslide check depicts that there was no imperative connection between factors viz. Issue value, Issue size, and the market return with the issue under-pricing while the under assessing has a direct connection with the Issue oversubscription".

Keywords: *IPO, MAAR, Securities Market, India, Performance*

INTRODUCTION

A financial system permits the exchange of funds between various parties such as big lenders, potential investors, and crucial borrowers. "It encourages the level of savings and investment in the context of Indian economy and expands the resources that are associated with *financial assets* which are more lucrative than the physical assets of the company". The capital market is a point where individuals exchange financial securities products and other products of key worth at low substitute costs and at costs that benefit desired. The financial market has a huge task to carry out in this situation since cash related framework is in integral part of it. Long term performance & sustainability of various sectors that contributed its part in economy development. The capital market offers

various types of products and services to its investors. In this market, some players also have a network of private investors, and others are mainly for international banks, professionals from the last of 20th century. The financial market is categorized in two forms, i.e., money market and capital market. Primary market is that market which offers wide variety of securities to the potential investor and also fulfilling the capital requirements in respect to corporate sector through various mode of financing such as public issue or IPO, sale offer, private placement of shares & right issue of shares. Public issue is of mainly two kinds one is fresh issue (IPO) & further public offer (FPO). IPO is a fresh issue of shares at first time in the market. It is prominent source for generating capital for business firms. IPOs are a significant achievement in any organization's development as it moves ahead from being a beginning up/private constrained organization to open restricted. Effective IPO can create a colossal measure of resources for organization advertisers just as pre-IPO speculators. Historically a majority of the IPO's were *under-priced* to issue irregular profits on the listing, thus attracting more investors to subscribe to their stocks and also doing investments.

DEFINITION OF INITIAL PUBLIC OFFER (IPO)

An IPO is the selling of protection to people in general in the essential market. The IPO can be issue through the fixed *value technique, book-building strategy*, or the mix of both fixed value technique and book-building method. *Book-building method* is the most practical instrument for the snappy and proficient administration of uber issues (counting offers of an offer).

BOOK BUILDING PROCESS

Book building is a procedure used for showcasing an open application of value offers, debentures, or commitments of an organization. "This procedure helps the guarantor not completely to decide the interest yet as well helps the method of '*value disclosure*,' i.e., the cost at which offers are given will be controlled by the interest and flexibly powers of the market". Its where, during the period for which the underlying open offer is available for every investor, offers are available for various buyers at various costs that are high in value or equivalent to the cost of IPO. This cost of offering fresh IPO is decided on the basis of listing Day.

According to Securities exchange board of India (SEBI) characterizes on working paper as " A procedure attempted by which interest for the protections proposed to be given by a body corporate is evoked and developed and the cost for such protections is surveyed for the assurance of the significant of such protections to be given by methods for notice, roundabout, commercial, archive or data notes or offer report."

FIXED PRICE MECHANISM

In case of Fixed Price method of IPO issue, Efficient organizations have more opportunity to give shares at a cost-controlled without anyone else in discussion with having a control as administrator as well as providing supports for achieving the desired premium by presentation all the appropriate data to such an extent that the financial specialist can settle on an educated decision.

Underestimating in IPOs is a tireless overall marvel. There is important distinction on the basis of cost at which the IPOs are available for subscription to financial advisor. The cost at which they are exchange upon the arrival of the date of allotment. Although if the financial specialists allotted shares apportioned in respect of IPO at a lesser value and afterward sell them on the first day of posting at more significant expenses, then this makes significant rises. This concept is named as "*Under Pricing*" in case of IPO issue. It is accepted that IPOs are regularly undervalued in light of concerns identifying with liquidness & susceptibility at the above level at which these stocks will exchange. The less in liquid and lesser expected the offer price are the most undervalued in terms of money. They are in position to repay the risk arise in case of IPO issue after consulting the financial specialist for the hazard they are taking.

LITERATURE REVIEW

(Yadav & Goel, 2019) investigated the motivation driving this appraisal is to appreciate the case of thinking little of exists to look at whether as an Indian IPO and the effect of the legitimate system on IPO undervaluing. In this assessment, undertaking data is isolated by edifying and relative procedures. The Indian market has more under assessing than overvaluing.

(Panchal, 2018) investigated the exhibition of IPO'S from offer cost to shutting cost on the exchanging day India from 2008 to 2018, recorded in Bombay Stock Exchange (BSE) India are inspected. Scientists found that there is, by and large, inherently positive return. The target of the paper is to investigate the presentation IPOs for the organizations recorded in BSE Index.

(Poornima, Haji & B, 2016) examined the short-run show of the associations that are taken apart to fathom the quirk of uncommon returns additionally long stretch execution to separate the introduction of the IPO's as time goes on. The time period consider for study is from Jan 2013 – Dec 2014. The model for the examination joins nine associations recorded in the National Stock Exchange of India identifying with the assessment time span. The outcomes of this assessment will enlighten the display of the IPO's, which are essentially considered as a theoretical apparatus & consequently help in better dynamic for the monetary subject matter experts. The disclosures will in like manner help wrap up if IPO can be a drawn-out endeavour gadget or a hypothetical opportunity to win impacting benefits.

(Malhotra & Nair, 2015) issuing of offers through book building measure prompts sufficient worth disclosure. This assessment tries to dissect how the fundamental open commitments (IPO) gave through book-building entry in the short-run. The examination assesses the fundamental day returns of 288 book-developed IPOs in India for a multi-year time frame (2004-2010). Considering this course of action of discernments, this assessment builds a thorough model of the transient worth execution of the new commitments. Results show that the IPOs are undervalued in India. Over-participation and market shakiness were viewed as the main issue affecting under assessing. The results propose that the monetary experts over-react to the market. The closeness of intentional under assessment by the underwriters or the offering firm to decrease square belongings by the financial backers is also clear. Finally, results outline an example towards a less intense belittling.

(Asiri & Haji, 2015) announced the wonder of underestimating unique open commitments (IPOs) for 194 firms that opened up to the world some place in the time of 2000 and 2013 in the business areas of the six-delta coordinated effort chamber (GCC) countries. "It investigates the factors that possibly sway irregular benefits for the principal day trading and bases on studying the most prominent factors of the underestimating of IPOs in the GCC regions. Despite as of late attempted elements, for instance, firm age and offer size, additional variables, and outside factors, for example, at times brimming with the inclination issue have been incorporated. The specific revelations had demonstrated that firm age and offer size are basic, and both antagonistically related to under evaluating and shows that a relationship exists among budgetary and non-cash related firms, and there are gigantic differences between banking versus insurance firms".

(Zaluki & Kect, 2012) As per the past Malaysian examinations, the eventual outcomes of the rough and market-adjusted basic returns show that IPO associations are essentially underestimated in the short-run. "Regardless, as time goes on, both the vehicle and the BHAR procedures reveal that these associations neglect to meet assumptions for the market. They found that associations in the development division, gave in a hot issue period and underestimated IPO, perform less above and beyond the long stretch, which supports the pattern hypothesis of since quite a while past run underperformance".

(Deb & Marisetty, 2010) analysed the efficiency of this stand-out affirmation framework with the data of 159 Indian IPOs. The result says that IPOs are assessing lessened IPO underestimating and influenced the interest of retail speculators. Post listing, significantly assessed IPOs pull in more unmistakable liquidity and show lower possibility. "First sale of stock effectively assessing gets firm size, business pack association, and companies' tendency of corporate organization. Their disclosures gathered that in creating markets regulator's responsibility to the banner, the idea of an IPO contributes towards the market government support.

RESEARCH GAP

The existing literature provides information and base on all relevant and available information, even the private current study. However, there are a few research problems that have not yet been addressed? As the study is basically all about IPO Under-pricing.

OBJECTIVES OF THE STUDY

1. To examine the IPOs' initial trading day performance.
2. To analyze just how much percentage of market-adjusted abnormal return is comprehended on the starting day of exchange.

HYPOTHESIS

H_0: There is no significant impact on Marginal adjusted abnormal return and IPO performance.

RESEARCH METHODOLOGY

i) **The time period of the Study:** To examine the initial trading day performance of IPOs, the necessary information has been gathered from the organizations which are listed as IPO from the time period of January 2015 to December 2019.

ii) Data Collection:

Data is collected through the National Stock Exchange (NSE) listed IPO companies from January 2015 to December 2019. Also, the company's prospectuses are selected to gathering the information about the Issue Price, Dates of Issue, issue size & oversubscription.

iii) Sample Selection:

IPO listed Companies from the NSE of India for a period from January 2015 to December 2019 will be selected as a sample. Data of 127 listed organizations for the investigation of the present study.

iv) Data Sources:

The present study was fully based only on secondary data. "The data related to the investigation of market return (M_i), initial day return (R_i) and market-adjusted abnormal return (MAAR) was taken from the NSE and related sites. Other relevant part of data was gathered from books, journals and magazines".

ANALYSIS METHOD

Measure of IPOs initial trading day Performance

Standard method is adopted for calculating the Initial return, the arrival of a particular day is resolved as the rate change from the issue cost to the end cost on that day in the helper market.

$$R_i = \frac{P_1 - P_0}{P_0}$$

Where, R_i = profit of I security for listing day, $P_{i=}$ Closing Price of I security on listing day, P_0= offer price.
Additionally, to discover list return on listing day,

$$M_i = \frac{I_i - I_0}{I_0}$$

Where, M_i = market return on listing day, I_i = closing price at listing day, I_o = closing price at offer day.
To deal with the degree of undervaluing of the Indian IPOs, exhibit irregular adjusted initial returns for the aggregate of what IPOs have been determined. "Market-adjusted abnormal return (MAAR) for the posting day is determined as the differentiation of beginning return decided for the i^{th} security on the absolute first second to the benchmark document return on that day; in this way, S and P CNX Nifty closing regard has been used to find out the market record return. The MAAR for the i^{th} IPO stock on listing day is dictated by using"

$$MAAR = \{100 * \left[\frac{(1 + R_i}{(1 + M_i} - 1 \right]\}$$

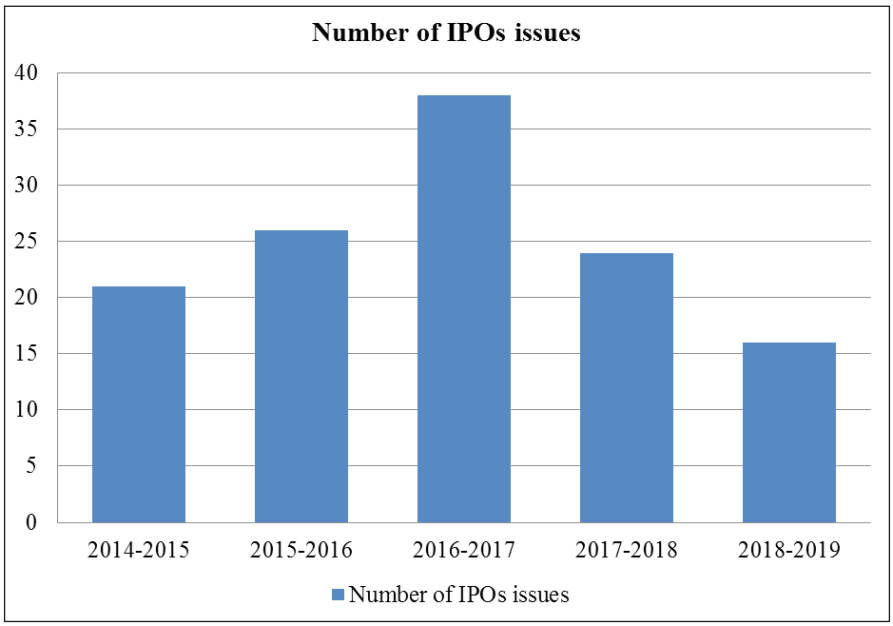
ANALYSIS

Table: 1 Number of IPO Issues, Offer Price, Gross Proceeds and Initial Return

Year	Number of IPOs issues	Number of issues %	offer price	gross proceeds	initial return
2014-2015	21	16.8%	1050	13513.17	183.51
2015-2016	26	20.8%	896	26500.82	172.13
2016-2017	38	30.4%	1766	75278.57	667.61
2017-2018	24	19.2%	1480	31731.28	141.89
2018-2019	16	12.8%	973	12687.32	331.75
Mean/Total	125	100.0%	1233	31942.232	299.378

Source: *Author's own calculation*

Graphical representation



Source: Author's own construction

Ho: There is no significant impact on Marginal adjusted abnormal return and IPO performance.

Table:2 Market Adjusted Abnormal Return (MAAR) For the period 2015-2019

Year	Number of IPOs issues	MAAR
2014-2015	21	0.240
2015-2016	26	0.240
2016-2017	38	0.390
2017-2018	24	0.185
2018-2019	16	0.253
Mean/Total	125	0.261

Source: *Author's own calculation*

Table showing t-test on two sample having unequal variances

t-Test: Two-Sample Assuming Unequal Variances		
	Number of IPOs issues	*maar*
Mean	25	0.26139
Variance	67	0.005825
Observations	5	5
Hypothesized Mean Difference	0	
df	4	
t Stat	6.757779617	
P(T<=t) one-tail	0.001250327	
t Critical one-tail	2.131846782	
P(T<=t) two-tail	0.002500653	
t Critical two-tail	2.776445105	

Source: Author's own calculation

INTERPRETATION

To test the hypothesis, "the Market Adjusted Abnormal Return is equivalent to zero; authors used a t-test, and from the abovementioned, it is additionally found that adjusted abnormal return for the time frame 2015-2019 was 26.13 % with t value of 2.776". From that, the model, " Market Adjusted Abnormal Return is equivalent to nothing," is dismissed. "So, from that, it is perceived that Market Adjusted Abnormal Return is not the same as Zero".

CONCLUSION

The examination endeavoured to find the underlying day returns, and the components impacting the degree of undervaluing. The data for the evaluation has been taken off total 125 IPOs recorded on NSE from 2015-2019. The typical market adjusted abnormal return for above notification IPOs was 26.14%, & the t-test uncovered that the market adjusted abnormal return of test IPOs was not altogether equivalent to zero. "The backslide check depicts that there was no imperative connection between factors viz. Issue value, Issue size, and the market return with the issue under-pricing while the under assessing has a direct connection with the Issue oversubscription".

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CHAPTER 14

A Comprehensive Study of the Impact of Covid-19 on the Indian Banking Sector: A Financial Econometric Approach

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ABSTRACT

Banking is vital sector of Indian Economy. The purpose of this paper is to show how Financial Econometrics is useful and its contribution towards Indian Banking Sector. The paper provides a work of banking sector which has been done with the help of Financial Econometric tools. It is the outcome of the selected banks how they deal during Covid-19 situation. Financial Data of the selected banks have contributed significantly to the study. In this study, the response variable and explanatory variables have been evaluated to identify the performance of banks during covid-19. Different types of Econometric modelling have been implemented and it has been observed that out of seven different models are six are best fit models, which shows that there is a linear relationship between variables, and it has been observed that there is significant effect of explanatory variables on response variable. Panel data with different Regression models have been used for the analysis of selected banks. The secondary data of 10 years have been used, the data used is collected from annual reports of the banks and money control.

Keywords: *Econometrics, Panel Data.*

INTRODUCTION

It is a universal phenomenon that banking sector acts as the backbone of an economy. The development of any nation mainly depends upon the banking system. In this study, the researcher lays emphasis on the impact of Covid-19 on banking system. The COVID-19 pandemic has had a profound impact on the Indian economy and its GDP. A bank is nothing but a financial institution which deals with mainly deposits and advances and other related services. It receives money from those who want to save in the form of deposits, and it lends money to those who need it. In this study the researcher worked on mainly four variables in which one of the variables is response variable i.e., total income earned, and the rest are the explanatory variables i.e., deposits, borrowings and net worth. These variables have been taken in this study because the main function of any bank is depositing and borrowings. A deposit is a financial term that means money held at a bank. A deposit is a transaction involving a transfer of money to another party for safekeeping. However, a deposit can refer to a portion of money used as security or collateral for the delivery of a good. Borrowing is a loan taken by the government and falls under capital receipts in the Budget document. It is essentially the total amount of money that the central government

borrows to fund its spending on public services and benefits.Net worth is the total assets owned by an individual or business less any debt obligations and other financial liabilities. On a company's balance sheet, net worth is demonstrated through the owners' equity section. Net worth helps convey the overall financial position of the company. India's banking sector was facing a financial crisis due to which RBI had to come forward with a bailout package for a private sector bank, named- Yes Bank. By providing such package it has been observed that after data analysis the performance of YES Bank was on the top in the year 2020. The coronavirus crisis has left some banks struggling to hang on to deposits, as funds migrate to the perceived safety of state-owned lenders. Besides other small-scale private lenders, more prominent name among such banks is IndusInd, RBL Bank Ltd, and Yes Bank. The impact of the corona like pandemic on banks in India has left some banks to struggle due to deposit, as loans are protected by deposit. The condition of private banks may compel customers to lend less, which may lead to poor liquidity. However, the high-impact on banks is related to their loan portfolios where many borrowers across different sectors are facing sharp decline in their income, and hence difficulty in repaying their debts. Many regulatory and supervisory authorities have issued statements or guidelines to banks on how to deal with the impact of the outbreak, including in relation to easing loan terms and conditions for adversely effected borrowers and sectors. Banks should work constructively with affected borrowers, and supervisors should encourage prudent loan restructuring where necessary to sectors or firms heavily impacted by the crisis. It is important to note that the restructuring decision is a business decision by the bank, based on the assessment of the borrower's capacity to pay under the new terms. Banks should not be encouraged to foreclose loans, cease and liquidate collateral, using out-of-court mechanisms and/or legal proceedings. Instead, restructuring could take the form of renegotiated terms (maturity, interest rates, fees), moratorium policies or grace periods/ payment deferrals. Moreover, a grace period to repay loans could help borrowers cope with the interim impact of the crisis. Financial econometrics is one of the fastest growing branches of economics today, both in industry and in academia. The increasing sophistication of financial models requires equally sophisticated methods for their empirical implementation, and in recent years financial econometricians have stepped up to the challenge. The toolkit of financial econometrics has grown in size and depth, including techniques such as nonparametric estimation, functional central limit theory, nonlinear time-series models, artificial neural networks, and Markov Chain Monte Carlo methods.

LITERATURE REVIEW

Thakor (2020) talked about the global economic impact of covid-19 on Indian Banking sector as the banks will awash with liquidity and interest rates will be low. Government will play a vital role in the banking sector both as a borrower and risk absorber. The banks will provide loans to those borrowers whose cash flows seems to be visible and strong, while they will avoid those whose cash flows and incomes are under risk. Chances of defaulter will be less in case of bigger companies, but small-scale will suffer. Banks are risk adverse industry leaders of most companies operating with less than 70% of their capacity. However, the banking sector future totally depends on the pace at which the economy recovers. All are looking towards government upcoming fiscal stimulus package (Thakor, 2020).

Nilesh.V and Baban.S (2014) worked on Public Sector and Private Sector Banks operating in India and evaluated the performance of these banks with reference to Net Interest margin and market capitalization. The study was based on the secondary data of period from 2009-2013. After data interpretation, it has been observed that Net Interest Margin of eight banks declined while only two banks, namely ICICI and SBI, Net Interest Margin increased. The market capitalization of SBI found to be high and other public sector banks shows less market capitalization. HDFC and ICICI shows high market capitalization while the private sector banks shows less variation in market cap value (Nilesh.V & Baban.S, 2014).

Mathur and Garg (2014) worked on the Indian banking sector, they considered profitability ratios and these ratios were analyzed in order to ascertain which banks are performing comparatively better in terms of Return on Total Assets, Return on Net Worth, Return on Sales. The residuals of 20 banks from 2004 to 2013 have been calculated bank wise, on the basis of residuals calculated during these 10 years, average highest positive residual was found to be that of HDFC Bank whose performance was outstanding, and on the other hand, ICICI Bank proved to be one of the worst performers (Mathur & Garg, 2014).

Bollerslev (2001) said that the field of financial econometrics constitutes one of the most active areas of research in econometrics today. The field of financial econometrics prospered and flourished during the lifespan of the Journal of Econometrics. Out-of-sample forecasting is always marred with difficulties, and simply extrapolating the future vitality of the field based on past observations does not necessarily result in optimal predictions. However, the multitude of interesting and challenging research questions, some of which are discussed above, set the stage for an equally enthralling future (Bollerslev, 2001).

Pagan (1996) did survey of the work that has been done in financial econometrics in the past decade. It proceeds by first establishing a set of stylized facts that are characteristics of financial series and then by detailing the range of techniques that have been developed to model series which possess these characteristics. Both univariate and multivariate models are considered. He mainly focusses on ARCH Class and GARCH Class models (Pagan, 1996).

OBJECTIVES OF THE STUDY

The various objectives of this study are to investigate the situation of Indian Banking Sector during Covid-19 period in the country. Estimation of the various Regression Models will help to know about the rank and consistent performance of the Public Sector Banks and Private Sector Banks during Covid-19 and analysing the Total Income Earned under the study. Besides all this the general purpose of the study will also serve the following specific objectives:

1. To find out the consistency in the performance of the Public Sector Banks and Private Sector Banks.
2. To Rank the performance of the Public Sector Banks and Private Sector Banks on the basis of their Total Income Earned.

RESEARCH METHODOLOGY

Research Design - The method used in the study is the analytical research which is generally concerned with the cause-effect relationship. It tries to analyze the impact of one variable on the other variable. These two variables are called dependent and independent variables. Here under the study, the dependent variable is Total Income Earned, and there are three independent variables are Deposits, Borrowings and Net Worth. In analytical research design, we have adopted the regression analysis approach, where the outcome is affected by one or more variables. Here the OLS method is being applied for the analysis of the available data of the 24 selected Banks, 12 are Public Sector Banks and 12 are Private Sector Banks.

DATA USED

The study covers a 10 years period data from 2011 to 2020. The sample size of the study consists of 12 Public Sector Banks and 12 Private Sector Banks operating in the Indian economy. The essential parameters by which these following Banks were chosen are Deposits of the Bank, Borrowings of the Bank, Net Worth of the Bank, Total Income Earned per year, and the Income earned with in these number of years. This study is based on the use of secondary data. The secondary data used is taken from money control. and these all 24 Banks are listed in National Stock Exchange. The various other sources of data collection were Banking Portals, Newspapers, Books, Trade Journals etc.

HYPOTHESES TESTED

The following hypotheses were kept in mind during the period of study with the defined objectives, the following hypotheses are tested in the study:

(H_{o1}): There is no linear relationship between the Independent Variable i.e. Predictors (Deposits, Borrowings, Net Worth) and Dependent Varibale i.e. response variable (Total Income Earned).'

(H_{02}): The intercept terms or abnormal mean are significantly not other than Zero ($\alpha = 0$)'.

(H_{03}): There is no significant effect of Independent Variable i.e. predictors (Deposits, Borrowings, Net Worth) on the Dependent Variable i.e. response variable (Total Income Earned).

METHODOLOGIES USED

The collected data has been arranged, systematize, tabulated, scrutinize, analyzed and then interpreted with the help of various econometric, statistical tools like regression equation, F-test, Co-efficient test.

In this study, we have studied the impact of Deposits, Borrowings and Net Worth on the Total Income Earned of the Indian Banking sector.

The term "Regression" was first used by Sir Francis Galton in 1877 in a study paper titled "Regression towards Mediocrity in Hereditary Stature". In this paper, he analysed the relationship between the height of fathers and their sons. He studied height of about one thousand fathers and their sons. The value of coefficient of correlation between the height of fathers and their sons was 0.8. He noted in the study that if the average height of a certain set of fathers is x cm. above the general average, the average height of their sons shall be .8x cm above the general

average. Thus, there was a tendency or move towards mediocrity. Galton described the average relationship between height of fathers and their sons as the line of regression (Meena et al., 2015).

Regression is the measure of the average relationship between two or more variables in terms of original units of data" (M.M.Blair).

"Regression Analysis is one of the most frequently used techniques in economics and business research, to find out relation between two or more variables that are related causally" (Taro Yamane)

The tools and methods used are based on the econometrics and econometric analysis. The tools used for the study were a regression, the regression equation, and F-test, Coefficient test etc. "Econometrics is a term used to describe the application of statistical methods to the quantification and critical assessment of hypothetical relationships using data.

The word 'econometrics' suggests that the methods used here are related to economic analysis only"(Dougherty, 2011). The application of econometrics is found in social sciences, boilogical sciences, geoscience engineering, medical sciences, agricultural sciences, etc.The econometric tools are practical in explaining the interrelationship among variables (Dougherty, 2011).

One of the significant roles of econometrics is to provide the tools for modeling by given data.The regression models may be either linear as well as non-linear based on which we have a linear regression analysis and non-linear regression analysis.

Here the outcome of the process is denoted by a dependent variable Y_{it}, called the response variable, depends on independent variables i.e. Predictors) denoted by D_{it} , $B_{it,}$ NW_{it} . The association between Y_{it} and D_{it}, $B_{it,}$ NW_{it} can be explained by a relationship given by the Multiple linear regression model as follows:

$$Y_{it}=\alpha+\beta_1 D_{it} + \beta_2 B_{it}+\beta_3 NW_{it} + u_{it} \quad (1)$$

Y_{it} = Total Income Earned by the Bank

D_{it} = Deposits of the Bank

B_{it} = Borrowings of the Bank

NW_{it} = Net Worth of the Bank

u_{it} = Disturbance Term (Residuals)

The regression models are used with seven different combinations One-factor models, Two-factor models and Three-factor model.

$$Y_{it} = \alpha+\beta_1 D_{it} + u_{it} \quad (2)$$

$$Y_{it} = \alpha+\beta_2 B_{it} + u_{it} \quad (3)$$

$$Y_{it} = \alpha+\beta_3 NW_{it} + u_{it} \quad (4)$$

$$Y_{it} = \alpha+\beta_1 D_{it}+\beta_2 B_{it} + u_{it} \quad (5)$$

$$Y_{it} = \alpha+\beta_1 D_{it} + \beta_3 NW_{it} + u_{it} \quad (6)$$

$$Y_{it} = \alpha+ \beta_2 B_{it} + \beta_3 NW_{it} + u_{it} \quad (7)$$

$$Y_{it} = \alpha+\beta_1 D_{it} + \beta_2 B_{it} + \beta_3 NW_{it} + u_{it} \quad (8)$$

In the one factor models, three different combinations have been made in first combination Total Income Earned is response variable and Deposits is the explanatory variable, In second combination Total Income Earned is response variable and Borrowings is explanatory variable and in the third combination Total Income Earned is response variable and Net Worth is the explanatory variable.

In the two factor models also, three different combinations have been made in first combination Total Income Earned is response variable and Deposits, Borrowing are explanatory variable, In second combination Total Income Earned is response variable and Deposits and Net Worth are explanatory variable and in the third combination Total Income Earned is response variable and Borrowings, Net Worth is explanatory variable.

In the three-factor model, the only a single combination is there here Total Income Earned is response variable and Deposits, Borrowings, Net Worth are the explanatory variable.

R^2 is said to be as the ratio of the explained sum of squares total sum of squares. Adjusted R^2 explains for different objectives, separate tools, and techniques used in the study. Here the study for F-Test (Test for Linearity) One-factor, Two-Factor, Three-factor model has applied in which it has to test that which model is the best fit model. F-Test, i.e., Test of Linearity will be tested to conclude, whether there any Linear relationship exists between predictors and response variable.

Here, the unobservable error or the disturbance term, u_{it} accounts for the failure of the data to lie on a straight line and represents the difference between the true and observed realizations of Y_{it}, for statistical inferences e_{it} is assumed as an dependent.

The explanatory variables D_{it} ,$T_{it,}$ NW_{it} is viewed as controlled by the experimenter, so it is considered as non-stochastic variable and Y_{it} is considered to be a random variable.

Here,

$$Yit = \alpha + \beta 1\ Dit + \beta 2\ Bit + uit \quad (9)$$

u_{it} stands for disturbance term (residuals)

so, u_{it} (Residual) = yit– $(\alpha + \beta_1 D_{it} + B_2 B_{it})$ (10)

$Y_{it} - \hat{Y}_{it}$

Y_{it} = Actual Value,

$\hat{Y}_{it}$ = Predicted Value

The first objective deals with the consistency in the performance of 12 Public Sector Banks and 12 Private sector Banks, to know which bank is highly consistent in attaining total income earned, the least deviation from the average behavior and its performance is to be evaluated and the bank with least deviation will show highly consistent bank among all the 12 Public Sector Banks and 12 Private sector Banks under the period of study (2011-2020).

The second objective deals with the Residuals. Residuals of 12 Public Sector Banks and 12 Private sector Banks generate from the line of regression will be calculated year wise (2011-2020). Each year will show different residuals, the positive residual value and the negative residual will be calculated which will show the best performing bank and the worst performing bank. The average of the study period (2011-2020) will show the exact performance of the bank; the highest positive residual will show the best-performing bank means low risk and high return and the lowest negative residual will show the worst performing bank means high risk and low return.

FINDINGS

For different objectives, different tools and techniques have been used in the study. Details of statistical methods used in the study are given as follows.

Establishment of Relationship between Total Income Earned and Deposits, Borrowings, Net Worth.

Table 4.1: Test of Linearity and Explanatory Power Model (s)

Explanatory Variable	F-statistic	[p-value]	R^2	Adj.R^2
Deposits	8025.695***	[2.4E-185]	0.971199	0.971078
Borrowings	494.686***	[4.84E-60]	0.675168	0.673803
Net Worth	392.5896***	[2.87E-52]	0.622575	0.62099
Deposits & Borrowings	4087.011***	[2.1E-184]	0.971823	0.971585
Deposits & Net Worth	6703.554***	[2.6E-209]	0.98263	0.982483
Borrowings & Net Worth	1066.167***	[3.3E-119]	0.899972	0.899128
Deposits, Borrowings & Net Worth	4677.99431***	[7.376E-210]	0.983461788	0.983251

Table 4.2: Test of Intercept and Coefficient (s) of Factor Model (s)

Explanatory Variable	α	β_1	β_2	β_3
Deposits	2235.001***	0.099935***	-	-
[p-value]	[0.000142]	[2.4E-185]		
Borrowings	24994.89***	-	0.094253***	-
[p-value]	[2.39E-38]		[4.84E-60]	
Net Worth	6918.838***	-	-	1.051046***
[p-value]	[0.001379]			[2.87E-52]
Deposits & Borrowings	1451.963**	0.103973***	-0.00539**	-
[p-value]	[0.030516]	[8.2E-128]	[0.022913]	
Deposits & Net Worth	609.0356	0.088488***	-	0.207107***
[p-value]	[0.194619]	[1.9E-160]		[7.75E-28]
Borrowings & Net Worth	9746.331***	-	0.067385***	0.704448***
[p-value]	[3E-16]		[2.76E-70]	[1.5E-62]
Deposits, Borrowings & Net Worth	1400.27***	0.08154***	0.007062278***	0.2369759***
[p-value]	[0.0067355]	[3.32E-94]	[0.00067452]	[3.9624E-29]

Here is the study for F-Test (Test for Linearity) One Factor Model, Two Factor Model, and Three Factor Model has been applied In the One Factor Model, If Deposits is the independent variable, F-statistic is found to be significant, so we may infer that there is a linear relationship between Total Income Earned and Deposits. Adjusted R^2 is found to be 97.10 % the variations in Total Income Earned is explained by Deposit with an explanatory power of 97.10%. The coefficient of Deposits is significant at 1% as it's p-value is less than 0.01, so there is a significant effect of Deposits on Total Income Earned. The intercept term is significant at 1% as it's p-value is less than 0.01. So, there is a possibility of abnormal profit and α is positive significant, It signals managerial efficiency ($\alpha \neq 0$).

In the other One Factor Model, If Borrowings is the independent variable F-statistic is found to be significant, so we may infer that there is a linear relationship between Total Income Earned and Borrowings. Adjusted R^2 is found to be 67.38 % the variations in Total Income Earned is explaining by Borrowings with an explanatory power of 67.38%. The coefficient of Borrowings is significant at 1% as it's p-value is less than 0.01, so a considerable effect of Borrowings on Total Income Earned can be found. The intercept term is significant at 1% as it's p-value is less than 0.01. So, there is a possibility of abnormal profit and α is positive significant. It signals managerial efficiency ($\alpha \neq 0$).

In another One Factor Model, If Net Worth is the independent variable, the F-statistic is found to be significant, so we may infer that there is a linear relationship between Total Income Earned and Net Worth. Adjusted R^2 is found to be 62.09 % the variations in Total Income Earned is explaining by Net Worth with an explanatory power of 62.09%. The coefficient of Net Worth is significant at 1% as it's p-value is less than 0.01, so a notable effect of Net Worth on Total Income Earned is observed. The intercept term is significant at 1% as it's p-value is less than 0.01. So, there is a possibility of abnormal profit and α is positive significant. It signals managerial efficiency ($\alpha \neq 0$).

In the Two Factor Model, If Deposits and Borrowings are independent variables, F-statistic is found to be significant, so we may infer that there is a linear relationship between Deposits, Borrowings and Total Income Earned. Adjusted R^2 is found to be 97.15 % the variations in Total Income Earned is explaining by Deposits and Borrowings with an explanatory power of 97.15%. The coefficient of Deposits and Borrowings is significant at 1% as it's p-value is less than 0.01, so a crucial effect of Deposits and Borrowings on Total Income Earned can be seen. The intercept term is significant at 5% as it's p-value is less than 0.05. So, there is a possibility of abnormal profit and α is positive significant. It signals managerial efficiency ($\alpha \neq 0$).

In the other Two Factor Model, If Deposits & Net Worth are the independent variables, and F-statistic is found to be significant, so we may infer that there is a linear relationship between Deposits, Net Worth and Total Income Earned. Adjusted R^2 is found to be 98.24 % the variations in Total Income Earned is explaining by Deposits and Worth with an explanatory power of 98.24 %. The coefficient of Deposits and Net Worth is significant at 1% as it's p-value is less than 0.01, so there is a significant effect of Deposits and Net Worth on Total Income Earned. The Intercept term is insignificant at 10%, and its p-value is more than 0.10. So here null hypothesis is accepted, and we may infer that the abnormal profit is zero, Managerial inefficiency and market is informationally efficient ($\alpha = 0$).

In another Two Factor Model Borrowings and Net Worth, are the independent variable, F-statistic is found to be significant, so we may infer that there is a linear relationship between Borrowings, Net Worth and Total Income Earned. Adjusted R^2 is found to be 89.91 % the variations in Total Income Earned is explaining by Borrowings and Net Worth with an explanatory power of 89.91 %. The coefficient of Borrowings and Net Worth is significant at 1% because it's p-value is less than 0.01, so there is a significant effect of Borrowings and Net Worth on Total Income Earned. The intercept term is significant at 1% as it's p-value is less than 0.01. So, there is a possibility of abnormal profit and α is positive significant. It signals managerial efficiency ($\alpha \neq 0$).

In Three-factor model, Deposits, Borrowings & Net Worth are the independent variable, F-statistic is found to be significant, so we may infer that there is linear a relationship between Deposits, Borrowings, Net Worth and Total Income Earned. Adjusted R^2 is found to be 98.32 % the variations in Total Income Earned is explained by Deposits, Borrowings, Net Worth with an explanatory power of 98.32%. The coefficient of Deposits, Borrowings, Net Worth is significant at 1% because it's p-value is less than 0.01 so, there is a significant effect of Deposits, Borrowings, Net Worth on Total Income Earned. The intercept term is significant at 1% as it's p-value is less than 0.01. So, there is a possibility of abnormal profit and α is positive significant. It signals managerial efficiency ($\alpha \neq 0$).

SUITABLE SUGGESTION OF MODEL

After analyzing all the seven models, it has found that out of seven models six models are best fit models as in all the six models adjusted R^2 is found to be more than 60% the variations in response variable is explained by explanatory variables with an explanatory power of more than 60%. We know that the main function of the Bank is deposits and borrowings so the fourth model i.e. the Two-Factor Model we have considered here a best fit model.

CONCLUSION

Consistency in the performance of the Public Sector Banks and Private Sector Banks.

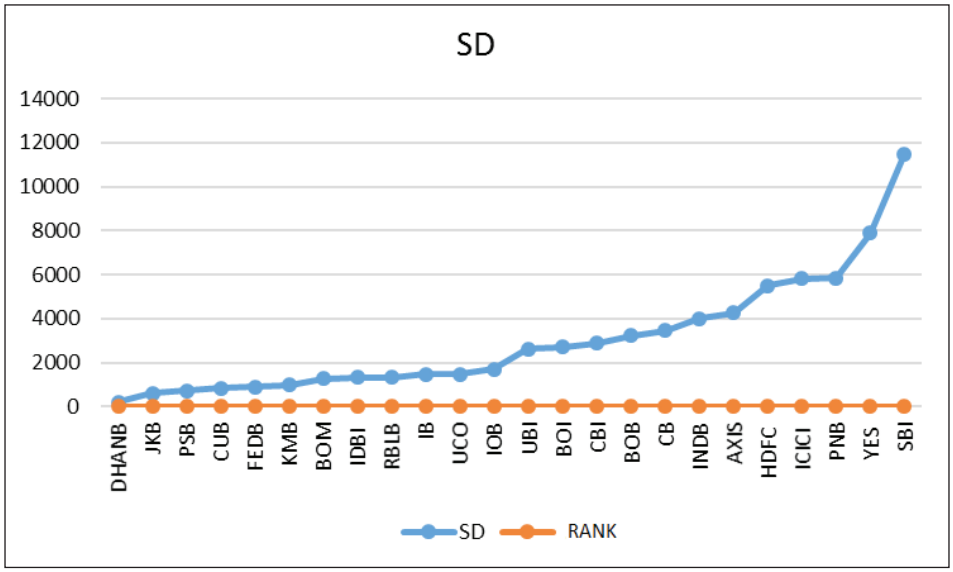

Figure No.(a) Graphical representation of Standard Deviation of 24 Banks.

Table-(a) Consistency of twenty-four Public & Private Sector Banks

Rank	Name of the Bank	Standard Deviation
1	Dhanlaxmi Bank	194.709
2	Jammu and Kashmir Bank	620.078
3	Punjab and Sind Bank	710.389
4	City Union Bank	829.882
5	Federal Bank	887.042

Rank	Name of the Bank	Standard Deviation
6	Kotak Mahindra Bank	983.943
7	Bank of Maharashtra	1257.5
8	IDBI Bank	1314.52
9	RBL Bank	1333.48
10	Indian Bank	1459.6
11	UCO Bank	1461.46
12	Indian Overseas Bank	1700.47
13	Union Bank of India	2627.63
14	Bank of India	2720.93
15	Central Bank of India	2874.22
16	Bank of Baroda	3237.05
17	Canara Bank	3458.67
18	IndusInd Bank	3993.36
19	AXIS Bank	4264.11
20	HDFC BANK	5497.61
21	ICICI Bank	5812.15
22	Punjab National Bank	5843.67
23	YES Bank	7874.21
24	State Bank of India	11473.4

Table-(a) shows the consistency of 12 Public Sector Banks and 12 Private Sector Banks in which the least deviation from the average behaviour has measured in which the least deviation is found in Dhanlaxmi Bank, second least deviation is found in the Jammu and Kashmir Bank means these are the two banks showing consistent performance over 10 years period of study. A very high maximal deviation has observed in State Bank of India, and second maximal high deviation is found in the YES Bank. This shows that these are the two Banks which are showing inconsistent performance among 12 Public Sector Banks and 12 Private Sector Banks over 10 years period of study.

Ranking the performance of the Banks on the basis of their Total Income Earned

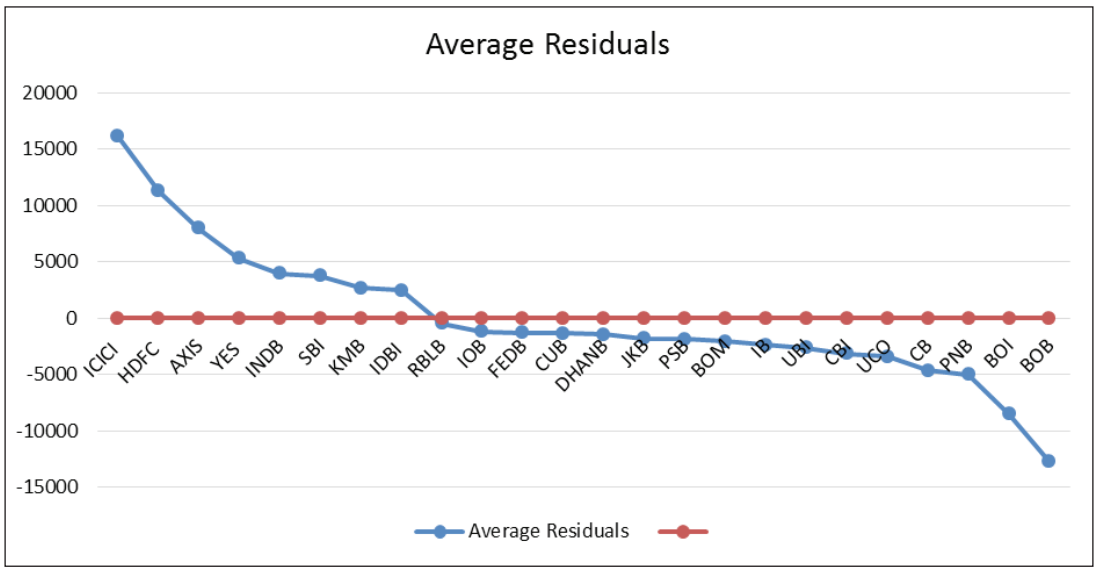

Figure No.(b) Graphical representation of Residuals of 24 Banks.

Table-(b) Calculation of Residuals of twenty-four Public & Private Sector Banks

Rank	Name of the Bank	Residuals (Average)
1	ICICI Bank	16140.97
2	HDFC BANK	11278.1
3	AXIS Bank	8010.873
4	YES Bank	5309.618
5	IndusInd Bank	3974.944
6	State Bank of India	3753.627
7	Kotak Mahindra Bank	2678.28
8	IDBI Bank	2473.553
9	RBL Bank	-430.376
10	Indian Overseas Bank	-1184.38
11	Federal Bank	-1268.96
12	City Union Bank	-1302.97
13	Dhanlaxmi Bank	-1447.18
14	Jammu and Kashmir Bank	-1809.22
15	Punjab and Sind Bank	-1867.83
16	Bank of Maharashtra	-2047.82
17	Indian Bank	-2363.53
18	Union Bank of India	-2617.06
19	Central Bank of India	-3140.6
20	UCO Bank	-3397.81
21	Canara Bank	-4600.68
22	Punjab National Bank	-4972.66
23	Bank of India	-8468.1
24	Bank of Baroda	-12700.8

Table-(b) shows the Residuals of 12 Public Sector Banks and 12 Private Sector Banks of India. The Bank with the highest Residual shows the best performing bank under the period of study and the lowest Residual shows the worst performing bank under the period of study.

According to the Highest Residuals in 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018 the best performing Bank was ICICI Bank. In 2019 HDFC Bank was the best-performing Bank and in the year 2020 during Covid-19 period YES Bank was the best-performing Bank followed by HDFC Bank and according to the average of ten years period of study the again it has been found that ICICI Bank was the best performing Bank followed by HDFC Bank and Axis Bank.

According to the lowest Residuals in 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018 the worst performance was of Bank of Baroda. In 2019 the worst performance was of Punjab National Bank and in the year 2020 during

Covid-19 period the worst performance was of State Bank of India, and according to the average of ten years period of study (2011-2020), the worst performance was of Bank of Baroda followed by Bank of India and Punjab National Bank under the study period.

Table-(b) shows the year-wise residuals of 12 Public Sector Banks and 12 Private Sector Banks of 10 years (2011-2020), generates from the regression equation. Average residuals have been calculated bank wise by residuals derived in different years. From the table-(b), it has found that the highest positive residual value is of ICICI Bank while the second highest is of HDFC Bank.

Now by residuals, the average of ten years (2011-2020) the ICICI Bank was the first and HDFC Bank was the second best-performing bank.

According to the basis of total income earned, ICICI Bank has a maximum positive deviation from the line of regression, so we may conclude that ICICI Bank is the best performer followed by HDFC Bank and AXIS Bank and the worst performance was of Bank of Baroda followed by Bank of India and Punjab National Bank.

SUGGESTION

- Reserve Bank of India must take all possible initiatives to maintain liquidity in the financial system and its constituents in the face of COVID-19.
- Top Management of Banks and Government of India is required to take fruitful decisions and actions to lessen uncertainty and financial stress.
- Government of India and Top Management of Banks must take fruitful initiatives to open the economy to avoid the worse to come.
- Continuous measures should be taken by both Government and RBI so that smooth functioning of both money markets and capital markets.

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CHAPTER 15

An Approach to Find a Relationship between Fiscal Deficit and Growth of the Economy

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ABSTRACT

An attempt has been made to find a relationship between Government fiscal deficit and the growth of the economy in India. The results have been analyzed to prove Keynesian theory of deficit (i.e., Deficit spending is a form of economic stimulus) and the Ricardian theory (i.e., Govt. deficit will have minimum effect on the level of economic activity). A time series data of 28 years between (1992 – 2019) have been used to establish the result. Further, the relationships between gross savings and investments w.r.t. fiscal deficit were also analyzed. An attempt has also been made to analyze the growth of the economy with the impact of fiscal deficit, inflation, real rate of interest, exchange rate, consumption, investment and savings as percentage of GDP during the post reform period.

Keywords: *Fiscal deficit, GDP, Keynesian theory, Ricardian theory*

INTRODUCTION

Growth of the economy and fiscal deficit are always debated in developing economy. When government expenditure exceeds its income then a fiscal deficit situation occurs. The Keynesian, Ricardian and Neo-Classical are three different views in this regard. The Keynesian theory supports deficit spending for optimal use of the existing un-utilized services. (Nelson & Singh, 1994) supports the idea of deficit financing to promote economic growth for effective use of underutilized resources. It says that an increase in Government will lead to an increase in output. The Ricardian theory rules out any relationship between growth and fiscal deficit, whereas the Neo-Classical argues exactly opposite of Keynesian theory. The Neo-Classical theory says that as a result of government deficit, the change in private consumption will only be limited as people care for their "permanent income" and only change their consumption with a small amount. According to Ricardian equivalence, the present increase in government spending is perceived equivalent to future taxes by the people resulting in not changing the consumption pattern leading to up-surge in private savings. (Kundrakpam & Pattanaik, 2010) argues that fiscal deficit is the major factor behind the high inflation adversely affecting the economic growth. (RBI, 2012) supports this argument.

The economic growth of a country depends on several factors such as government spending, investment, export, import, savings, inflation, interest rate, exchange rate, tax revenue etc. This paper aims to analyze the relationship

between economic growth and fiscal deficit in India during the period 1992 – 2019 i.e., period when economic reforms started till pre-covid pandemic.

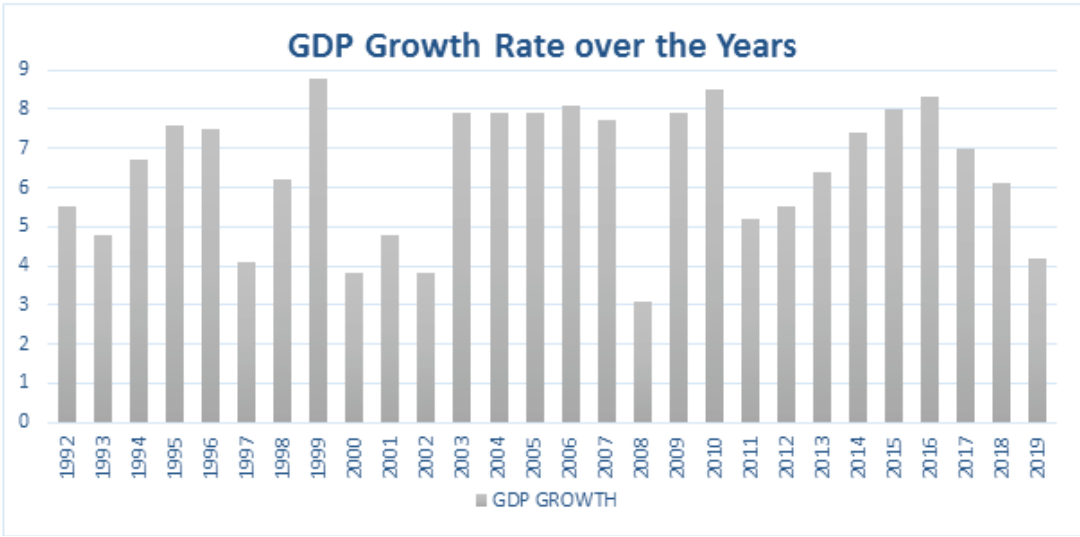


Figure-1

The GDP growth rate of India which was 2.9% during 1970s jumped to more than 5% in 1980s. But, the 1991 growth rate came down to approximately 1%. The economic reform brought by India in 1991resulted in accelerating the growth to 5.5% during 1990s and more than 7% average growth till 2017. India's rate of growth became stable since 1991. The growth has accelerated fastest in services followed by industry, however agriculture lagged behind. An increasing share of investment and exports have also contributed in stabilizing and accelerating the growth.

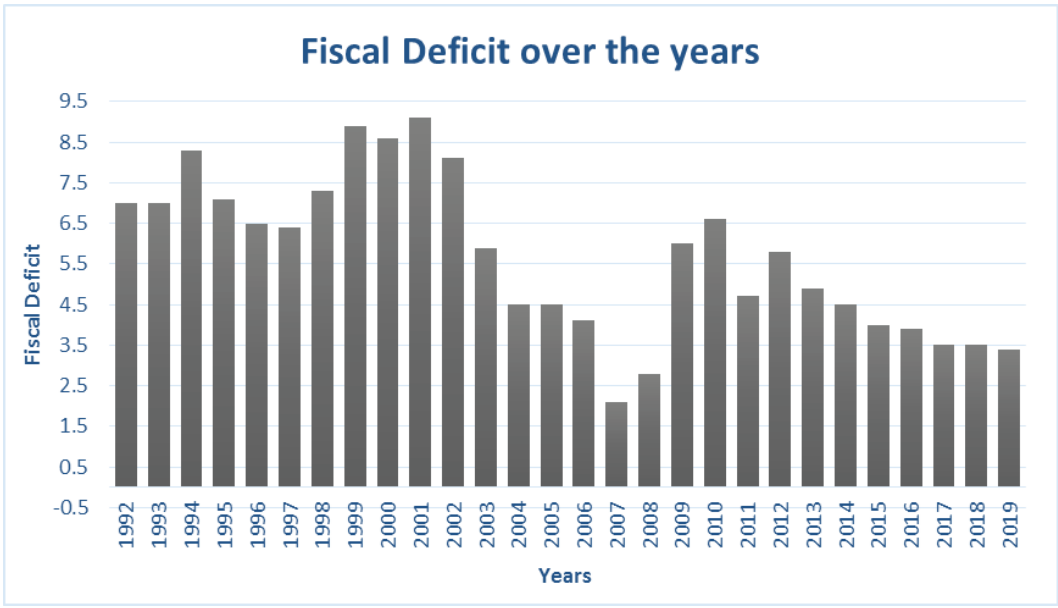


Figure-2

LITERATURE REVIEW

Growth theories of 1950s and 1960s mainly emphasized on the capital accumulation and technical progress. (Stern, 1991) added human capital, research & development, innovation, management and infrastructure besides capital accumulation and technical progress as the determinants of growth. (Barro & Sala-I-Martin, Economic Growth, 1995) found that schooling, life expectancy, human capital, education spending, investment, ease of trade has positive relationship with growth whereas government consumption, black marketing, political

instability has negative relation with growth. According to (Mankiw, Romer, & Weil, 1992) physical and human capital variables have significant relation with growth. (Barro, Determinants of Economic Growth: A cross country empirical study, 1996) also supported (Barro & Sala-I-Martin, Economic Growth, 1995) and asserted that human capital, rule of law, ease of trade, investment has positive correlation with growth whereas inflation and government consumption showed a negative relation with growth.

Many authors have empirically tested the relationship between deficit and economic growth and found contrary results. While analyzing growth (Martin & Fardmanesh, 1990) included government expenditure, revenue, cross capital formation and population growth in the study and it was found that deficit and tax revenue have a negative relationship with growth. They proved that total expenditure has a positive relation with growth. (Goyal, 2004) finds that rise in fiscal deficit put upward pressure on interest rates. (Adam & Bevan, 2005) while analyzing growth for 45 countries for the period 1970-1999 found that deficit less than or equal to 1.5% of GDP was growth enhancing, however deficit more than 1.5% was growth deteriorating. (Taylor, 2012) argued that primary fiscal deficit has a significant positive effect on growth while analyzing a time series data on US economy. (Karnik, 2002) on a study of Maharashtra state proved that both fiscal deficit and revenue deficit variables had negative effect on growth. (IMF Policy Paper, 2015) emphasizes that large fiscal deficit reduces aggregate savings in the economy and may lead to inflation, high interest rates resulting in negative growth. Therefore, it is quite clear that there is no conclusive result relationship of GDP and fiscal deficit. (Levy-Wewati & Sturzenegger, 2002) found that there was a significant relationship between currency exchange rate and growth of the economy. (Mallik & Chaodhry, 2001) on analyzing the economy of four Asian neighboring countries India, Sri-Lanka, Bangladesh and Pakistan found a significant relationship between growth rate and inflation rate.

METHODOLOGY

Data used for fitting the model has been taken from **http://data.worldbank.org**, and reports of RBI. As per conventional purposes total output i.e., GDP is obtained by adding three important macroeconomic indicators namely, investment, government consumption expenditure and trade deficits and can be expressed by the model

$$Y_t = \beta_0 + \beta_1 G_t + \beta_2 IN_t + \beta_3 TD_t + e_t$$

where, Y_t = GDP at time t,

G_t = Govt Consumption expenditure at time t,

IN_t = Investment as at time t

TD_t = Trade Deficit at time t

β_0, β_1, β_2 and β_3 are constant, coefficient of govt consumption expenditure, coefficient of investment and coefficient of trade deficit respectively and the errors are independently and normally distributed with mean 0 and constant variance σ^2 .

$e_t \sim N(0, \sigma^2)$

Table-1 establishes a significant impact of explanatory variables (G_t, IN_t and TD_t) on the GDP, however impact of G_t, IN_t and TD_t separately on GDP is not significant. Table-2 establishes no significant impact of explanatory variables (G_t, IN_t and TD_t) on growth rate of the economy. Figures 3(a), 3(b) and 3(c) give an indication of impact of Government consumption expenditure, Investment and Trade deficit on Growth rate of the economy.

Table-1 Dependent Variable: GDP

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7807225.038[a]	3	2602408.346	5.461	.005
Intercept	13951.153	1	13951.153	.029	.866
TRADEDEF	346342.006	1	346342.006	.727	.402
INVESTMENT	943935.367	1	943935.367	1.981	.172
CONSUMPTION EXPENDITURE (% of GDP)	11873.906	1	11873.906	.025	.876
Error	11437378.006	24	476557.417		
Total	58386299.800	28			
Corrected Total	19244603.044	27			

R Squared = .406 (Adjusted R Squared = .331)

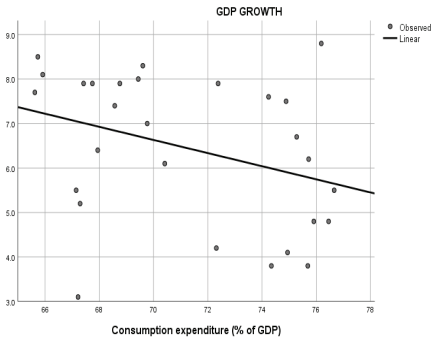


Figure-3(a)

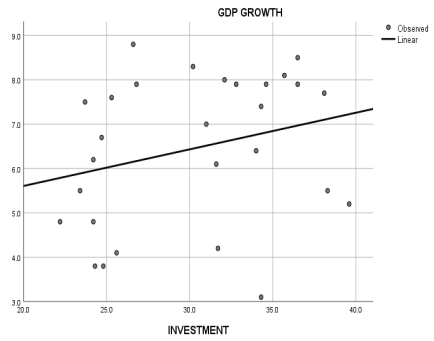


Figure-3(b)

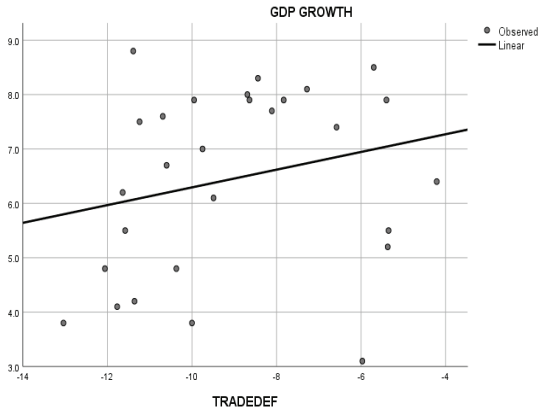


Figure-3(c)

Table-2 Dependent Variable: GDP Growth Rate

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	12.648[a]	3	4.216	1.578	.221
Intercept	8.442	1	8.442	3.159	.088
TRADEDEF	.617	1	.617	.231	.635
INVESTMENT	2.728	1	2.728	1.021	.322
CONSUMPTION EXPENDITURE (% of GDP)	7.180	1	7.180	2.686	.114
Error	64.141	24	2.673		
Total	1242.950	28			
Corrected Total	76.790	27			
a. R Squared = .165 (Adjusted R Squared = .060)					

Further, model used to see the impact of macro-economic variables (inflation rate (I), exchange rate (E) and real interest rate (R)) on the economic health of India after post reform period is

$$Y_t = \beta_0 + \beta_1 E_t + \beta_2 R_t + \beta_3 I_t + e_t$$

Where, β_0, β_1, β_2 and β_2 denote constant, coefficient of exchange rate, coefficient of real rate of interest and inflation (GDP deflator) respectively and are independently and normally distributed with mean 0 and constant variance σ^2

Table-3 Dependent Variable: GDP

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	17944609.967[a]	3	5981536.656	110.429	.000
Intercept	2090566.561	1	2090566.561	38.595	.000

EXCHANGE RATE	6857058.822	1	6857058.822	126.593	.000
RIR	177375.965	1	177375.965	3.275	.083
GDP Deflator	1326457.098	1	1326457.098	24.489	.000
Error	1299993.077	24	54166.378		
Total	58386299.800	28			
Corrected Total	19244603.044	27			
a. R Squared = .932 (Adjusted R Squared = .924)					

The result (Table-3) shows a significant relation between the selected independent economic variables (I, E and R) with GDP. Further, inflation and exchange rate are showing a significant impact on GDP. Rate of interest is having a positive impact on GDP but not significant at 0.05 level of significance.

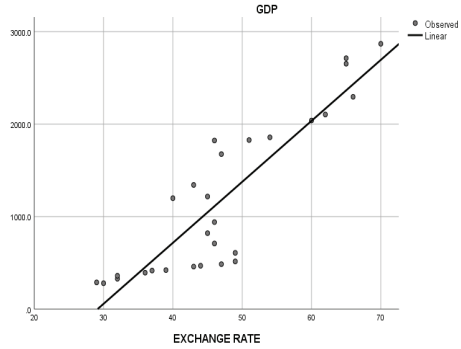
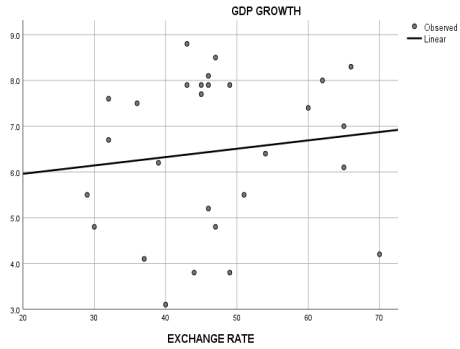


Figure-4(a)



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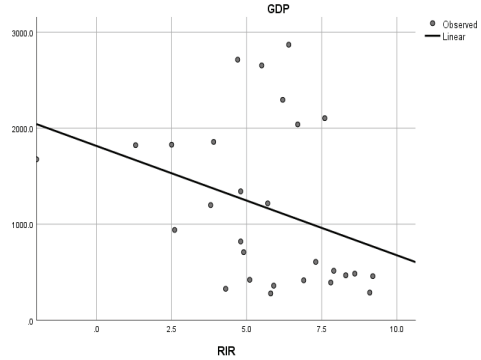
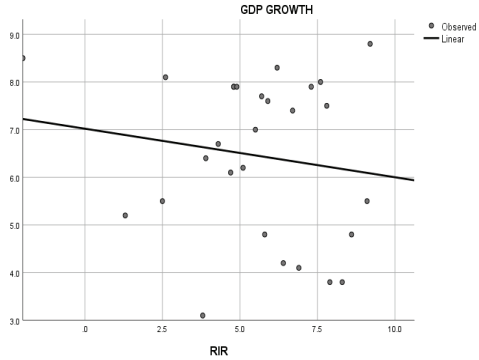


Figure-4(c)



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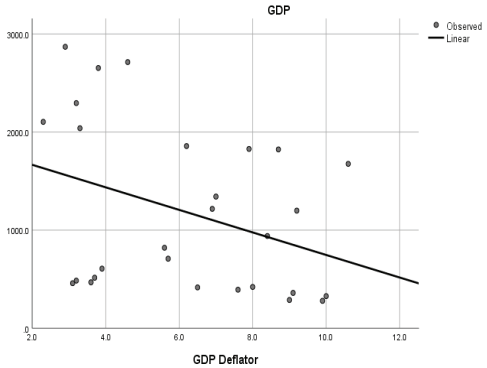

Figure-4(e)

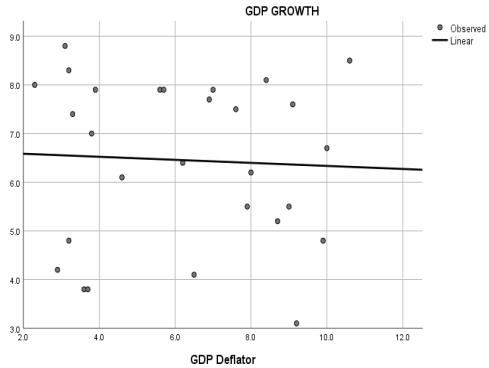

Figure-4(f)

Further is 0.924 which shows that 92.4% GDP are explained by independent variables. Durbin Watson statistic value comes out to be very near to 2 indicating presence of no autocorrelation in the sample. This implies that model is strong enough to represent data use. Similarly, while analyzing growth rate with inflation, exchange rate and real interest rate (RIR) as independent variables, only 6 percent of growth rate are explained(R^2=0.06). Also, there is no significant effect of inflation, RIR and exchange rate on the growth rate of the economy contrary to the result that inflation, RIR and exchange rate have significant effect on GDP. Figures 4(a), 4(b), 4(c), 4(d), 4(e), 4(f) clearly indicate a positive impact of exchange rate on GDP and GDP growth rate but negative impact of RIR and GDP deflator on growth of the economy.

The Model used to see the impact of fiscal deficit (F), inflation, RIR and exchange rate on the economic health of India in the post reform period is

$$Y_t = \beta_0 + \beta_1 E_t + \beta_2 R_t + \beta_3 I_t + \beta_4 F_t + e_t$$

Where, β_0, β_1, β_2 and β_4 denote constant, coefficient of exchange rate, coefficient of real rate of interest coefficient of inflation (GDP deflator) and coefficient of fiscal deficit respectively and the error terms are independently and normally distributed with mean 0 and constant variance σ^2 .

There is a significant relation between independent economic variables (F, I, E, R) with GDP (Table-4). Fiscal Deficit has no significant impact on GDP, however, inflation and exchange rate have significant impact on GDP at 0.05 level of significance. Also it is found that GDP and fiscal deficit are highly negatively correlated though the impact of fiscal deficit on GDP is not statistically significant.

Table-4 Dependent Variable: GDP

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	17995254.060[a]	4	4498813.515	82.821	.000
Intercept	1052941.502	1	1052941.502	19.384	.000
EXCHANGE RATE	3935761.579	1	3935761.579	72.456	.000
RIR	135049.153	1	135049.153	2.486	.129
GDP DEFLATOR	909714.427	1	909714.427	16.747	.000
DEFICIT	50644.092	1	50644.092	.932	.344
Error	1249348.985	23	54319.521		
Total	58386299.800	28			
Corrected Total	19244603.044	27			
R Squared = .935 (Adjusted R Squared = .924)					

While analyzing growth rate with independent variables fiscal deficit, inflation, RIR, exchange rate, value of R^2 is 0.08 i.e., only 8 percent of economic growth rate are explained by the independent variables. ANOVA(Table-5) clearly shows that there is no significant effect of fiscal deficit, inflation, RIR and exchange rate on growth rate of the economy, however, (figure-5) indicates a negative impact on growth of the economy with rise in fiscal deficit on linear scale. But quadratic equation looks like more closure to the best fit for the data. It is found that deficit less than 4.5 percent of GDP is growth enhancing and deficit more than 4.5 percent is growth deteriorating. This clearly supports Keynesian views of growth against deficit till a moderate level of fiscal deficit. Since effect of fiscal deficit in growth is not statistically significant therefore, Ricardian equivalence theory that financing government spending out of current revenues will have equivalent effects on the economy is justified. In totality, findings support Neo-classical theory because growth rate is adversely affected when deficit increases beyond 4.5 percent.

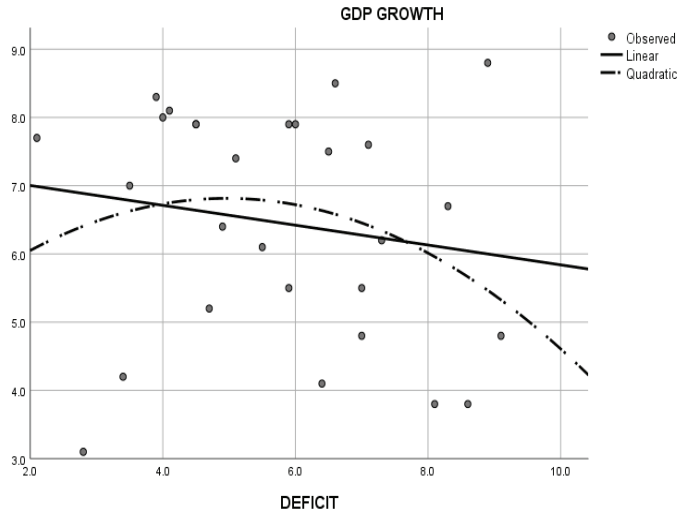

Figure-5

Table-5 Dependent Variable: GDP GROWTH

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.046[a]	4	1.512	.491	.742
Intercept	9.025	1	9.025	2.934	.100
EXCHANGE RATE	1.893	1	1.893	.615	.441
RIR	4.021	1	4.021	1.307	.265
GDP DEFLATOR	3.032	1	3.032	.986	.331
DEFICIT	1.424	1	1.424	.463	.503
Error	70.743	23	3.076		
Total	1242.950	28			
Corrected Total	76.790	27			
a. R Squared = .079 (Adjusted R Squared = -.081)					

GDP growth rate (figure-6) shows increasing trend against savings; however, it is not statistically significant. Quadratic curve fits the best to the GDP growth against investment (figure-7), however, it is also not significant. With an increase in investment, growth increases till the investment is about 33 percent of GDP but start decreasing with further increase in investment.

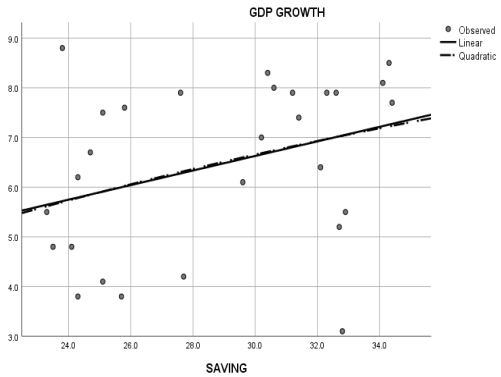

Figure-6

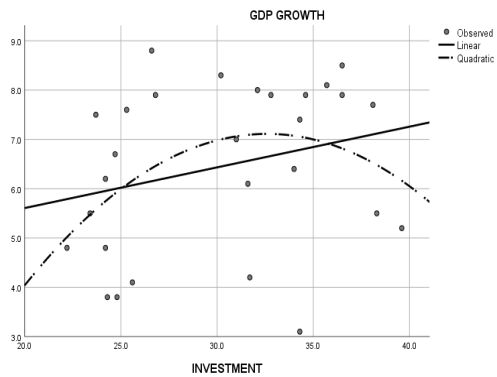

Figure-7

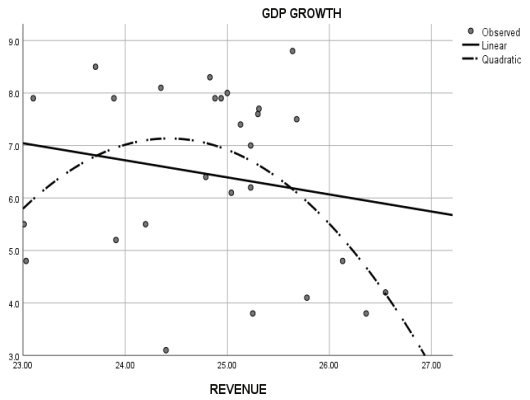

Figure-8

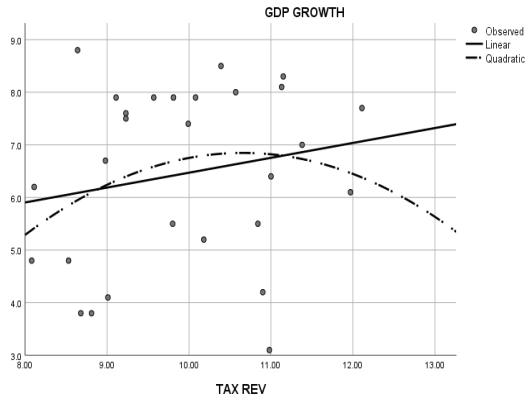

Figure-9

While analyzing growth against revenue (figure-8), the quadratic model fits the best. Revenue less than 24 percent of GDP is growth enhancing but with increase in revenue beyond that we witnessed sharp decline in growth.

Tax revenue have positive correlation with the growth rate (figure-9) contradicting (Martin & Fardmanesh, 1990) but the same time the findings of relationship of fiscal deficit with respect to growth support (Martin & Ferdmanesh, 1990). Similarly, our results support Goyal (2004) that the rise in fiscal deficit put upward pressure on interest rate (figure-9).

CONCLUSION

Fiscal deficit over the years in the post reform period in India has decreased significantly, however economy has not grown in that proportion. This may be due to downward trend of inflation and upward trend of savings, investment, and government consumption expenditure over the years. On the other hand, a significant positive impact of decrease in fiscal deficit on GDP (in absolute term) is established (i.e., GDP and fiscal deficit are highly negatively correlated).

The relation of GDP growth with savings and investment as percentage of GDP has been analyzed. We found that quadratic curve fits the best to the GDP growth against investment and has increasing trend against savings. A negative relationship between fiscal deficit and economic growth is established indicating slowing down of the economy with increase in the fiscal deficit.

In our study, it is realized that fiscal deficit less than a moderate level (4.5% of GDP for the data used in our study) endorses Keynesian views on economic growth against fiscal deficit. However, fiscal deficit increasing beyond the moderate level slowed down the economic growth endorsing the neoclassical approach. While analyzing the data, the effect of fiscal deficit on economic growth is not found to be statistically significant, proving the Ricardian equivalence theory. Therefore, a deficit reduction for a long period of time may be useful in inducing endogenous growth of the economy.

One limitation of this paper is that we have not taken into account the effects of fiscal deficit on economic growth under different levels of government debt. The effect of bifurcation of fiscal deficit into effective fiscal deficit and revenue deficit on economic growth has not been considered in this paper is another limitation of this study.

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CHAPTER 16

A Detailed study on Evolution of Behavioural Finance

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ABSTRACT

Theory of Behavioural finance has been more popular since the 1980s. Its impact has grown in recent years, and it has actively challenged mainstream financial theories to help investors make better decisions. It covers three major topics. Firstly, the relevance of standard finance theories has been forecasted as well as the scenarios in which they are insufficient, such as market anomalies. Second, it denotes behavioural finance's contribution to closing the gap between traditional finance theories and current market realities. Finally, it addresses certain broad concepts of behavioural biases, such as theory of heuristics and theory of prospects, as well as their underlying psychology and influence on capital market and decision making of an investor. The study examines a new branch of study that offers evolutionary and behavioural approaches to financial market modelling. The fundamental goal is to develop a convincing alternative to the traditional Walrasian equilibrium theory, which is predicated on the assumption that market participants are fully rational. Rather of optimising often unobservable individual utility functions, traders/investors can engage wide sets of strategic behaviour patterns that are based on their own psychology. Elements of evolutionary game theory (solution ideas) and stochastic dynamic games are combined in the models addressed in this topic (strategic frameworks). While the focus of standard finance is on theories like modern portfolio theory and EMH theory, this study examines how current behavioural finance ideas have evolved from the conventional framework.

Keywords: *Standard finance, Behavioural Finance, Behavioural Biases, Investment Decision, Psychological factors and Market Anomalies.*

INTRODUCTION

The study of how emotional, cognitive, and psychological aspects impact financial decisions is known as behavioural finance. Thousands of researches have proven that humans are completely illogical when it comes to making decisions. Communication and information are now available throughout the world in a matter of seconds. The majority of short-term price movements are caused by market participants who are periodically affected by emotion or fast obtained news, resulting in abnormalities in investor behaviour.

Every investor realises that investing in the stock market evokes a wide variety of emotions, from the agony of watching your investment lose value to the thrill of seeing it fly higher and higher, and that these feelings may lead to blunders and errors in judgement. Global Financial Crisis in 2008 shocks the financial system with which the popularity of behavioural finance concept has been increased as investors strive to better understand markets and market players. Market anomalies such as speculative bubbles, reaction (over and under) to new information are evidence of poor financial decision-making. As a result, the need to understand such anomalies, as well as the weaknesses in human judgement involved, paved the way for behavioural finance.

Behavioural finance is the merging of classical finance and psychology, with the goal of explaining stock market oddities and how the behaviour and psychology of human may lead to market inefficiencies and mispricing. Behavioural finance is more than simply a subset of finance; it encompasses concepts from behavioural economics, psychology, and microeconomic theory.

Objective of this study: The present research tests into the current writing accessible on the space of Behavioural Finance (BF) which is an arising field of money. The investigation expects to extend the space of Behavioural Finance by bringing a more profound comprehension of the ideas and writing. A far reaching survey of writing has been done dependent on various standards and references.

Research Design: - The calculated advancement of Behavioural Finance (BF), a clever exchange on the movement in the field is utilized as a way to deal with the examination. A wide cluster of ideas, conversations, and portrayals of ideas is taken from the data set from past research done on this topic.

This paper is sectioned into two segments: Section 1 gives a detail outlook of standard finance and behavioural finance; Section 2 momentarily clarify different theories of behavioural finance.

APPROACH OF STANDARD FINANCE

The beginning of the classical period in economics is regarded to be the mid-eighteenth century (Pompian, 2011). The traditional financial framework was built on these assumptions, which sought equilibrium by maximising marginal utility of persons who were bound by circumstances (Pompian, 2011). Individuals that reflect this paradigm behave in a consistent manner since their primary goal is to maximise their marginal profits.

Academic finance is another name for standard finance. The 1950s and early 1960s saw the emergence of modern portfolio theory and other related concepts. Following that, it gained widespread support among academics. Investors were viewed as totally rational decision-making beings in this worldview. Stock prices, according to the notion, always represented the most up-to-date knowledge on fundamental values, and prices only moved in response to trustworthy evidence. Using rational expectations, 1970s finance models linked speculative asset prices to economic fundamentals. As a result, finance was intertwined with the rest of the economy. The four pillars of standard finance are as follows:

i. Investors are rational;
ii. Markets are efficient;
iii. Investors should build their portfolios using the Mean-Variance Portfolio Theory guidelines; and
iv. Expected returns are a function of risk alone, and risk alone determines expected returns.

Market participants make risk-free decisions based on the expected utility values of available choices, according to the Expected Utility Theory. The purpose of rational investors is to maximise their predicted expected utility, which is derived by multiplying utility values by their probabilities. It categorises decision-makers as risk averse, risk neutral, or risk takers. The portfolio selection approach was first proposed by Harry Markowitz in 1952. He thinks that investors are risk averse and can only pick things with a low risk and a low marginal rate of return. It explains the process of constructing an optimum portfolio by picking diverse assets with the lowest risk and highest return. The Markowitz portfolio theory comes in handy portfolio creation in practise, which eventually leads to the establishment of a Capital Asset Pricing Model (CAPM). Pioneers are people who break new ground. It is a theoretical model for determining the price of a single security. It is a theoretical model for determining the price of a single security. It aids in establishing the acceptable rate of return for an asset to be added to a diversified portfolio, taking into account the asset's risk. The basic premise of this strategy is that investors must be rewarded for the time value of money as well as market risk.

The Efficient Market Hypothesis is another important topic in conventional accounting (EMH). Eugene Fama published a paper in the 1970s called Efficient Capital Markets, in which he stated that it is impossible to beat the market since monetary business sectors are productive in terms of data dispersion. The effective market theory expresses the reason that all data has as of now been reflected in a security's cost or market esteem, and that the current value the stock or security is exchanging for now is its reasonable worth. Since stocks are viewed

as at their reasonable worth, defenders contend that dynamic dealers or portfolio directors can't create better returns after some time that beat the market. Accordingly, they accept financial backers ought to simply claim the "whole market" rather than endeavouring to "outflank the market."

The Arbitrage Pricing Theory (APT) relates to venture technique. It claims that the reasonable money hypothesis is the essential rationale and philosophy. The objective merchants or arbitrageurs will be sufficiently fast to get this chance and the mispricing made by the unreasonable merchants will be revised. The exchange accepts that whenever financial backers look to abuse abundance benefit openings that may emerge because of floats away from the crucial worth, the movement of specific theorists will build the interest for it. Higher request will drive up the costs, consequently prompting a change in costs, in this manner dispensing with the chance for overabundance benefits. Along these lines, the costs of protections would mirror the accessible data precisely, permitting productive allotment of capital.

For an extremely significant stretch of time these hypotheses were acknowledged and viewed as a definitive clarification for financial backer and market conduct. Notwithstanding, lately analysts have been seeing that customary speculations get essentially disregarded in real market conditions and financial backers additionally face such countless issues in the securities exchange while exchanging. They have begun tolerating that these speculations depend on the distorted suspicions. This prompted the emergence of behavioural finance which factors madness's and predispositions of financial backers.

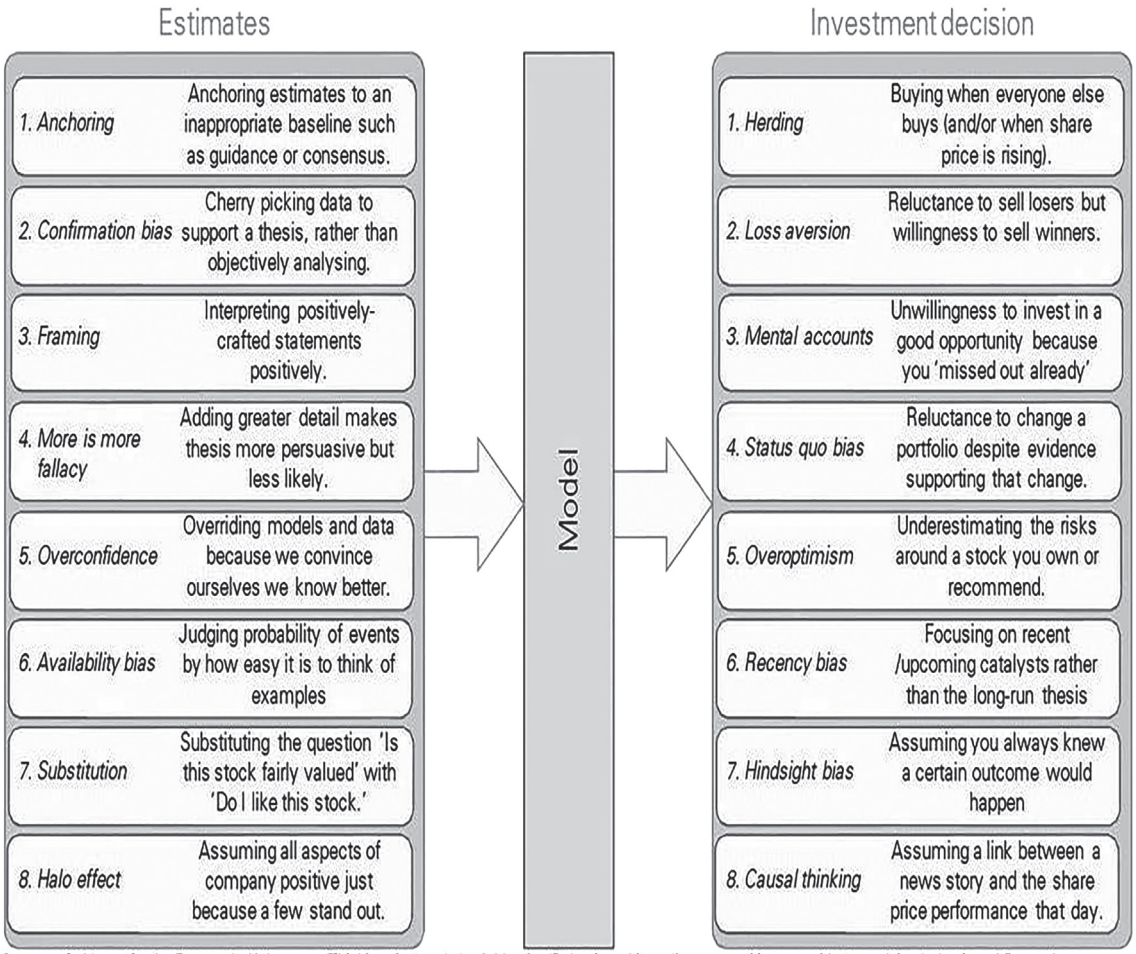
APPROACH OF BEHAVIOURAL FINANCE

The financial backers are level headed and contended that the idea of standard account couldn't give adequate outcomes to the financial backers in dynamic. The EMH is largely predicated on market participants' belief that stock prices are solidly based on all present factors. When it comes to financial exchange, social money believes that commercial sectors aren't fully capable. This takes into account people's perceptions of how mental factors might influence stock purchases and sales. Financial backers and portfolio managers, though not part of EMH, have a personal interest in understanding social account habits.

The mastermind, (Bentham, 2000) features the mental parts of the utility capacity. He contends that human worry for satisfaction makes it incomprehensible for them to settle on a choice that is completely without feelings. These analysts stress the job of brain research on financial conduct; however their agreement was lost over the course of the following century. This work was then, at that point restored in the 20th century. Selden (1912) distinguishes that the stock value developments on the trades are subject to the psychological disposition of financial backers. People's reasonableness, according to Simon (1955), is constrained by two factors: the data they have access to and the intellectual restrictions of their minds. Limited objectivity is a more loosened up adaptation of standard anticipated utility hypothesis. It is likewise more reasonable than its customary partner as it fuses the impediments of human judgment. The utility work is additionally explored by Pratt (1964). The creator contrasts the utility and regard to neighbourhood hazard avoidance and worldwide danger abhorrence and clarifies that the chief will have more prominent neighbourhood hazard avoidance on the off chance that he is universally more danger averse. The creator too gives a connected utility capacity where hazard is estimated as an extent of absolute resources. Tversky and Kahneman (1973), the fathers of behavioural finance, introduced the accessibility heuristic. The accessibility heuristic's reliance drives ordered tendencies. For the research of dynamic under danger, they established the idea of prospect hypothesis (1979). This theory is regarded as the cornerstone of social money. It was created as an elective model for anticipated utility hypothesis. It illuminates how people assess gains or misfortunes.

BEHAVIOURAL BIASES

Examination in psychology research has recorded a scope of dynamic practices called predispositions. These inclinations can influence all sorts of dynamic; however have specific ramifications according to cash and contributing. Conduct money catches the job of social inclinations in financial backer dynamic. The psychological inclinations incorporate arrogance, representativeness, securing and change, outlining, intellectual discord, accessibility, mental bookkeeping, and so forth the passionate inclinations incorporate blessing predisposition, misfortune repugnance, idealism, and business as usual. To clarify the different silly financial backer practices in monetary business sectors, conduct market analysts draw on the information on human intellectual conduct speculations from brain science, social science, and human studies.



Source: Goldman Sachs Research, Kahneman 'Thinking, fast and slow', Montier 'Behavioural investing: a practitioners guide to applying behavioural finance'.

HEURISTICS THEORY

Heuristics are simple, effective rules of thumb that have been offered to describe how humans make decisions, reach conclusions, and solve issues, especially when faced with complicated situations or limited information. It refers to mental shortcuts or rules of thumb that assist people in making quick and easy judgments. Although convenient, these shortcuts might lead to erroneous conclusions. Heuristics theory is defined as a rule of thumb that individuals use to make quick and efficient judgments in uncertain situations (Tversky and Kahneman, 1974; Ritter, 1988). Irrational persons utilise heuristics in their decision-making because they are unable to evaluate the ideal likelihood as per Kahneman and Tversky (1979), Irrational people, on the other hand, do not acquire all information; instead, they use mental shortcuts to make their decision-making process easier, simpler, and more efficient. Representativeness, availability, and anchoring are three heuristics introduced by Tversky and Kahneman (1974) for individual investors to employ in their decision-making. Waweru et al. (2008) later included overconfidence as a new heuristic to the list.

Investors use representativeness heuristics to purchase hot stock and avoid stock that has underperformed recently (Waweru et al., 2008). This behaviour explains why investors are overreacting to the market (De Bondt and Thaler, 1995). People place a higher value on events that have occurred in the past and have resulted in a positive outcome. For example, if a company's earnings have climbed for several quarters in a succession, investors would overreact to changes in stock price because they believe they may gain strong long-term profits growth (Barberis, 2001).

People use anchoring heuristics to make decisions based on start points (Pompian, 2011). In the absence of good data, investors determine a stock's price by comparing it to previous values (Shiller, 1980). As a result, the previous market's high rate of return serves as a standard for projecting future return on investment, and high return is the primary motivating reason for investing.

The propensity for individuals to depend on readily available information is referred to as availability (Tversky and Kahneman, 1974). Investors place a higher value on information that is readily available (Pompian, 2011).

As a result, investors prefer to acquire local stocks rather than foreign stocks, and they rely on information from close friends and family to make investment decisions. Overconfidence occurs when people overestimate their abilities, talents, and expertise (Hvide, 2002).

PROSPECT THEORY

It is one of the basic monetary hypotheses established using econometrics, and it is the founding hypothesis of conduct financial aspects and social account. This idea explains a glaring anomaly in human behaviour while surveying threat under duress. Individuals' decisions are likewise influenced by the 'Outlining impact'. Outlining alludes to the manner by which the same issue is phrased diversely and introduced to leaders and the impact manages how outlining can impact the choices such that the traditional aphorisms of normal decision don't hold. It additionally showed orderly inversions of inclination at the point when a similar issue was introduced in an unexpected way (Tversky and Kahneman, 1981). Hypothesis of prospect variable depicted a portion of the successful psychological circumstances on the dynamic cycle like misfortune abhorrence, lament repugnance, and mental bookkeeping (Wawro et al., 2008: 28).

Loss Aversion: Aversion implies the sensation of abhorrence or unwillingness and misfortune repugnance implies hating or feeling awkward about a misfortune. Misfortune revolution is a significant mental idea that gets expanding consideration in financial investigation.

Regret Aversion: It stems from the desire of financial backers to avoid the anguish of disappointment that comes with a powerless speculative decision. This aversion encourages investors to maintain shares that are underperforming, as avoiding the deal also avoids acknowledging the associated loss and poor investment decision. Because financial supporters might reduce their accessible pay by admitting capital disasters, lament abhorrence produces an assessment wasteful venture approach.

Mental Accounting: A collection of mental processes employed by investors to organise, assess, and track the success of their assets is known as mental accounting. The following three areas of mental accounting receive the most attention. This is the first stage in recording how people see and feel results, as well as how they make decisions and are rated as a result.

In both real and mental bookkeeping systems, the origins and uses of assets are recorded. The third aspect of mental bookkeeping is 'decision organising,' which is concerned with the frequency at which records are examined. Records can be changed on a daily, weekly, annual, or annual basis, and can be described minimally or fully.

CONCLUSION

This study examines the Evolution of Behavioural Finance by reviewing a large body of research. The notion arose from a systematic exodus from conventional finance-based rational decision-making. The trend in the subject of behavioural finance demonstrates that it has been on the rise since the 1970s. The majority of previous research focused on deviations from standard finance, where researchers disproved theories like Modern Portfolio Theory, Efficient Market Hypothesis, capital asset pricing model, Arbitrage Pricing theory, and others, which assume markets are efficient and people are rational. Thanks to the emergence of concepts in the subject of behavioural finance, academics have proved that theories like Heuristics, Prospect Theory, Behavioural Portfolio Theory, and Behavioural Asset Pricing Theory aid investors' irrational thinking in their decision-making process. According to the expanding tendency, research based on behavioural biases is on the increase. As the tendency shifts toward theoretical-based study, more recent research works are focusing on this phenomenon. As a result, empirical publications in this topic require additional attention. As a result, actual study is required to back up the notions.

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CHAPTER 17

The Rise of Green Bonds in India

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ABSTRACT

Sustainable finance is a term that refers to the process of incorporating environmental, social, and governance (ESG) factors into financial sector investment decisions, resulting in more long-term investments in sustainable economic activities and projects. A Green Bond is a popular instrument in the field of sustainable finance. It is a type of fixed-income instrument that has been designated specifically for the purpose of raising capital for climate and environmental projects. Due to the fact that these bonds are typically asset-linked and backed by the issuing entity's balance sheet, they typically carry the same credit rating as the issuing entity's other debt obligations.

Developing countries are always at a crossroads, where they must carefully balance economic development with the health of their citizens' environment. That is a difficult choice for any developing country because the environmental health cannot be improved without economic development. This is a very systematic and time-consuming process, as investing in environmentally friendly technologies takes years.

The study explores various instances of Green Bonds used by developing countries as a source to mobilize capital for building infrastructure and projects of public good. The study is descriptive in nature and is based on secondary data taken from published reports of public and private sector organisations and banks across the world and from various government reports published by their respective countries.

Keywords: *Green Bonds, Sustainable finance, Developing Countries, Infrastructure, Public Welfare*

INTRODUCTION TO SUSTAINABLE FINANCE

Our economy has historically evolved during periods of abundant natural resources. Business models have been developed around the extraction of these natural resources, with less emphasis on their conservation. It was in 1856 that scientist Eunice Newton Foote examined the heat-trapping properties of various gases. She discovered in her laboratory that Carbon Dioxide can retain heat for a significantly longer period of time than other gases (Thompson, 2019). Her experiments led her to conclude that if the amount of carbon dioxide in our atmosphere increased in any way, we could experience higher temperatures similar to those in her experiments.

Fast forward to 1988 when USA experienced widespread droughts and bushfires and the scientists rang alarm bells. James Hansen (a NASA scientist) testified before the US Congress that global warming was upon us and it was imperative to make a move to conserve the environment.

After that, representatives from 13 banks and financial institutions attended the Rio de Janeiro Earth summit of 1992. The international environmental treaty was adopted in Rio and took effect in March 1994, with the stated goal of "stabilizing greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (UNEPFI, 2017).

Global Reporting Initiative (GRI) was founded in 2000. It established a framework for reporting on sustainability (UNEPFI, 2017). The International Conference on Financing for Development was held in 2002 with the goal of identifying a mechanism for financing development in developing countries. The agreement reached focused on resolving the financing crisis for development, eradicating poverty, and promoting sustainable development.

Regular developments of such nature eventually helped to bring together the previously distinct fields of finance and sustainability. It is critical for sustainable development that energy is generated from renewable sources with the fewest possible environmental impacts. Such initiatives are frequently costly to initiate, as they necessitate the use of new technology and alternative energy sources, as well as the research and development of a commercially viable model.

Any such effort will require substantial funding from investors willing to take the risk associated with such risky ventures. It is critical to remember that without adequate financial support, no conservation effort can be self-sustaining. This is an area in which the concept of sustainable finance can be applied.

The purpose of sustainable finance is to assist in the implementation of financial decisions while taking into account the environmental, societal, and economic implications. In the coming years, sustainable finance is expected to evolve into a guiding strategy for investors to invest money while appreciating a business's long-term sustainability prospects; this is in stark contrast to traditional financial analysis, which is focused exclusively on profit maximization at the expense of environmental consequences.

Green Bonds - An Instrument of Sustainable Development

A green bond is a type of debt instrument issued by governments, corporations, or other entities to allow the mobilization of funds for infrastructure or developmental projects that prioritize sustainability. The project's motivation (i.e. sustainability) is what distinguishes a conventional bond from a Green bond (which is motivated solely by profit).

Several development banks around the world, including the African Development Bank (AfDB), the European Investment Bank (EIB), the World Bank through the International Bank for Reconstruction and Development (IBRD) and the International Finance Corporation (IFC), and the Asian Development Bank (ADB), among others, have occasionally issued green bonds. The association of Green bonds with such significant financial institutions has aided in cementing the financial instrument's position as a leader in championing the cause of sustainability and catalyzing a shift away from 'finance for the sole purpose of profit' toward 'finance for the common good'.

Green bonds enhance the reputation of the issuing organization and demonstrate their commitment to a more sustainable ecosystem. Additionally, GBs play a critical role in attracting international investors willing to invest in such projects. Foreign investors can help minimize the cost of capital raising for green initiatives. Because traditional finance is purely profit-driven (in a numerical sense), GBs insure finance for environmentally friendly business ventures such as renewable energy, waste management, and waste recycling, which may be less profitable (in a numerical sense) but are critical to the planet's and humanity's long-term survival.

Additionally, investors are prepared to invest in GBs as part of their Corporate Social Responsibility (CSR) programs. Investing firms can emphasize their involvement and receive the rewards of the resulting goodwill. Investing in GBs is frequently subsidized or subsidized by the respective governments. All countries that are signatories to the Paris Accord have a history of providing such tax favors to investors.

USES OF GREEN BONDS ACROSS VARIOUS SECTORS

- Solar Energy - Solar energy is a key area in which green bonds are used to finance new projects or refinance existing ones. Not only are green bonds used to finance solar energy producing projects, but also for transmission and other supporting infrastructure. GBs are often used to finance solar hot water installations and other thermal facilities. Solar energy is predicted to play a critical part in the production of clean electricity, accounting for approximately 22% of the world's electrical supply by 2050.
- Wind Energy - Another application of GBs is in wind energy. It is used to finance wind energy producing projects as well as transmission infrastructure such as grid connections, transformers, equipment storage,

and support vehicles. Additionally, GBs can be used in distribution components like as wind turbines and platforms.

- Green Buildings — While building development may appear to be a minor contributor to carbon emissions on the surface, scientists estimate that it accounts for 40% of world carbon emissions. The building construction sector is significantly behind schedule in terms of carbon reductions necessary from its processes to contribute to efforts to limit global temperature rise to 2° Celsius, as pledged in the 2015 Paris Climate Agreement. A carbon footprint analysis is performed over the course of the construction project's existence. Additionally, the structure is designed to consume less energy during its operational life. Additionally, raw materials sourced for building construction are adjusted wherever possible to reduce carbon emissions generated during the raw material's transit phase. GBs are used to develop low-carbon buildings or projects that meet three criteria: Mitigation, Adaptation, and Disclosure.
- Transportation - A sizable portion of the worldwide human population relies on some form of transportation on a daily basis to get to work, marketplaces, schools, colleges, places of worship, and other destinations. The transport industry (encompassing air, land, and sea modes of transport) is estimated to account for 23% of worldwide energy-related CO2 emissions. With the growing global population, it is projected that transportation use would increase, resulting in an increase in carbon emissions. Newer modes of transport powered by electricity, hydrogen, or other zero-emission fuels are being evaluated. Additionally, larger cities are encouraging the development of public transportation infrastructure such as bicycle lanes, public pedestrian paths, and even Bus Rapid Transit (BRT) systems. However, because real estate is costly and building is also costly, GBs are used to fund transportation infrastructure projects.
- Agribusiness & Forestry – With the world's population predicted to reach 10 billion by 2050, food demand is expected to increase by more than 50%, with global grain demand expected to double. Chemical pesticides and fertilizers can boost crop yields only to a point while causing harm to the land. There have been growing calls to transform agricultural land use and transform the supply chain into a "Zero Deforestation Supply Chain." Climate change is another issue that will require significant mitigation in the near future. GBs are utilized to develop crop yield-increasing technologies that have no adverse effect on the soil or the crop's nutritional composition.
- Industrial Efficiency – Because industries are a major source of carbon emissions, they have enormous potential to adapt their manufacturing processes to cause the least amount of damage to the eco-system. Carbon emissions may be examined and mitigated at every level of the value chain, from sourcing raw materials from less carbon-intensive sources to adopting greener modes of transportation, employing less carbon-intensive methods of production, and lastly altering packaging to be more eco-friendly. Apart from adjusting the manufacturing process at each stage, increasing industrial efficiency requires study. GBs are used to raise capital for these types of industrial initiatives.
- Bioenergy — Bioenergy is the energy generated by the processing of biomass-derived solids, liquids, or gases. Biomass is organic stuff that is renewable and derived from plants and animals, such as dried leaves, agricultural waste, and wood. Additionally, biomass can be derived from organic wastes generated during industrial activities. Biomass processing produces two unique products: biofuel and biogas. Biofuel is a liquid that is produced by the fermentation of carbohydrate-rich biomass. It is high in ethanol. Biogas is a gaseous fuel composed of Carbon Dioxide (CO2) and Methane (CH4). It is formed when organic matter degrades as a result of bacterial activity. GBs are utilized in energy projects in locations where agricultural or livestock are the predominant occupations, as they provide sufficient organic matter for the project to sustain itself.

Additional areas where GBs are used to launch or refinance infrastructure projects include electrical grids and storage, geothermal energy, hydropower, land conservation and restoration, marine renewable energy, and shipping, among others.

INDIA'S USE OF GREEN BONDS

Adani Green Energy UP Ltd - AGEL is one of the largest renewable energy firms in India. The company is engaged in the development, construction, operation, ownership, and maintenance of utility-scale grid-connected renewable energy projects and currently has a portfolio of 13,990 MW of energy generation (Energy Ltd, 2021). The company is involved in solar and wind energy. The company has commissioned 51 solar power plants, with several of them located in Kamuthi (TN), Pavagada (Karnataka), Bathinda (Punjab), and Durg (Gujarat) (Chattisgarh). Additionally, the corporation has six wind energy producing plants in Madhya Pradesh and Gujarat (Energy Ltd, 2021). AGEL issued US $500 million in senior secured notes with an interest rate of 6.25 percent and a maturity date of 2024. (Exchange, 2021).

JSW Hydro Energy Limited - JSW Energy is a subsidiary of the JSW Group, which operates in the infrastructure, cement, steel, and energy sectors. JSW Energy owns and operates thermal, hydroelectric, and solar power plants (Energy Plants, 2021). In September 2015, JSW Hydro Energy Limited (JSWHEL) was formed through the acquisition of Jaiprakash Power Ventures Limited. JSWHEL has hydroelectric power stations on the Sutlej and Baspa rivers in Himachal Pradesh (Hydro Energy, 2021). (Pg.2). Additionally, the business has formed a wholly owned subsidiary, JSW Energy (Kutehr) Limited, for the purpose of establishing a 240 MW hydroelectric power project in the Ravi basin of Himachal Pradesh's Chamba region. JSWHEL made its debut in May 2021 with a green bond worth US $ 707 million. The bond offering received four subscriptions and carried a coupon rate of 4.125 percent over a ten-year maturity period (Roy, 2021).

Tata Cleantech Capital Limited - In 2011, Tata Capital Limited and the International Finance Corporation launched TCCL as a joint venture (Capital, 2021). It is India's first private sector financial institution dedicated only to green financing and intends to provide business solutions, including advice and debt capital services, in the clean technology and infrastructure sectors. It is a Reserve Bank of India-approved 'non-deposit accepting' non-banking finance company (NBFC). The NBFC provides commercial finance to enterprises involved in renewable energy generation such as wind and solar, waste management, water management, and energy efficiency. CRISIL has rated the company 'AAA' and it is the only Indian corporation to be recognized as a "Green Bank" (Capital, 2021). TCCL raised Rs 180 crores in January 2019 through the sale of GBs with a five-year maturity period. The bonds were sold to FMO (Financierings-Maatschappij voor Ontwikkelingslanden N.V), a development bank based in the Netherlands (Times, 2021). The bond proceeds would be utilized to finance two solar power projects with a combined capacity of 220 MW and 57.5 MW in Karnataka and Telangana, respectively.

EXIM Bank - Established in 1982, Exim Bank serves as a pioneering institution for economic growth by removing obstacles such as insufficient infrastructure. The bak had critical backing from the Government of India's Ministry of Commerce and frequently emphasized the need of export promotion. Today, the institution serves as a resource for enterprises seeking to import technology from abroad, create products for export, advertise their products internationally, manage pre- and post-shipment logistics, and engage in international markets (Bank, 2021). In March 2015, the bank raised US $ 500 million through the issuing of green bonds with a five-year maturity. The coupon rate offered was 2.75 percent, and the offering was more than three times oversubscribed. The revenues from the bond offering were intended to be used for suitable green initiatives not just in India, but also in Sri Lanka and Bangladesh (Bureau, 2015).

Indian Railway Finance Corporation Limited - IRFC was established on 12 December 1986 as a dedicated financing arm dedicated to obtaining funds from domestic and international capital markets for the growth of Indian railways. It is a Schedule 'A' public sector firm that has been instrumental in the expansion and sustainability of not only Indian railways but also other railway companies such as Konkan Railway Corporation Limited (KRCL), Rail Vikas Nigam Limited (RVNL), and Railtel over the last three decades. The IRFC money aided in the procurement of about 70% of the rolling stock fleet, which included locomotives, passenger coaches, and wagons (Corporation, 2021). It has been assigned the highest credit rating of AAA by the credit rating organizations CRISIL, CARE, and ICRA. IRFC issued US $ 500,000,000 in Notes with an offered coupon rate of 3.835 percent that will mature in 2027. (Exchange, 2021).

Ghaziabad Municipal Corporation - In April 2021, Uttar Pradesh's GMC civic body became India's first municipal corporation to successfully market its Green Municipal Bonds on the Bombay Stock Exchange. The bonds were announced to generate Rs. 150 crores at an annual coupon rate of 8.1 percent (Writer, 2021). GMC received a 19.5 crore bonus from the union government for raising cash through municipal bonds. The green bonds are rated 'AA' by India Ratings and Brickworks and have a 10-year term. The funds raised are expected to be used to create a network of pipelines that will distribute water to residents via water meters, as well as a tertiary water treatment plant in the city (Moneycontrol, 2021).

These are just few of the instance of Green Bonds issuance in India. Such issuances are expected to rise as more and more Private and Public organisations starts considering Green bonds as a viable source of mobilizing funds.

RESEARCH METHODOLOGY

A through literature review regarding the title and correlated concepts was done. Secondary data of both qualitative as well as quantitative nature was analysed. Latest information was sought from technology journals, research publications, news reports, books, magazines and various websites. Libraries and corporate reports were also consulted while writing this chapter. The collected literature was cross checked and properly validated to provide latest information.

IMPORTANCE OF GREEN BONDS IN INDIA

Primary market demand for Indian green bonds has been very strong, as shown by the many times over-subscription of green bonds issued in India. Additionally, the current trading rates on Indian green bonds indicate a significant secondary market demand for these bonds.

Additionally, it instills trust in equity investors in India's financial viability and commitment to clean energy project implementation. These advantages should ultimately assist Indian clean energy borrowers in narrowing their effective interest rate spreads and lowering their total cost of capital.

Indian green bond rates are declining mainly as a result of three factors: strong demand for green bonds and ESG-linked securities in general; the quality of Indian issuers with considerable expertise in clean energy projects; and the global low interest rate environment.

Green bond market growth is also a sign that money is leaving fossil fuels. Without real, concrete strategies for transitioning to a low carbon future, it is becoming increasingly impossible for fossil fuel corporations to borrow cost-effective financing. Investors in the green bond market are very skeptical of fossil fuel businesses, or indeed any company that is connected with fossil fuel operations directly or indirectly.

This is mainly because environmental, social, and governance (ESG) concerns are increasingly being included into investment choices. This means that fossil fuel businesses, including those in India, would increasingly struggle to access global financing, particularly with the presence of green bonds. This might see the fossil fuel businesses to miss out on cost-effective financial instrument with huge global reach.

The lack of competition from big fossil fuel firms, which have traditionally had massive balance sheets, bolsters the argument for Indian renewable energy producers to raise foreign financing through green bonds.

FINDINGS

The findings of the study have been listed below:

- The Sustainability factor in finance has gradually started to come to prominence.
- With Sustainability taking a driver's seat, instrument such as Green Bonds have gained popularity and support from potential investors as a viable and legit instrument of investment.
- Companies also find it convenient to use use Green Bonds as it attracts both International and Domestic investors.
- As more and more awareness come among the investors, we can expect Green Bonds to become the de facto ode of investment in the coming years.

SUGGESTIONS

We have the below suggestions for Green Bond sector in India:

- There should be an Indian Standard of Green Bonds like European GB Standard, ASEAN GB Standard or Green Bond Principles (GBP) of International Capital Market Association.
- There has to be clear defined Sustainable bond label making it convenient for investors to identify and invest. Many countries have their own such labels like Label ISR of France, LuxFLAG from Luxembourg, Österreichisches Umweltzeichen from Austria or Nordic Swan from Nordic countries.
- The Green bond issuing process must have a separate Regulatory body and easy to understand Regulatory Framework.
- Lastly, although the Green Bond investment market is picking in India, incentives must be provided of some sort to popular online investment platforms of banks and investment bodies to list Green bonds among their offerings to expedite the cause of sustainability among the domestic market as well.

CONCLUSION

Harmonization of local rules and standards (in due consideration with already established International practices for green bonds is a critical prerequisite for the development of a strong green bond market in India. Additionally, homogeneity is needed in terms of what defines green investments, since disparate taxonomies would be detrimental for the development of a robust GB market.

Appropriate capacity development initiatives for issuers in the country is required to disseminate information about the advantages of green bonds and the associated processes and procedures which would assist in overcoming institutional obstacles to enter confidently into this market.

Strategic public sector involvement in green bonds may assist and attract private investment and inspire investor confidence in the green bond market as a whole.

It's worth noting that India ranks third in the world in terms of greenhouse gas emissions, after China and the United States, and is therefore vying for funding with some of the world's greatest and most resource-rich countries.

As a result, India must develop sufficient financial capacity to sustain its green efforts and prepare for future international commitments.

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CHAPTER 18

A Study on Last Mile Connectivity Feeder Services among Metro Users with Reference to Chennai City

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ABSTRACT

Chennai is a metropolis of 7.5 million people that has grown swiftly, resulting in dense population concentrations, traffic congestion, and confusing street traffic. The Rail Based Rapid Transport system was required immediately to accommodate the rapidly expanding traffic loads in the Chennai Metropolitan City. CMRL's vision is to provide the people of Chennai with a rapid, dependable, and convenient method of transit that is integrated with other modes of public and private transit, including Suburban Trains, MRTS, and auto-rickshaws, as well as Share Autos. Metro stations serve as a key component in the overall Metro Network, with the feature of providing last-mile connectivity, from the trip to the point of accessing a public transport system, being ignored in many Indian cities Chennai. Although feeder services are available, they are confined to a few choice locations. A descriptive research design was used for the study, and data were collected from 97 Chennai metro users through judgement sampling. The results of coefficient alpha for 57 items is 0.845, indicating that the variables are very consistent internally. This research study aimed to evaluate the commuter's awareness and their usage patterns towards last-mile connectivity feeder services provided by Chennai metro rail limited in Chennai city. The study assists CMRL's to discover the most significant variables that influence last mile connectivity feeding services and supports them in improving their services.

Keywords: *Para transit vehicles, Connectivity, Awareness, and Metro user's Perception.*

INTRODUCTION

Metro systems are generally preferred as mass transit solutions for Indian cities since they are convinced that bus systems on the road can't meet both metro and capacity requirements. The Chennai metro aspires to provide the residents of Chennai with a rapid, dependable, convenient, efficient, contemporary, and cost-effective method of public transportation that is well-integrated with other public and private modes of transportation, like buses, suburban trains, and the MRT system. Connectivity in the last mile is an essential aspect in enabling the most significant urban residents to integrate public transportation networks. Connectivity from Metro Stations is provided by Chennai Metro Rail Limited in collaboration with Feeder Services providers. With this Mobility solution, people who live and work in the city will have more accessible and safer everyday commutes. The feeder services enable users to plan their commutes by tagging the location of their vehicle in the app and leaving

home at the scheduled time of departure from the pickup point. During the last several decades, several research types have been conducted to investigate the quality of India's metro rail services. In the sample region, there is still a gap in commuter attractiveness and optimization of metro rail value-added services. With this in mind, this study aims to uncover commuters' awareness and perceptions of last-mile connectivity feeder services in Chennai. Furthermore, the bivariate correlation was used, and the result revealed that the awareness factor has a moderate relationship with metro users. The investigation findings provide insight into the dominant satisfiers, dissatisfiers, and last-mile connectivity feeder services variables of CMRS from the perspective of commuters.

LITERATURE REVIEW

According to Chidambara (2012), first and last-mile connectivity refers to the segments of a public or mass transit journey that connects the origin and destination points to transit stations or stops. A factor that has been demonstrated to significantly impact the quality and level of public and mass transit service, the provision of affordable and convenient last-mile connectivity, has been largely neglected in Indian cities. There is substantial research to suggest that a lack of connectivity between mass transit stations and commuter endpoints may discourage commuters from using public transportation, thereby reducing ridership.

According to Shaheen and Chan (2016), shared mobility services allow commuters to gain on-demand access to transit services. They demonstrate how on-demand services such as car-sharing, bike-sharing, and micro-transit have altered how urban dwellers access public transportation and connect to other modes. They increase mobility access as a service by integrating with mass transportation and providing reliable first- and last-mile connectivity choices, reducing the necessity for vehicle ownership and encouraging more dependence on shared and public transportation modes.

Moushila De et al. (2017) attempted to understand the first and last mile connection and its relevance to a commuter's choice of transit alternatives in the New Delhi Metro. The study also examines commuters' attitudes toward traveller information systems, operation control units, and multi-use transportation cards, as well as the Eco-friendly CAB's dial-a-rickshaw service. Additionally, the investigation included various accessible LMC modes, perceived difficulties, suggestions, and user characteristics during peak and off-peak hours. The findings indicate that the metro authority must expand the Dial-a-Rickshaw facility Green CAB to serve as a feeder service for commuters who will use it as the last mile connectivity mode in all metro zones.

Chaitanya Kanuria et al. (2019) stated that Procuring additional connectivity for the last mile to mass transit through leveraging innovation and analyses the findings of a case study in which new mobility enterprises plan to pilot as last-mile connectivity solutions Bengaluru metro station. It was found that for bridging the last mile gap, users see a measurable modal shift away from personal vehicles and towards these new mobility solutions. The case study also shows the need to support framework regulation and greater multimodal integration to allow seamless and sustainable urban mobility in public-private cooperation.

Sheethal J S (2020) assessed Namma Metro Bangalore Mass Rapid Transit System's Last Mile Connectivity. The study examines Last mile connectivity by a metro station, the frequency of buses operating near metro stations that can connect metro services, and bus density along various routes. Three hundred commuters were randomly approached, and data were collected using the ArcGIS smartphone app. The study found that BMTC operations and feeder services should provide more buses to last-mile destinations. Furthermore, the findings of the research study revealed that the Bangalore namma metro services are well connected to a variety of destinations.

Sachin Jhanwar and Rena N. Shukla (2021) determined the passengers' first- and last-mile travel preferences for Ahmedabad Bus Rapid Transit Systems. Of the 513 participants selected in the survey, 35.2% admitted to using E-rickshaws for three Rupees in Mansi Circle, 45.6% used E-rickshaws for seven Rupees in Sola Bhagwati, and 53.6% said they used E-rickshaws for seven Rupees in a region. Furthermore, it can be inferred that e-rickshaws are the most dominating public transportation mode for first and last-mile connection that minimises CO2 emissions. This study's findings may also increase bus line ridership and the physical environment for feeder services such as auto-rickshaws, e rickshaws and share autos.

STATEMENT OF THE PROBLEM

While transport systems can have a systemic approach, mobility should have a user-centred approach because the services offered should accommodate the habits, needs, and preferences of travellers and society as a whole. A developing country like India aspires to universal mobility. For public transportation to be efficient, safe, and highly competitive, it must be sustainable financially. A well-functioning public transportation system helps mitigate traffic congestion and keep air pollution and the city environment safe and sustainable. When the farthest destinations are directly accessible to metro stations, the public can use metro services. Issues with

connectivity from one's home or destination to the metro may necessitate a modal shift. In this context, last-mile connectivity research is being conducted to assess the last-mile challenges. The study covers various aspects, including metro station connectivity last mile destinations, several buses operating in the metro station's vicinity, the density of buses along multiple stretches of the transport route.

OBJECTIVES OF THE STUDY

- To determine metro users' preferences for the mode of last-mile connectivity feeder services.
- To study and assess awareness of last-mile feeder services among metro user in Chennai city.
- To examine the relationship between public awareness and usage patterns towards last-mile connectivity feeder services.
- To investigate metro users' perceptions of and reactions to last-mile connectivity feeder services.

NEED FOR THE STUDY

As traffic congestion and the demand for private vehicles grow in an urban environment, planners and policymakers believe that the metro rail project is necessary for efficient transportation. In this context, the study aimed to examine the overall impact of the last mile connectivity feeder services on easing traffic congestion, decreasing the vehicle count, accessibility options, and commuters. Additionally, these findings can be helpful for improving ongoing metro rail services in the study area and other major metropolitan cities**.**

SCOPE OF THE STUDY

This research is confirmed with potential metro users using last-mile connectivity feeder services. It helps to study the variables that influence awareness on feeder service variables like pricing, safety, and security and evaluate the variables of approach and attention and pleasure. This research is helping to identify a few of the functional CMRL Metro Stations and develop strategies to increase connections to neighbouring population areas, commercial activity centres, business complexes, and Metro stations.

RESEARCH METHODOLOGY

In this present study, a descriptive research approach was used, and research data was gathered by way of Judgement sampling from 97 surveys, all of which were filled by metro users and conducted in Chennai city. The researcher created a structured questionnaire with a five-point Likert scale to measure the variables and used statistical tools to test the hypothesis.

DATA ANALYSIS AND RESULTS

Friedman Test

H_{a1}: There is no statistically significant difference in the mean rank of the Last Mile Connectivity Feeder Services selection mode.

Mode of Feeder Services	Mean Rank	Chi-Square	P-value
Howdy Bikes	3.04	29.000	.000
Fly Electronic scooters	3.11		
Metro Cab services	3.25		
Share Auto services	3.48		
Smart Bikes	4.02		
Zoom Car	4.09		

The negative hypothesis is rejected at a 1% degree of significance because the P-value is less than 0.01. As a result, it was determined that there is a significant difference in mean ranks regarding the mode of selection for Last Mile Connectivity Feeder Services. Zoom Car (4.09) is the most popular among metro users, followed by Smart Bikes (4.02), Share Auto services (3.48), Metro Cab services (3.25), Fly Electronic scooters (3.11), and Howdy Bikes (3.04).

MANN WHITNEY TEST

H_{a2}: There is no statistically significant difference in the mean awareness levels of male and female metro users regarding Last Mile Connectivity Feeder Services.

Awareness about LMC Feeder Services	Mean value of Metro Users		Z value	P-value
	Male	Female		
It provides smartcard readers and QR Code tickets for Feeder Services	49.94	44.56	-0.771	0.441
Last mile connectivity parking zones are near the metro station	49.93	44.62	-0.725	0.468
Passenger information system for disabilities users	48.83	49.79	-0.133	0.894
Accessible multi-modal transportation and options	47.52	55.97	-0.118	0.236
Wi-Fi is provided in-app based Para transit vehicles	50.91	40.03	-0.149	0.135
Overall Awareness	49.83	45.12	-0.630	0.529

The negative hypothesis is accepted at a 5% level of significance because the value of P is greater than 0.05. Additionally, the Mean Ranks of male and female metro users in terms of awareness of Last Mile Connectivity Feeder Services were very similar. Thus, the study exposed no statistically significant difference in the mean awareness levels of male and female metro users regarding Last Mile Connectivity Feeder Services.

CORRELATION ANALYSIS

H_{a3}: There is no relationship between metro users' awareness of Last Mile Connectivity Feeder Services and their usage patterns.

Particular		Metro Users Awareness	Usage Patterns
Metro Users Awareness	N	97	97
	Sig. (2-tailed)		.000
	Pearson Correlation	1	.422**
Usage Patterns	N	97	97
	Sig. (2-tailed)	.000	
	Pearson Correlation	.422**	1

The coefficient correlation for Last Mile Connectivity Feeder Services between the awareness of metro users and their usage mode is 0.422, indicating 17.81 positive and significant relationships at a level of 1.0 per cent.

CLUSTER ANALYSIS

Cluster Analysis aids in the organization of observed data into relevant and meaningful categories, resulting in a high degree of association between two objects if they belong to the same group and a low degree of association if they belong to different groups. Each commuter reacts differentially because metro users do not have clear expectations regarding enhancing Last Mile Connectivity Feeders Services. Particular metro users may emphasize specific characteristics, while other factors may be desirable to them. However, based upon their perceptions of the nature of their responses, they can generally be grouped into different groups. K-Means cluster analysis was used to divide metro users into three distinct groups. The results were shown

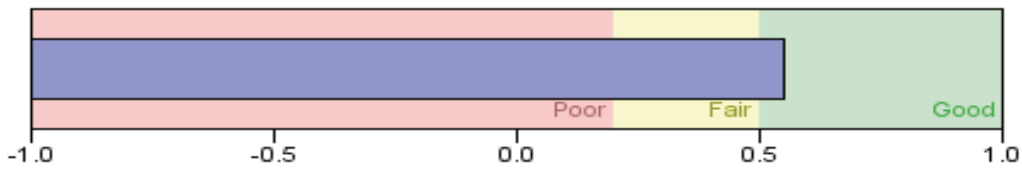
Perception of Metro users about Last Mile Connectivity Feeders Services –Final clusters and ANOVA

Last Mile Connectivity Feeders Services Cluster	Final Clusters			ANOVA	
	1	2	3	F Value	Sig.
A feeder service is offering special-occasion discounted fares to customers.	4	3	5	15.409	.000
A GPS-enabled vehicle tracking unit that includes a printer is available	4	3	4	18.798	.000

Active Interfaces, Openness, visibility in station premises.	4	3	3	38.987	.000
A feeder service makes travel safe and reliable.	4	4	2	58.987	.000
Digital open-source maps in feeder services are available	5	3	2	83.900	.000
Paratransit type and driver information is provided to passengers.	5	4	3	33.821	.000
A feeder service ensures that Paratransit is available to passengers on time.	5	3	3	43.225	.000
Flexibility of feeder service operation	4	3	3	9.684	.000
Mean	4.4	3.25	3.12		
No. of cases	54	31	12		
Percentage	55.67	31.96	12.37		

With a mean value of 4.4, the first cluster has a favourable opinion of the Last Mile Connectivity Feeders Services. The Last Mile Connectivity Feeders Services is more than satisfactory, according to the respondents in this cluster. The three factors include the availability of open-source digital maps in feeder services, the type of paratransit and driver information provided to passengers, and a feeder service that ensures Paratransit is available on time score of 5. The percentage of respondents in this cluster with 55.67 cases is considerable. This cluster can be labelled as the "Good LMS feeder services" cluster.

With a mean value of 3.25, the second cluster can be classified as Moderately satisfied with Last Mile Connectivity Feeders Services. Many aspects of Last Mile Connectivity Feeders Services were agreed upon by respondents. The respondents in the third cluster likewise have a favourable assessment of the Last Mile Connectivity Feeders Services. However, respondents do not fully agree with how a feeder service makes travel safer and more trustworthy and how open-source digital maps are available in feeder services. This cluster can therefore be classified as not satisfactory. At the beginning of the incident, 54 customers were in the first cluster, and the remaining customers were distributed equally between the second and third clusters. On the basis of the survey analysis, it can be rationally decided that most commuters think Last Mile Connectivity Feeders Services is good. The F value for Digital open-source maps in feeder services (83.900) and a feeder service that makes travel safe and reliable (58.987) is the most important among all the factors. Since the ANOVA analysis yielded a significant result, it can be expected that the significant value is less than 0.05, which indicates that all of the factors are contributing to the segmentation of the metro customers in terms of Last Mile Connectivity Feeders Services.



Perception of customers about Branch Ambience – Cluster Quality

A two-step cluster analysis is used to assess the cluster's quality. It demonstrates a "Good" quality of commuter segmentation based on metro users' perceptions of Last Mile Connectivity Feeders Services.

SUGGESTIONS AND RECOMMENDATION

- It is suggested that the study provides guidelines for metros on facilities that should be provided at feeder services stops and the rules to be enforced and regular inspections and enforcement of regulations.
- It is recommended that Feeder service drivers should receive mandatory training that includes classroom instruction, audiovisual lectures on traffic safety, driving, traffic management, basic first aid, psychometric tests, and stress management.
- It is recommended that Feeder Services, provided by the Chennai Metro, focus on both the cost and the convenience factor. The CMRL authority must design more attractive schemes supporting pricing and convenience to encourage good user attitudes and satisfaction.

CONCLUSION

Chennai, known as the Detroit of Asia, has seen massive investments to improve and expand its transportation network and its rapid transit system. However, it is an area of considerable neglect in the city to provide cheaper and convenient last-mile connectivity for public transport users. While feeder bus services are available in

some parts of the city, they are limited to a few select locations. Metro users cited various issues, including overcrowding during peak hours, low metro service frequency, excessive walking distances, high costs of Last Mile Connectivity Services, the absence of adequate feeder services at either journey end, and an unsafe walking environment. To make metro transportation more accessible to commuters, planning for paratransit systems and Last Mile Connectivity Services must be approached holistically and integrated. Moreover, LMC must be a key component of fast transit systems and urban mobility transportation plans.

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CHAPTER 19

A Study on Strategic Trade off in Growth Relationship Between Small Tea Growers and Large Tea Estates of Golaghat District of Assam

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ABSTRACT

It is observed that for over the last two decades, production of tea is significantly growing from the small tea growers side in Golaghat district of Assam which has an acreage limit of 10.12 hectares as per norms of Tea Board of India. The small tea growers in nineties was thriving in the upper Assam region and some parts of Barak valley due to its characteristics of low investment ,presence of tea growing culture, easily available market and adoption of this cultivation by unemployed youth. The state of Assam in India is known as a major tea growing region having a number of large tea estates which contributes a considerable amount to the nations gross domestic product .The supply chain process starts with production of green leaves towards preparation of made tea which ultimately reaches domestic as well as export market. The earlier colonial format of growing tea is loosing prominence due to various crisis inherited by the tea industry which has forced the large estates to take a strategic decision to outsource its green leaves supply .It has fuelled an emergence of a new model which paved the way for the small tea growers to produce more green leaves which is the basic raw material and simultaneously increase its acreage. The phenomenal growth of small tea growers has gradually outnumbered the production volume of large estates in Golaghat district and also in Assam .This study is intended to find out the reason and trend of growth of small tea growers which surpassed the growth of large estates in production, yield and in numbers .The study has a direction to trace out the various relationships that exist in the whole system of production and which effects the production decision of tea growers .It also analyses the present status of small tea growers based on its contributions to the overall tea industry chain of Assam.

Keywords: *Small tea growers, Growth, Tea Production, Acreage*

INTRODUCTION

Tea growing is the most common form of livelihood in the Brahmaputra and Barak Valley of Assam. During the colonial period, the tea plantation was prioritized after its discovery in Assam. Due to various favourable factors ranging from available uplands, congenial climate condition, soil fertility, existence of market and consistent demand in world market. In India, planned economy was started after its independence from the year of 1951

and tea industry had a sizeable importance for contributing towards its gross domestic product. Growth of tea production was due to the expansions of growing areas towards Dooars area of West Bengal, Nilgiri hills which constitute Tamilnadu, Karnataka and Kerala and tea is grown to a certain extent in Kangra valley of Himachal Pradesh. The growth of tea continued with entry of number of large companies which enjoyed generous allotment of land from the government of India and almost all cultivable land in large size was exploited by them during this period till 1990's.

The production level of tea is dependent on the yield or productivity, size of plantation which has a direction towards economies of scale and age of tea bushes for ensuring a good output in the form of green leaves.

In Assam, the Upper Assam districts which comprises of Golaghat, Sivasagar, Jorhat, Dibrugarh, and Tinsukia was well known for production of tea. Most of the large tea companies installed their processing plant alongwith their plantations which has instilled a tea growing culture among common populace who received employment either in managerial or supervisory position. The growth curve of large estates in Assam was smooth till 1990's where they attained maturity in terms of their age of bush crossing almost 30 percent of tea growing area. The higher composition of aged bush of 50 years which was stagnating the growth of tea production. At the same time, large estates of tea in Assam was suffering from annual backlog of rejuvenation and replantation which was overlooked from the very beginning of their attaining maturity considered to be after 5 to 7 years of plantation. At the same time, the large estates did not have the opportunity to expand for increase in the economics of scale as the Plantation and Labour Act of 1951, Ceiling Act of 1956 in the state restricted them to explore available virgin land. The large tea estates was at complex situation either to expand which was risky in terms of cost effectiveness and maintain the burden of the existed plantations area which has demonstrated a fall in productivity due to drop in soil fertility, labour problems, erratic nature of climatic condition added by composition of old aged bush. But the demand for tea was ever increasing in the home and foreign market which lured new countries to participate in the tea production. The market at the same time became more competitive with a strong entry of China by constantly increasing the supply of black tea variant. India has a rapport in the external market as Indian tea is being exported to 35 different countries. Internal consumption of tea in a populous country like India is a step up function though much variants of tea is not present. But challenges faced by large estates was alarming in regard to the futuristic need of green leaves supply and finding an alternative was pertinent for them. Small tea growers concept has emerged to overcome the challenges of production and was introduced as a shift from the earlier concept of growing tea in large estates. According to the definition of Tea Board of India, the tea growing area of 10.12 ha or below is considered to be small tea growers. Small tea growers has become as the most popular format of growing tea from the years of 1990's which demonstrated a steady growth in terms of production, yield, acreage and consequently in numbers of small tea growers in Golaghat district of Assam.

LITERATURE REVIEW

The interactive decision taken in between the large tea estates and small tea growers has developed a situation which led the small tea growers to increase in production and numbers. In the early stage, the small tea growers in Golaghat district of Assam undertook this type of cultivation to stick to a cash crop which is also perennial by nature. The large tea estate in Golaghat as well as in the whole state of Assam was lacking efficiency to expand.

The phenomenon of crisis in the large tea estates has been discusseds in the form of growing demand of tea in the domestic market which could not be compensated by the large tea estates and exports was a difficult task which could trigger a higher price in the domestic market(Bhowmik,1991). The seventh plan has indicated the large estate was not in a position to increase its supply for this immediate demand. The domestic consumption as per Tea Board's estimate during this period from 1957-1987 increased from 36.3 percent of total production to 67 percent of total production. The impending weather also made an unfavourable situation to produce more. Till seventh plan expansion through replacement of tea bushes and widening of area could achieve only 30 percent of the actual target. It is the Eight plan, which emphasize the need of small tea growers for a possible extension through them that can be cultivated in an additional available land of 40,000 hectares. It can be identified that production and productivity trend in tea producing countries has created a space for the small tea holdings to grow(Das, 2012). In Sri Lanka, they followed the path of growing tea gardens in small size as the recommended size of the tea gardens was absent. It is also cited that small tea holdings are suitable for better application of technology in terms of crop divisibility. In Assam, the fall in land size of cultivation with a decrease in level of production in the estate sector which gradually lost competitiveness that induced the small tea growers to take part in the production process. The advantage of peaked yield in the small tea growers section was due to the young age of tea bushes was advantageous for them. The inherent burden of labour cost was due to Plantation Labour Act, 1951 was absent in the small tea grower. The expansion of STG's by bringing development in the

rural areas has guaranteed new forms of employment and generated livelihood for STG's as well as people residing in the vicinity(Hannan,2017). The demonstrated growth by some of the small tea growers has attracted the people in the surrounding areas to adopt this format of tea cultivation as an alternative crop (Ghosh.et al.2017). The factors that has effected growth was predominantly was in need for high finance which was not present in case of STG's as they need a comparatively low investment and land and labour was also available for them. The growth of small tea growers was possible with a low cash capital in hand which is being supplemented by a favourable environment, technical support and profit earned (Biswas, 2016). The growth of STG's is also due to an encouragement of prestige and dignity associated with it as a cash crop which can withstand any natural hazard. The growth of small tea growers in Sri Lanka was a result of periphery farming and it has rose to prominence as it is considered to be one of the cash crop in the whole choice of crash crop (Sivapalam ,1993). However, small tea growers has to undergo problems like it is a part of sustainable farming which has a limitations to grow adequate funds with insufficient sources of credit to process necessary inputs. It is also effected by low density of planted tea bushes which has led to non-optimal use of land which is counted to be only 50 percent of possible land area. The low fertility and declining water quality has problem to achieve required performance. Being a plantation with higher dependency on labour productivity, the small tea grower has to manage its budget by keeping a considerable amount for labour cost. Through the burden of labour cost in small tea growers is less as compared to the organized large tea estates sector, but the major concern lie in its efficiency in management. However, the study has revealed that tea industry is labour intensive industry (Savur, 1973) . Production and productivity has relationship with the degree of efficiency which should be added with scientific management principles alongwith the exogenous factors. Wage differentials and incentives should be a part of reward to raise the productivity of labour that has a strict affinity towards the bonus component offered that can contribute a lot alongwith incentive wage rate and piece wage rate.

OBJECTIVES OF THE STUDY

The study has a dimension to investigate the growth pattern of the tea industry in India and Assam with most specifically the growth of small tea growers of Golaghat district of Assam in the form of productivity and acreage. The study will identify the impact of decision taken by the large estates with a reduced production of green leaves which ultimately led to the surge in growth of STG's which has compensated any fall in production level by streamlining the supply of green leaves. The specific objectives that has been drawn in relation to the study on small tea growers are –

1) To find out the reasons of growth of small tea growers in Golaghat district of Assam and in overall other parts of the state.
2) To study the relationship between the rise in Growth of STG's in Golaghat and in the state of Assam with that of simultaneous decay of production of green leaves by large estates in Golaghat district and in the state of Assam as a whole.
3) To investigate whether the production by small tea growers has linkage with the demand in domestic and foreign market.
4) To suggest any measures to narrow down the problems of STG's in case of production related issues.

HYPOTHESIS

The hypothesis of this study on growth relationship of small tea growers with that of large tea estates can be drawn as:

H_1**:** The growth in production of green leaves STG's in Golaghat district has an inverse relationship with the large estates.

H_2**:** The production growth of small tea gardens has a relationship with the consumption in domestic and foreign market.

RESEARCH METHODOLOGY

The study was aimed to find out the growth movement of production of tea gardens mainly in the state of Assam and more specifically the production by small tea growers and large estates of Golaghat district in Assam. The data that has been utilized for this study is gathered from the secondary sources which is displayed in the tabular format and analysed with the aid of various parameters which has linkage with the growth of tea production. The inference is drawn by applying various statistical techniques such as compounded growth rate, coefficient of variance for instability index, comparability test and relationship is tested with correlation coefficient. The growth of tea is calculated for recent ten years period alongwith the trends study for the different plan periods.

MODEL IN OPERATION

Tea is considered to be the second most popular beverage in the world after water**.** Regarding Tea, following statistics can be obtained from " Global Market Report on Tea", which is for the year of 2017 as tabled below-

SL	Dimension	Figure
1	Consumption	3 billion cups consumed every day
2	Total tea production	5.98 million tonnes
3	Total export of tea	35 percent of total production worth USD 8 billion
4	Total retail value of tea	USD 50 billion
5	No. of countries produced tea	48
6	Largest tea exporting countries	China (USD 1.6 billion), Srilanka (USD 1.5 billion), Kenya (USD 1.4 billion)

However, global tea supply growth is 4.4 percent in 2017 which creates a tea surplus of approximately 200,000 tonnes .The figure obtained in relation to the production of tea has indicated that growth of the industry is essential for industrial growth of the country. Tea has a combined characteristic of both agriculture and industry, the growth of tea both in green leaves or raw materials and processed or made tea are complimentary to each other. The instability of growth in tea gardens are due to various factors which are already inherent and some of them are due to various changes ranging from behavioural changes , role of agents, supply and demand fluctuations. Kumar Satinder, Singh Surender (2014) has discussed in their study that growth trend can be helpful to identify the deviations in patterns in terms of crops and utilisation of land and can estimate how a rate of change in area of production and yield of crop is taking place. In the matter of a variation in growth, which is significantly taking their place is being measured in terms of instability index or co-efficient of variation.

Based on the various problems faced by the large tea estates in India in terms of yield and acreage, the Eighth plan in India has emphasized on expansions of tea in the form of small tea holdings. During this plan period, stress was given to expand the tea growing into non-traditional belts which has resulted in creating bond between the STG's and large tea estates for exchange of green leaves. The large estates undertook the path of risk aversion by outsourcing the supply of green leaves to STG's that came into an agreement with STG's for an interrupted supply of it. At the same time large tea growers collaborate with STG's by transferring the inputs such as materials, fertilizer and weedicides during the initial period of plantation. Eventually, small tea growers developed entrepreneurial capacity by developing knowledge share and ensured a continuous supply of green leaves which has also contributed to meet the external market demand. The factors above discussed also contributed to the growth of small tea growers having an arrangement with the large tea estates to reach a threshold level of supply with a win-win position.

Apart from the above discussed reasons, the growth of small tea growers in Golaghat district of Assam can be sum of effects due to movement for growth of small tea growers initiated by Janata Government in 1978, educated unemployed youths of the Golaghat districts embraced this form of cultivation due to prestige and stability associated with this cultivation, need of cash crop, due to presence of large estates processing plants are present at neighborhood that created a ready market for their green leaves, bought leaf tea factories or standalone factories without plantation activities vertically integrated with the STG's, availability of fertile soil with uplands, favourable weather, change in family dynamics and followed up a model of outsourcing by large tea estates. However, various trends and relationships based on this production, supply and consumption decision of both the large tea estates in Golaghat district of Assam, in the state of Assam and in India can be assessed based on a statistical data shown in table-1.a and figure-2 and more specifically the production trend of LE's and STGs in Golaghat district can viewed in table 1.e.

The production growth of the tea estates can be observed with the help of trend in yield or productivity and acreage. At the same time, the relationship between the internal consumption and export demand with production of tea estate can demonstrate its effect on production decision of small tea gardens. The trend of production, productivity acreage, internal consumption and export demand of Indian tea for the period of 20011-2020 can be viewed in table-1.b and table 1.c

FINDINGS BASED ON RESULTS

Production level of tea in Assam is taken in million kgs that can be divided into Small Tea Growers (STG's) production and production made by Large Tea Estates (LE). The timeline drawn is between the year of 2011-2020 which has revealed that the production of STG's in Assam is growing from 23.76 percent in 2011 to 47.18 percent

in 2020 of the total production of tea. At the same time , the production of large estates declined from 76.23 percent in 20011 to 52 percent in 2020. The result obtained from t-value shows that there is a significant presence of comparability between the growth of the STG's production with the large estates (LE)'s production in Assam from 2011-2020 as cited in table 3.a

The outcome from the t-test has depicted that the rising level of production by STG's is significantly effecting the production of LE's in Assam. The compound growth rate of LE's is negative at-7.2 percent as compared to STG's showing a positive CGR of 10.4 percent. The negative value of 'R' (-.567) has shown that the production growth of STG's has reduced the growth of LE's. In table 3.b,the level of yield is falling in LE's with negative growth rate -7.3 percent and STG's yield in growing at 10.4 percent. Co-efficient of variation in production and yield for STG is higher than LE. Although the relationship between production of Assam and total exports in terms of 'R' is positive referred in table 3.c, but the value of 'R' is 0.267 shows a low impact. It is also observed that almost 80 percent of the tea produced is consumed within the country but the relationship in between production and internal consumption is found to be negative with R is -0.282. In table 1.c,acreage growth in LE of Assam is -7.3 percent or negative whereas STG's has a positive acreage growth compounded at 7.6 percent as shown in table 3.f. Significance level at 0.720 indicates that the production level movements for large estates and small tea growers are not similar. Although there is a reasonable R-score for relationship between the production level of STG's and LE's in Golaghat district, but their score of mutual dependency and comparability score is not significant as per result in table 3.c.

SUGGESTIONS AND CONCLUSION

Due to various exogenous or endogenous factors, the production level of tea garden is maintained with much concern. But the small tea grower in Golaghat district is not growing, merely due to the phasing out decision of large estates green leaves production process. STG's growth in Golaghat district is rooted to the socio-economic background which is quite stronger than the large estates decision on production curtailment as they suffer from functional disadvantages such as old aged tea bush, falling soil fertility, Labour problem and failure to fetch adequate foreign reserves as competitive component is somehow lacking. The cause of negative relationship of Assam's production with internal consumption can be attributed due to struggling position in fetching adequate product price in home market which is almost flat. It is the external market where the tea growing countries can gain exponentially by placing more attractive variant. Overall in Assam, the relationship between the LE and STG is having a negative relationship which may be due to a result of strong presence of Bought Leaf Processing Units on STG's in some districts. STG's shows more variance due their pattern in production level as compared to large estates moreover, lacking quality inputs and lesser bargaining power create more price fluctuations and subsequently on production level which is reflected in the instability index or coefficient variance. The trade of between STG's and LE's production decision is intense in Assam as compared to Golaghat district in Assam. Based on the situation where the relationship matters in production decision, the STG's product should have orientation towards external market with better export growth for higher price gain. Although the falling yield of LEs are due to low maintained acreage and climatic reason, it is strongly effecting the production level and at the same time, the STGs should not ignore the recommended rate of rejuvenation, replantation, quality consciousness and ecological balance restoration.

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TABLES AND APPENDICES

Table.1.a Production level of tea in Assam(in million kgs)

Year	STG production	%age of Total	LE production	%age of Total	Total Production
2011	148.62	23.76475103	476.76	76.235249	625.38
2012	106.88	15.3750989	588.27	84.624901	695.15
2013	178.98	22.15016769	629.05	77.849832	808.03
2014	144.25	23.61038366	466.71	76.389616	610.96
2015	139.49	26.51145111	386.66	73.488549	526.15
2016	182.36	27.64119198	477.38	72.358808	659.74
2017	281.92	41.90062869	390.91	58.099371	672.83
2018	304.1	43.97559	387.42	56.02441	691.52
2019	320.83	47.78237817	350.61	52.217622	671.44
2020	224.58	47.78297872	245.42	52.217021	470

Note-Statistical Handbook of Assam.Copyright by Department of Statistics and Eonomics of Assam

Table-1.b Yield in Assam in Kg/ha

Year	LE	STG
2011	2080	1676
2012	2518	1205
2013	2693	2018
2014	2007	2007
2015	1662	1662
2016	2051	2331
2017	1645	3448
2018	1667	2888
2019	1504	3025
2020	1051	2078

Note-Statistical Handbook of Assam.Copyright by Department of Statistics and Economics of Assam.

Table-1.c Acreage in Assam (in ha)

Year	Large estates	Small Tea growers	Total
2011	229140	88674	317814
2012	233536	88674	322210
2013	233536	88674	322210
2014	232529	71871	304400
2015	232529	83880	316409
2016	232670	78203	310873
2017	237601	81754	319355
2018	232399	105291	337690
2019	233096	106028	339124

2020	233329	108043	341372
Total	2330365	901092	3231457

Note-Based on Statistical division of Tea Board of India Statistical Handbook of Assam

Table-1.d Indian tea exports and Internal Consumption in M Kgs

Year	Indian export	Internal consumption
2008	203	802
2009	213.43	819
2010	178.93	839
2011	215.43	921
2012	208.26	942
2013	219	1002
2014	207	1019
2015	228.66	1018
2016	222	1044
2017	252	1059
2018	252.01	1084
2019	252.15	1090
2020	207.58	1116

Note-Based on Tea Board of India Reports. Copyright by Tea Board of India

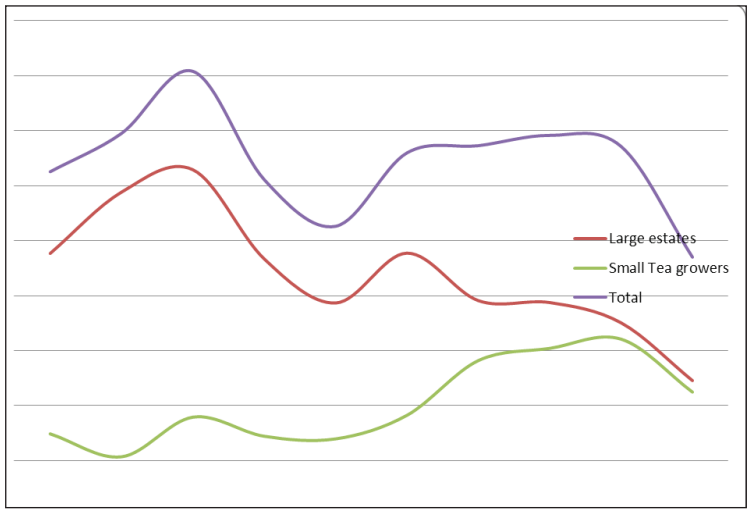

Figure.2-Production by LE and STG in Assam(2011-2020)

Result Table-3.a Results based on production by Large Estates(LE) and Small Tea Growers(STGs)in Assam(2011-2020)

Group	N	Mean	SD	CV	t-value	Sig-2 tailed	R	CGR	
LE	10	439.9	113.0	25.7	5.503	.000	-.567	-7.2	
STG	10	203.2	75.6	37.2	5.503	.000	-.567	10.4	

Table-3.b Results on yield by Large Estates(LE) and Small Tea Growers(STGs)in Assam(2011-2020)

Group	CGR	CV	SD	Mean				
LE	-7.3	25.7	486.42	1887.80				
STG	10.4	31.1	695.74	2233.80				

Table-3.c Relationship between tea Production(Assam) withTotal Exports					
Pearsons R	.267				
Table-3.d Relationship between tea Production(Assam) with Total Internal consumption					
Pearsons R	-.282				
Table-3.e Results-Production in STGs and LEs(2011-2020) Golaghat district					
Group	**t-value**				
LE	.364				
STG	.364				
Table.3.f Acreage growth in Assam(2011-2020)					
Group	**CGR**				
LE	-7.3				
STG	7.6				

Table1.e: Golaghat District Production of Tea(in MKgs)

Year	STG's production	LE Production	Total production
2011	**15.64**	**26.85**	**42.49**
2012	**18.84**	**27.2**	**46.04**
2013	**22.11**	**27.67**	**49.78**
2014	**29.59**	**28.09**	**57.68**
2015	**24.64**	**28.95**	**53.59**
2016	**33.35**	**29.4**	**62.75**
2017	**33.61**	**29.96**	**62.57**
2018	**37.49**	**29.87**	**67.36**
2019	**43.85**	**30.96**	**74.81**
2020	**35.08**	**24.76**	**60.5**

Note-Based on Tea Board of India Statistical division and AASTGA estimates

CHAPTER 20

Potential of Crowd-Funding in the Growth of the Social Development Sector: National and International Perspectives

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ABSTRACT

Social sector or social development projects are increasingly being funded through crowd-funding mechanisms and have been increasingly put to use when traditional sources of funds like the banks, financial institutions, the industry, government, bilateral government-to-government funding mechanisms, etc. are inaccessible due to fund crunch or bureaucratic processes as hurdles.

Crowdfunding involves creating a community of people who are usually not known to one another; but are drawn to a particular cause - social or otherwise that is intended to remove people out of social and financial difficulties.

Crowdfunding can be a quick and easy way to meet unanticipated, pressing needs. Today, anyone with a smartphone can mobilize online funds to tackle contingencies more efficiently. Increasing digital access and the convenience of online payments are driving more and more people to take the digital route to mobilize greater support for urgent needs on time.

This paper shall address the value of crowd-funding and its objectives, the mechanisms involved, the broad areas or sectors to which it mostly caters, the potential it has in the future, the organisations that are majorly involved, the institutional arrangements for persons & institutions to use this source of funding etc. The paper also shall attempt at mapping national and international perspectives in crowd-funding and how it can be an alternate source which national governments could strategically use to better manage their scarce resources.

Keywords: *Crowdfunding; Social Development; Lending*

INTRODUCTION

Social sector or social development projects are increasingly being funded through crowd-funding mechanisms and have been increasingly put to use when traditional sources of funds like the banks, financial institutions, the industry, government, bilateral government-to-government funding mechanisms, etc. are inaccessible due to fund crunch or bureaucratic processes as hurdles.

Crowdfunding involves creating a community of people who are usually not known to one another; but are drawn to a particular cause - social or otherwise that is intended to remove people out of social and financial difficulties like hunger, poverty, health crisis, educational exclusion, stressful physical environments like slums and the like or in the creation of social facilities for disadvantaged sections or the public in general. Increasingly people have understood the power of giving and crowd-funding; and how it can make an impact in dealing with the felt needs of individuals, socially disadvantaged groups and the larger society as a whole.

Crowdfunding can be a quick and easy way to meet unanticipated, pressing needs. Today, anyone with a smartphone can participate in making a difference with great ease. More and more people are now raising funds online to tackle emergencies more efficiently. Increasing digital access and the convenience of online payments are driving more and more people to take the digital route to mobilize greater support for urgent needs on time.

This paper shall address the value of crowd-funding and its objectives, the mechanisms involved, the broad areas or sectors to which it mostly caters, the potential it has in the future, the organisations that are majorly involved, the institutional arrangements for persons & institutions to use this source of funding etc. The paper also shall attempt at mapping national and international perspectives in crowd-funding and how it can be an alternate source which national governments could strategically use to better manage their scarce resources.

LITERATURE REVIEW

Crowd funding is defined as the 'collective effort by people who network and pool their money together, usually via the internet, in order to invest in and support efforts initiated by other people or organizations' (Ordanini et al., 2011).

Financing of Social Services, Social Facilities and Social Development Projects: The Problem at hand: The growth of any nation is dependent on its resource base, human capital, Gross Domestic Product (GDP) and the manner in which it is distributed among its citizens. Moreover, it is also dependent of the policy framework that promotes creation of social services and social facilities for the general public in the field of education, health, water and sanitation, sustainable livelihoods and the like, besides investing in physical infrastructure. It is a known fact that resources are always scarce, particularly in the case of individuals, families, social institutions, organizations and governments who are overwhelmed by the enormity of peoples' needs and investments that they have to make on social services and in creating social facilities for social development. Developing and under-developed countries and their governments are always found wanting in fulfilling this responsibility, thus leaving the teaming millions to their own fate and resources they possess and can mobilize. Often governments have taken the route of taking loans from multinational financial institutions like the World Bank, International Monetary Fund etc., to meet the needs of the country and providing necessary basic services to the public.

Over the last two decades, crowdfunding has been found to be an alternate method for mobilizing funds for establishing new ventures, creating social facilities, extending public amenities, meeting emergency needs of individuals and families, launching social development projects and programmes etc., whether in the government, private, business, corporate, or the non-profit sector.

With the advent of the digital age and the internet, we are now in a position to easily reach out to the global community and appeal to people in the crowd to fund for our innovative projects and programmes. Both governments, private organizations, groups of people, communities and individuals have been found to be using the internet to crowd-source funds for their typical or unique needs that are found appeal to the potential funders. This paper first attempts to list out the various forms or types of crowdfunding, the organizational requirements & dynamics, methodology and strategies involved in crowdfunding, the conditions essential for successful crowdfunding efforts, the difficulties and challenges faced by seekers and promoters of crowdfunding platforms.

OBJECTIVES OF THE STUDY

The objectives of the study were to:

1. understand the importance of crowdfunding,
2. identify the scope of crowdfunding and the nature of activities funded,
3. outline the methodology and procedures involved in raising online and crowd-sourced funds

4. collate the various international and national initiatives undertaken by various organizations,
5. cull out the conditions and limitations for accessing funds through crowdfunding

RESEARCH METHODOLOGY

To fulfil the above objectives of the study on crowdfunding, the scholars have reviewed existing literature thoroughly i.e., books and journals. They also visited the websites of the leading international and national crowdfunding platforms to cull out the type of crowdfunding ventures. They also undertook a through listing of the activities funded by the crowdfunding platforms and lead crowd funders in business. Data related to the extent of funding made in US Dollars or Indian Rupees mobilized were also extracted form the websites and existing literature and presented in a tabular manner in the case of national crowdfunding platforms in particular. The vision and mission statements of the crowdfunding platforms was also studied to get a grasp of the values on which the work of crowdfunding is based.

SUITABLE SUGGESTION OF MODEL

Crowdfunding Platforms:

(A) Key Global Crowdfunding Platforms

- **Sellaband** is a Germany-based music company that pioneered crowdfunding for musicians. Sellaband worked on a profit-sharing basis. It differs from most crowdfunding platforms as it charges a 15% fee in exchange for offering professional support to see successful fundraising campaigns to fruition.
- **Prosper** is a US-based crowdlending platform that works like a modern-day banker in which the borrower has to repay the original loan along with some fixed interest, which is often low in comparison to banks. The platform is open to both investors & borrowers. The borrower has to pay off the loan in fixed 3 or 5-year terms. There isn't any pre-payment penalty which is not the case with private banks who charge a penalty for making pre-payments. Loans are extended as personal loans, for home improvement, to finance healthcare in case of an emergency, small business loans, baby and adoption loans etc. Speed and simplicity of the application process is what that attracts the customers/borrowers.
- **JustGiving funders** help individuals raise funds for a cause. Funders voluntarily donate money with no expectations of any tangible reward. Volunteers get associated with this platform to raise money for charity organizations and the choice for which organization or group the volunteer would raise funds for is his/her own choice. Funds are mostly raised for charities, non-profits, self-help or support groups, registered foundations, research funds, etc. for a variety of causes like treating a rare disease - like cancer, Addison's disease, improving the lives of people with a range of mental health needs, emotional support to those who are experiencing feelings of distress or show signs of suicidal tendencies; providing emergency medical equipment for trained medical professionals in remote areas; provide air ambulance and critical care services to the needy; providing emotional and financial support to the construction workers; support to orphanages; improving quality education; assistance to the old, disabled children or adults; dealing with bullying in schools; and many more. They support a dynamic range of services depending the nature of help sought by charities or NGOs around the globe.
- **Kickstarter** is a crowdfunding promoter that back innovative projects and their "mission is to help bring creative projects to life". This web-platform provides innovators share new visions of their creative work with the communities that will come together to fund them. Backers who chip in with funds, also help to spread the message about the creations they find interesting and they too may become part of these independent works. The platform provides early supporters who share the idea with their networks, which may have a snowballing effect and pools in more funders. Backers receive nonfinancial rewards for their contributions. As the website of Kickstarter says ever since it was established in 2009 "20 million people have backed a project, $5.9 billion has been pledged, and 203,816 projects have been successfully funded". They fund an extremely wide range of projects from art, comics & illustrations, design & Tech, films, food & craft, games, music to publishing.

(B) Key Indian Crowd Funding Platforms

There are a few national crowdfunding platforms too, and they all started very recently - around a decade back. The earliest crowdfunding platform is Rang De which was established in 2008 and its mission is to support and empower women who invest small loans to start small businesses or require money to fund their agriculture. Around seven Indian crowdfunding platforms have been studied who fund disadvantaged sections of society, women, creative art projects, peer-to-peer lending, adventure sports, political projects, social enterprises & business start-ups and community development projects.

S.l.	Crowd Funding Platform	Funds Mobilized	Projects Supported	Supporters or Backers	Promoters & City of Operation	Purpose
1.	Rang De (2008)	US$7.0 million	50,008 loans	9,699 social investors	Smita Ram and Ram N. K	not-for-profit crowdfunding portal has attracted 9,699 social investors and helped disburse 50,008 loans for a section of Indian population who are usually overlooked by banks and financial institutions
2.	Wishberry (2010)	US$ 1.3 million	Completed 325 projects	11,000 backers in around 60 countries	Priyanka Agarwal, Anshulika Dubey (Mumbai)	Wishberry is a donations-for-rewards platform. Exclusively dedicated to funding creative projects – music, stand-up comedy, film production, art, dance, design, photography, publishing, theatre.
3.	Milaap (2010)	700 crores+	100,000 causes		Dave Richards Jayesh Parekh Saurabh Nanavati	low cost loans and small donations to people in rural India and in underprivileged sections of society.
4.	Ketto (2012)	US$5,990,40	10,000 projects	100,000 backers	Kunal Kapoor, Varun Sheth and Zaheer Adenwala (Mumbai)	Peer-to-Peer Lending Platform
5.	Catapooolt (2013)	US$ 150,000	40 projects completed; 53 active projects	2,000 contributors	Satish Kataria	From startups to Parallel Cinema and from DJS Racing Car to India's leading political party AAP, Catapooolt has helped fund raisers bring to life creative, sports, and political projects, social enterprises and business startups.
6.	Faircent (Gurgaon; 2014)	11,710 Lakhs committed to lend	9,520 Lakhs - Loans funded	125,957 Lenders; 1,185,810 Borrowers;	Rajat Gandhi, Vinay Matthews, Nitin Gupta (Gurgaon)	peer-to-peer lending platform and a virtual marketplace where borrowers and lenders can interact directly, without the involvement of banks
7.	FuelADream (2016)	INR 17CR	14 projects 20 new projects per month	260 plus campaigns over the last 38 months	Ranganath Thota (Bangalore)	aims to raise funds for creative ideas, causes, charities, events and community led activities

TYPES OF CROWDFUNDING

There are different types of crowdfunding – (i) donation crowdfunding, (ii) reward crowdfunding, (iii) peer-to-peer lending (P2P lending) and (iv) crowd equity funding (CEF) (Kirby and Worner, 2014, pp. 8–9). Donation crowdfunding are mobilized for community-focused initiatives, in which fund is sought for either charity or a social purpose. The motive behind such initiatives are to extend finance to assist an individual, group, family or community to meet some of the exigencies in life and the funders do not expect a financial return from their contribution (Kirby and Worner, 2014, p. 9).

In reward crowdfunding, the seeker receives contributions for a project in exchange for a reward that is linked to the fruits/output of the project and the funders may receive a reward for their contribution (Belleflamme et al., 2013, p. 318). Such reward crowdfunding too may be linked to a social cause. Examples of reward may be in the form of receiving signed CDs where the funding was for a music album; or by way of adding the names of the contributors under "credits" for the project (Gordon, 2005, p. 234). This type of finance has also been mobilized by companies who want to create support for their ideas. For example, Pebble used Kickstarter, an international online platform, to test its idea for an e-paper watch – the Pebble watch – which could be customised to feature

apps such as calendar notifications and e-mails. The company floated its idea and said that it expecting to crowdsource one lakh US dollar to develop the Pebble watch. The company had allocated different rewards attached to each donation. A donation of 99 US doallars would allow the donor to receive a watch when the product was manufactured. When the campaign period was over, Pebble had raised US$10,266,845, or 100 times the initial amount they wanted to raise.

There is a humongous amount of funds raised through crowdfunding platforms. In 2014, US raised $1.33 billion through reward-based crowdfunding; while the more popular donation-based crowdfunding managed to secure even a larger amount for funding charitable or social causes that are strictly philanthropic and raised US$1.94 billion worldwide in the same year (Massolution, 2015, p. 14).

Classification of Crowdfunding Initiatives in terms of type of services provided or promoted:

1. Crowd equity funding
2. Financial services like small business loans, financial grant assistance etc.
3. Music, Art, Sports, etc.
4. Personal & social services
5. Construction of social facilities

Crowdfunding medium & strategies involved:

- ***Crowd-hosting platforms*** – help social projects get noticed among a much wider community cutting across space, regions, nations and global.
- ***Platform Design***: Crowdfunding platforms have the responsibility not only to manage a platform but also to design the platform since it is crucial to attract promising investors, ventures, donors and a large pool of these people so that the project gets a sizeable amount as per the need.

Determining & Limiting Factors of Crowdfunding:

- **Value of a Project:** Amount and pace of Funding in a crowdfunding project increases or is dependent on the amount of people who have already invested. The value of a project will increase when the more and more people join and it then has a cascading effect after a particular point when the funding gathers adequate mass.
- **Transparency and informativeness**: There is a need of sufficient information relating to a particular project or venture for which assistance is asked for or the
- Local bias in equity crowdfunding
- ***Third party authentication and verification***: In recent years it is globally seen that there has been a rise in illegal behaviour and suspicious activities both of individuals and institutions who exploit every possible means to mobilize funds and disappear all of a sudden. The funders who are genuinely interested to invest in a project or extend grant assistance to a needy person has to be assured that the funds go to the rightful person or project and is used for the stated purpose. Moreover, the regulatory authorities of respective countries make it mandatory for all financial institutions to follow certain norms to weed out fraudulent transactions and unscrupulous agencies offering funds or seekers of funds. In India, the Reserve Bank of India (RBI) has made it mandatory for all banks and financial institutions to follow the Know Your Customer (KYC) procedure when opening an account. Similar procedures are followed for financial transactions undertaken through crowdfunding platforms.
- ***Verification of Capital Needs***: The amount of expenditure to be incurred in undertaking a particular project has to be based on a proper and through need assessment study and verified by a trusted agency or organization. This will help in building transparency and confidence in the genuineness of the project requirement and the amount of assistance or funding needed. In the case of equity funding validation or certification of a capital need by a reputed financial firm.
- **Fraudulent Borrowers**: There is a growing risk of equity and donations falling in wrong hands. Increasingly, fraudulent borrowers had a negative impact on "investment willingness"
- **Documentation & Verification:** To help the government fight the funding of terrorism and money laundering activities, the law of the land requires all financial institutions to obtain, verify, and record information that identifies each person who opens an account. This is done on submission & verification of any one of the ID proofs like a valid driving license, election voter ID card, Aadhar Card, PAN Card etc.

FINDINGS

Summary

Crowdfunding increasingly being used to raising funds for the technological & social development sector and in terms of meeting the needs of disadvantaged and poorer sections of society. It has been found that such crowdfunding initiatives were started in the developed countries much prior to the national initiatives which were started only a decade ago. Both at the international and national levels crowdfunding was in the form of donations to individuals who were in an emergency situation and needed huge amounts of funds that was not within their means, it was also in the form of reward-crowdfunding initiatives, and equity-based crowdfunding efforts, peer-to-peer lending and giving opportunities and also to promote empowerment and economic based efforts to uplift people out of poverty and in meeting minimum standards of living. The scope of crowdfunding has been found to be broad & vast and it is still in its nascent stage waiting to grow and reach newer heights and forms.

SUGGESTIONS

The government, non-governmental organizations, private and public sector, educational institutions and professionals should try and utilize the power of this very flexible & dynamic platform in this digital age so that we can make the rich and poor reach out to one another for the betterment of society and the disadvantaged population in particular. More and more such initiatives should be undertaken to mobilze funds from the general public and use the existing scare resources with governments to fund critical sectors of the government. Transparency in transactions will go a long way to make this innovative platform more trustworthy so that more and more people will be motivated to fund important human enriching efforts and initiatives.

CONCLUSION

Summary:

Crowdfunding is an important and growing method of raising funds for the social development sector and particularly in terms of catering to the disadvantaged sections of the population who have not yet been reached to by the government through various programmes and social services. It can also fund very unique and innovative projects that are in the field of people's technology, art and craft, sports, music etc. The scope of crowdfunding is indeed vast and it is still in its nascent stage waiting to grow and reach much beyond what the governments currently do.

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CHAPTER 21

Technology in HR: Automating Human Resources Processes

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ABSTRACT

The Human Resource department in many companies across the world is responsible for strategic tasks of the business involving human capital - right from recruitment to end of employment and everything in between such as manpower planning, recruitment notification, recruitment process, onboarding, handling payroll, managing employee benefits, formulating policies and implementing them, exit formalities and so on.

On average, HR spends 40% of their time on time-consuming administrative chores like getting data from one system and inputting it into another. HR could devote more effort to finding and retaining top personnel if processes were improved.

With HR automation, companies can create an environment that will eliminate unintentional bias and focus on more important aspects like creating faster and error-free systems and stronger employee engagement. Moreover, it is quite common for employees to lose some of their zeal if they are being over-worked with filling out paperwork and managing emails.

When HR workflows are automated, new hires and long-time employees will not feel as overwhelmed. Almost any HR process can get on the fast-track and instantly improve the workload for the HR department while enhancing engagement for employees. Hence, organisations across the world are investing in HR automation for implementing the best human capital decision and is becoming more important now in the age of leaner workforces and virtual set ups.

However, at the current stage of technology that is accessible, there are many points that need to be factored in before deciding on automating HR processes. Subjective factors like whether key stages of the planning process that consists of decision-making regarding the selection of a development solution could be stages that would require very complex systems to make appropriate decisions from a selection of alternatives.

This paper attempts to identify various functions of the HR department and analyse which of the processes are necessary to be automated for the decision-making process to be achieved with streamlining and using digitization and machines and which ones can be prioritised for humans to focus on.

INTRODUCTION

As of today, many organizations across the world are operating in a dynamic and challenging environment. The fast-paced transformation of the businesses is already in need of many more changes that have become paramount in the current circumstances of the Covid-19 pandemic. While the businesses are having a major shift in dealings in both qualitative and quantitative terms, the safety protocols that have become mandated in the daily operations are making it ever-so-important for employers to make the work environment safe through as much digitization and virtual connect as possible.

With the advent of the new normal, and focus on innovation and technology, there has been an increase in mobility of human capital, knowledge, and systems in terms of transitioning towards automation. Transnationalism, economic integration, and global financial crisis is leading businesses to downsize and create leaner and more effective teams.

The Indian reforms in policies such as acceptance of digital forms for PF, ESIC and other statutory declarations forms for salaries employees reflects the evident inclination towards digitization and technology. This has brought in corresponding changes in the various functions of Human Resources. Many processes within the HR function have been traditionally menial, clerical, and transactional in nature that may have the scope of business process re-engineering and automation.

In this context, this paper will attempt at identifying functions within the Human Resources cohort, where technology has recently started to play a role in improving effectiveness and integrating the manual complexities and technological simplicities of the tasks that are important in the functioning of a business via the support of Human Resources. This paper aims at identifying the areas in which technology can be introduced with greater client orientation without much stress on Human Resources. The paper seeks to document the areas for complete automation in the event of AI being the new normal.

OBJECTIVES OF THE STUDY

1. To identify the functions within Human Resource Management where automation would improve efficiency.
2. To find out potential challenges in automating processes.
3. To suggest functional areas of HR department in which 100% automation is possible.

SCOPE AND SIGNIFICANCE

The scope of this paper is to review HRM processes common to most businesses and analyze the impact of automation of processes in those functions. This study is based on review of secondary data and relating the findings of different sources to arrive at common conclusions based on the similarities of studies reviewed.

RESEARCH METHODOLOGY

In this paper it was chosen to do a thematic literature review where main topics and issues have been picked out from scanning over past literature covering the topic of automation in HR. The purpose of using a thematic approach to the literature review is that it allows for a clear and simple overview of what the previous research have covered in relation to the issue which this paper aims to explore. As a thematic literature review has a focus on covering a specific topic and the themes emerging from that, it seemed the most fitting for this paper to explore popular HR functions. The themes were identified by seeing the main ideas written about in previous journals and from there categorizing it into areas of interest which would best capture and describe what had been previously researched.

The key words were used when searching for literature was “Automation”, “Technology in HRM”, “Artificial Intelligence”, “Human resource management”, “Recruitment process”, “AI in HRM” and “Technology & HRM”. A wide selection of journals covering the independent topics of interest was found, such as Technology in HR, Digitization in HR, Artificial Intelligence, Virtual Workspace, and Human Resource Management. When searching for papers it was chosen to focus on some of the more recent papers to be sure of a relevant research problem, however it was made sure to conduct a comprehensive search on all existing literature to make sure not to miss any of the key concepts or theories within the subject.

The papers will guide this study to identify what topics have already been covered by previous literature and where in the research there is a gap that could be filled or expanded on with this study. Key journals were searched with the help of Google Scholar, where it was also checked the sources some key journals had cited to be sure the most relevant and up to date journals had been found.

SUITABLE SUGGESTION OF MODEL

From the literature review, the following table has been created that broadly defines various functions of HR:

Table 1.1: Functions of HR broadly classified

SN	HR Function	Major Tasks Involved
1.	Pre-recruitment	Human Resource planning, recruitment process identification, decisions on compensation and benefits, service rules and conditions etc.
2.	Recruitment	Interviewing, selection, background verification, offer release
3.	Onboarding	Collecting personal and professional records, reference checks, medical exam, police verification, appointment letter issuance, assignment and handover of tools required for the job, orientation
4.	Training	Providing necessary knowledge and skills required for the job
5.	Policies, Compensation and Benefits	Capturing accurate data in timesheets, leave management, payroll management, addressing employee queries, implementing policies and benefits
6.	Exit Formalities	Resignation process, notice period, asset handover, clearance, full and final settlement

FINDINGS

Areas identified for HR Processes to be automated:

1. Human Resources Planning

Manpower planning is the process of estimating the optimum number of people required for completing a project, task, or a goal within time. Manpower planning includes parameters like number of personnel, different types of skills, time etc. While the parameters can be completely quantified, the decision-making process to arrive at the figures, factors in various internal and external aspects of the business and is subjective in nature. Moreover, strategy does not vary as much, and the manpower planning is a repetitive activity once the strategy is finalized. Feeding in all such external and internal factors for automation of strategy might become difficult due to its subjective nature however, once the strategy is made, feeding in parameters to arrive at the capacity plan can be completely automated due to its quantifiable nature. Once the capacity plan is ready, the Talent acquisition can promptly begin recruitment announcement and begin recruitment tasks.

2. Recruitment

Recruiting automation can be enabled to automate processes that were previously performed manually. There are technologies available that leverage artificial intelligence (AI), machine learning and predictive analytics for all stages of the hiring process (pre-applicant, during the application process, background verification and post-hiring decision). However, it is important, to understand when we talk about AI in recruiting, most of it is focused on machine learning. Machine learning is a subset of AI whereby the software "learns" from past data without explicit programming. In recruiting AI, this would focus primarily on adopting behaviors of the recruiters themselves when sourcing or reviewing AI-sourced resumes. As the recruiter or hiring manager reviews the results of the search, the ATS algorithm recognizes the common threads among the approved resumes.

This is a major part of the issue with AI - particularly machine learning - in recruiting. If the users are biased, whether implicitly or explicitly, then the algorithm will encode that bias. For example, while algorithms don't target candidate names, not selecting resumes with ethnic names could impact future results if those candidates have similar backgrounds. Picking resumes that focus on companies or schools lacking in diversity could create non-diverse candidate pools. Preferences for industries that are not diverse when other industries may be just as qualified could also result in non-diverse pools.

3. Employee Onboarding

Employee onboarding is one of the most manual HR processes. It includes collecting documents for verification, giving tool access to new hires, raising device requests, and more. All of this can be done automatically, using an onboarding app or a web portal.

This can display an easy checklist that can be referred by all users in the process. Using this, documents can be collected electronically, devices can be delivered without waiting around for IT staff to arrive, and tool access takes mere hours, not weeks.

4. **Training**

Orientation and Training can be easily taken care of by creative video modules, quick assessments, and FAQ documents to address all employee queries during joining. However, logic and creativity will remain the most critical elements in most jobs, be it in the present or the future. Although Technology and AI can replicate human logic, it would be hard to emulate human creativity and artistic ability that is required in retaining attention of candidates during a training session.

5. **HR Life-cycle processes, Policies, Compensation and Benefits**

- Leave Requests

Calculating and approving leaves manually is problematic, since HR staff must check the leave balance, get a manager approval, and record the leave for payroll calculation as well. With an automated leave Management process, all of this can be done automatically, without having leave requests stuck in someone's inbox, lost in a sea of emails.

- Employee Timesheets

Tracking timesheets manually is inefficient, to say the least. With an automated timesheet app, solutions like HR Cloud let you track and manage employee timesheets automatically, making the process faster and more accurate. Payroll can easily be run via the same system.

- Performance Management

The performance management is a dynamic HR process that tracks, measures, and analyzes an employee's performance by aligning it with business goals. An automated performance management software streamlines the process, keeps it bias-free, ensures accurate decision making, and makes it memorable for both employers and employees.

- Policies

Although Technology and AI can replicate human logic, it would be hard to emulate human creativity and artistic ability that is required in understanding the company strategy and formulating or restructuring policies according to the business needs. However, most companies do use a standard template to create policies and technology can help in establishing a form/template where the contents can be fed into placeholders and formatting could be taken care of easily. The communication of the policies could also be easily converted to excerpts and snippets and notified to employees via intranet or internal web portals and communication tools.

- Grievance redressal

Studies show that AI empathy is a poor substitute for human empathy. Many people working for an employer could be in an emotionally vulnerable position. They don't know how an employer's decision may impact their present and future – and that of their dependents. This is not a reality where machines are effective at respecting and expressing empathy for employees. In a low-employment environment where finding the right human talent and then engaging them effectively at work is a battle, this is an important skill. A human being could do a much more effective job than technology in listening to the concerns of employees and counseling or deciding in such specific situations.

6. **Exit formalities**

Exit interviews play a significant role improving employee engagement. But paper-based, manual exit interview are tedious, time-consuming, and ineffective. By introducing human resource automation into the exit interview process, organizations can identify potential problems and retrieve actionable data to improve employee retention without sifting through mountains of paperwork. However, like how technology and AI can replace some of the transactional tasks of exit process, many employees considering quitting for an employer could be in an emotionally vulnerable position and AI are mostly ineffective at respecting and expressing empathy for employees. Hence, a human would do a better job at retaining employees who are considering resigning.

CHALLENGES

Data protection: Increased use of technology and AI in the workplace also brings with it complex considerations of data protection and data security, including the basic data protection principles of lawfulness, fairness, and transparency.

Often, personal data, and special category personal data, will be processed, and there are considerations in relation to automated decision making. Legal obligations and the need to foster trust and engagement with the positive uses of AI means that these issues must be front of the agenda.

Getting the most out of an AI enhanced workplace is an exciting opportunity, but one that needs engagement with the issues and possible obstacles.

A PwC report predicted that in the U.K. alone, AI would lead to the creation of 7.2 million jobs over the next twenty years. Similarly, a McKinsey report showed that more than 75% of companies surveyed "expected no net change in their workforce size as a result of implementing AI technologies and automation".

So, the concept of AI making human skills obsolete is debatable at most.

From a wise perspective, AI will enable recruiters and HR professional to conduct proactive strategic hiring and HRM rather than wasting time in reactive backfilling, manual paperwork, and redundant processes of collecting information that is already available in various stages of employee life cycle.

Therefore, while Technology will surely bring a paradigm shift in all the processes that are repetitive and quantifiable in nature, it would hardly replace a human's ability to think, invent and create. The Human touch will always be relevant, even in the era of technology and artificial intelligence.

SUGGESTIONS

For businesses considering automating the HR processes, the list of recommendations below may help in the decision-making process:

1. Align automations strategies with external and internal factors. For example, considering how the company's current strategy aligns with economic changes (i.e., external factors) and the expectation of a high return on investment in the case of training and development costs (i.e., internal factors).
2. Ensure that the talent strategy also aligns with the company's overall plan. The main and essential key to managing a provocative workforce is to streamline the strategies of the talent management process alongside the overall company strategy. Ultimately, the aptitude of training, developing and then retaining the employees depends upon the success of the business operations.
3. Evaluate what training is essential and focus on executing it well. Evaluating key areas and the need for training is mandatory. It is also helpful for saving on abundant training costs involved with the workforce. The execution of the training and development is a necessity because of its impact on the involvement of change management in the business processes.

All companies that surpass their rival industrial competition know that well-planned talent management practices are essential criteria for success. A well-planned HRM strategy plays an important role in managing the accurate workforce, which is necessary for successful technology implementation and integration. Make use of analytics and investigative tools to understand trends and identify extraordinary change, which is beyond the generalities or intuitive predictions. And finally, the aptitude of training, developing and then retaining the employees ultimately depends upon the success of the business operations.

CONCLUSION

The Benefits of HR Process Automation

Through HR automation, organizations can design, streamline, integrate, and deploy necessary services swiftly at a considerably lower cost. If implemented right, HR automation can reap indispensable benefits. The key benefits of HR automation are:

1. Improve productivity due to quick processing and data sharing.
2. Reduce employee turnover due to heightened employee engagement.
3. Slash down storage and printing costs associated with paper-based processing.
4. Stay free from compliance risk or policy violations.
5. Enhance organizational growth through efficient hiring at optimal operational cost.
6. Drop in data entry errors and misplaced/lost documents.
7. Make intelligent business decisions with insightful reports.
8. Collaborate with other stakeholders to hire, train, and retain skilled labor.

More time to analyze HR data to make intelligent business decision.

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CHAPTER 22

Impacts of Covid-19 on BRICS Countries and its Challenges to the Indian Economy

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ABSTRACT

This article studies the significance role of BRICS nations by research and development of international trade for arising nations towards Indian economic growth in the COVID-19 crisis. It is important that the monetary emergency had no solid impact on the BRICS nations and it had a vastly improved financial execution than developed nations. The fundamental factors that prompted the financial extension of the BRICS were an expanded contribution of variables, and colossal populations and assets. In instance, Russia and Brazil are essentially founded enormous mineral stores, assets with theories of world trade business and WTO. China enjoys a benefit of modest work and assets at low costs. India is additionally founded on minimal expense labor force. Also, to wrap things up, all the BRICS nations, aside from Brazil, show extremely high paces of speculation. The current concern of pandemic COVID-19 is to gauge whether the BRICS nations will have a similar vertical pattern of COVID-19 vaccination given to people of BRICS nations and the results are extremely surprising for very better economic growth of the shortcoming distinguished of member nations. The significant changes found in good health of the people of member nations, political various belief systems, and better economic growth over openness to wares and so forth due to better execution of COVID-19 vaccinations drive in the BRICS nations. In the last time frame, the arising nations have had a significant part on the world economy, even they have confronted with a gigantic monetary emergency. In this sense they address a significant power for worldwide financial co-operations significance in every nation. We have seen about monetary execution and control of Indian banking system every year in economic survey and budget by Reserve Bank of India. Revamping about worldwide GDP growth and the global impacts are depend of ascent and incredible forces in present crisis of pandemic. The main expert who has moved toward the impact on international trade and force on nation's economic development was first given by Paul Kennedy (1989) & Adam Smith (1776).

Therefore, many investigations about economic development through world trade organization performed for BRICS nation development and of their effect on the worldwide GDP growth in this pandemic era.The motivation behind this research paper for break down about un-advancement reasons for arising developing countries and its significance impacts on the developing economies in Indian context. In last 10 years about developing countries BRICS nations made the quicker development on the global economic scenario. The monetary emergency has prompted significant changes in worldwide financial administration, particularly the G-20 supplanting the G-8 as worldwide pioneer on the global economy. These progressions can be deciphered as an appearance toward a various international business and financial request, where agricultural nations ought to have a substantially more critical role. During this period of COVID-19, BRICS nations played a very significant job that have many people comparatively benefitted via COVID-19 vaccination drives.

All these highlights along with various normal interests' shows that BRICS nations have arisen as an alliance of non-industrial nations where government delegates have some weight in dynamic nature at the global economy. Nonetheless, it ought to be noticed that there are significant contrasts in the four nations as far as creation structure by area, opening outward, swapping scale system and so forth making this alliance to be more a driven task. China has a lot more prominent monetary force as against the other four BRICS nations which don't have excellent possibilities in its nonappearance. Nonetheless, China's quality in the BRICS countries of agricultural nations is valuable (on the off chance that a correlation makes alliance with G-8 group). World Bank marked a few exchange courses of action for broad utilization of funds to BRICS by monetary forms in their international business trades, the principle reason for existing being to diminish exchange costs (Yardley, 2012). Now Indian Economy becomes V-Shape economy in the global world due to pandemic COVID-19 crisis.

Keywords: *BRICS Nations, Emerging economies, Indian economy, COVID-19 Vaccination.*

INTRODUCTION

In the present COVID-19 crisis, the BRICS countries have played a crucial role on the global scenario, although entire world facing very critical economic slowdown. In this way BRICS nation performs very important role for betterment of economic recovery on global level as we seen in vaccination drive for economic recovery in the year 2021.

The great nations have powers to strengthen and boost-up the entire economy of the world with the reorganization stability. In beginning of the global economy, first time Adam Smith (1776) and Paul Kennedy(1989) have approached and influenced the global economic growth concept through the ideas of international trade of world market size to reform the developing countries for organizational development.

According to Clyde Prestowitz (2008) and LinYueqin (2009) approach, BRICS nations can perform and reform well and have to be changed the global market with the integrated powers of emerging countries in present global scenario. This article is the study of BRICS nations to influence the Global economy of this pandemic crisis in 21st century.

In this article we study about the BRICS countries which have done the quicker development contrasted with emerging GDP growth which prompted huge increment of their offer in world Gross domestic product in global exchange, altogether unfamiliar direct speculation, and worldwide monetary business sectors. The monetary emergency has prompted pertinent changes in worldwide financial administration, particularly of G-20 group supplanting with G-8 group as global pioneer towards worldwide level. This progression must have to decipher of an appearance towards the multi-polar worldwide financial request, where agricultural nations ought to have a considerably more critical jobs.

During this period, a significant job have performed through BRICS nations (South Africa, Brazil, China, India and Russia,) with the scientific and logical way by comparative highlights performance (Truman, 2015):

- They are developing industrial nations with pertinent worldwide financial execution with the excellent powers.
- These nations played fundamental significant role for the economic growth with regard to their public exhibitions and significant ramifications with internationally;
- BRICS can apply this impact on the administration of the worldwide economy.

This load of highlights along with various regular interests' shows that BRICS nations have arisen as an alliance of non-industrial nations delegates with dynamic and scientific on worldwide stage. In this case, we have to noticed that there are significant contrasts in the four nations as far as creation structure by area, opening

outward, swapping scale system and so forth making this alliance to be more a driven venture. China has a lot more prominent monetary force as against the other three BRICS nations which don't have awesome possibilities in its nonappearance. Nonetheless, China's quality in this gathering of non-industrial nations is advantageous positions with alliance of G-8 nations.

BRICS NATIONS: DEVELOPMENTS AND TRADE

As we know, the arising nations are amassed in districts with the biggest population on the planet. Toward the start of the century, their picture has gone through an extreme change through the most powerful development on the globe and through the decreasing of the development populace rate which has prompted an increment in Gross domestic product per capita near that of created nations. This was conceivable because of the expanding level of monetary reconciliation of arising nations in the worldwide economy emerged in the exchange and monetary areas. Good possibilities of these nations have brought about the decrease of hazard insight coming from developing business sectors and uniting the patterns referenced previously. BRICS nations are important for those arising nations which have the attributes recorded previously.

We discuss and introduced with **Table- (1.0).**

Table -1.0: BRICS Nations: Economical & Geographical Indicator List- 2019.

	Area in (million km²)	Population in (milion persons)	GDP in (PPP) mld. $	GDP in per capita ($)
Brazil	8,7	199,8	2331,2	11748,6
China	9,8	1353	12262,2	9057,3
India	3,7	1239	4716,7	3846,6
Russia	17,2	144,7	24868,2	17538
South Africa	1,3	52,20	578,1	11289,1

Source: Based on data from www.imf.org, World Economic Outlook, October 2019

As indicated by IMF gauges, total population development in the period 2000-2020 could reach 139.2%, while arising nations would be 167.1%. Up to this point of BRICS nations expanded by 135.7% of the population, contrasted with 195% or with an expansion of 298% on the globe.

Almost recent twenty years of the last century, the normal Gross domestic product development was 3.1% in evolved economies and 3.7% in agricultural nations, contrasted with the 2000-2019 period when normal rates were 2.3% and 6.5% separately. As indicated by IMF appraises, the distinction will stay somewhere in the range of 2011 and 2019 (6.9% for agricultural nations and 2.8% for cutting edge one). In the developing industrial BRICS nations stands apart in light of their Gross domestic product development with a normal pace of 8.2% somewhere in the range of 2000 and 2019, and will increment to 8.5% somewhere in the range of 2011 and 2019.

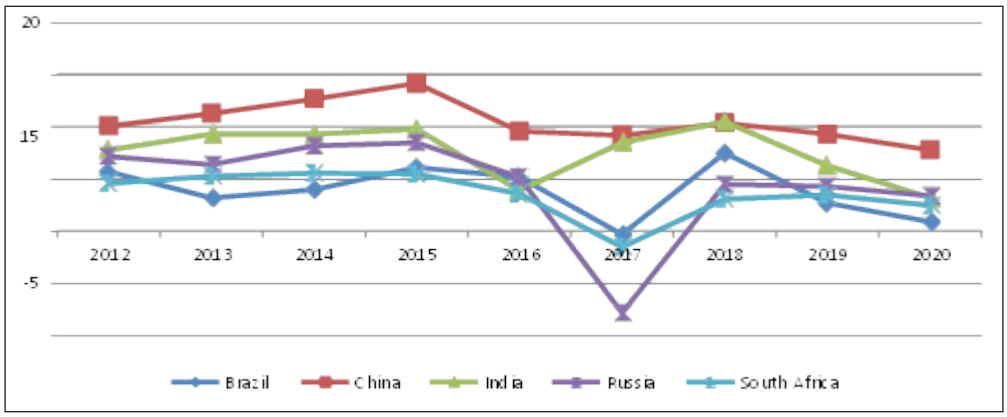


Fig. 1.0: Annual Growth of GDP

Source: www.worldbank.org

The speed increases because of highest growth with development of Brazil (3.9% year 2010-15, 4.1% year 2010-2020) and a gauge with 5.1% in 2019) , India (6..1%, 6.9% & 3.1% in analyzed year). Solid Gross domestic product development has made these nations to turn into the motors of the worldwide economy. In this manner, in the eighties and nineties created nations have offered the greater part of worldwide development, while

somewhere in the range of 2010 and 2020, the circumstance was switched, contributing just 1.2% rate focuses contrasted with 2.6% focuses made by developing industrial nations.

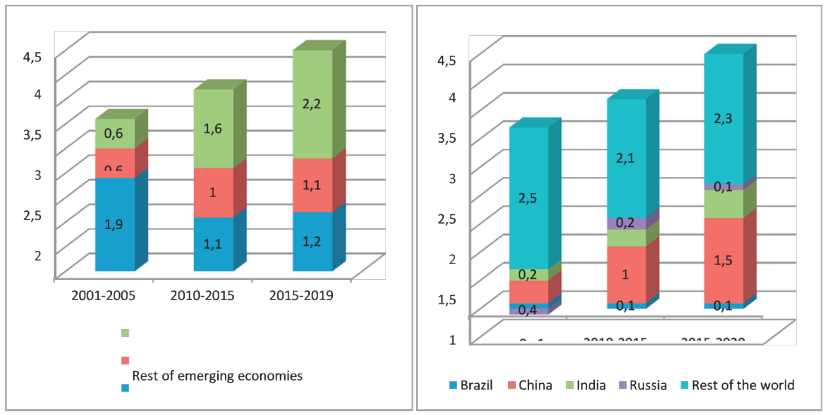


Fig. 2.0 : GDP of Global Contribution.

Source: www.worldbank.org

Also, we have seen a quick development of GDP with economic growth of per capita income contrasted in highest level. GDP with per capita income of arising economies started and developed consistently since 2001, a normal in 1.5% by 2010, in 5.1% somewhere in the range of 2015 and 2019 which address a total development of 28% during the period.

Here we seen about BRICS nations remain in worldwide by rate of 7% during 2010-2020, particularly in India 3.2% and China (6.5%) .

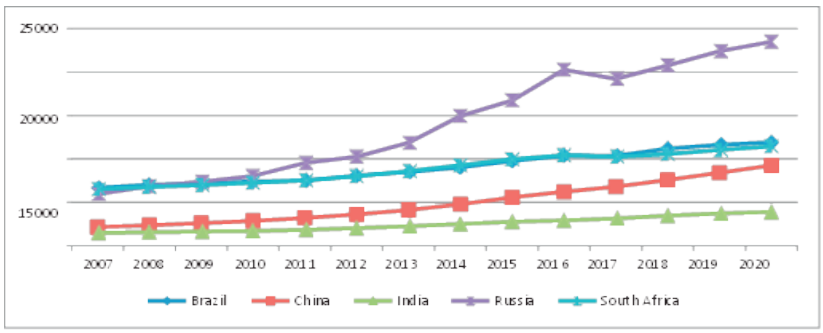


Fig. 3.0 : GDP of Per capita (in US Dollar)

Source: www.worldbank.org

Genuine intermingling additionally by government assistance global marketers, for example, the Human Advancement Record: of BRICS nations ,here an unmistakable improvement year 2020 of Russia's recuperation we seen.

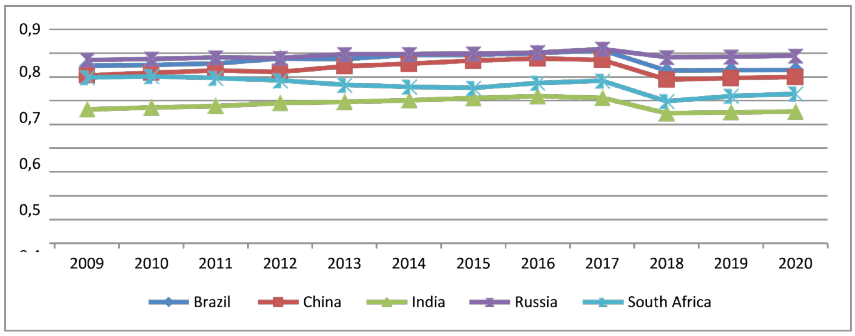


Fig. 4.0 : BRICS Nations HDI

Source: www.undp.org

BRICS nations should exhibit lately that they address a model of financial development that apply a worldwide impact with the development form of a solitary GDP, BRICS nations always practiced force collectively, not exclusively, as a result of their assets, region and populace everywhere scale. There are a few components that portray the development of this gathering, in particular which are following:

- Fast monetary development depended on the monstrous section of variables at low costs. China depends on modest work and assets in lower costs. Economic model of China followed by India., Brazil and Russia follows international business model and global marketing hypothesis;
- BRICS nations have low rates as far as commitment to science and innovation, since they don't have such a large number of developments;
- Economic development of Brazil, India and Russia depends intensely on homegrown interest, quite a bit of that being utilization. In Brazil, utilization represents 85% of Gross domestic product, while outer interest is just 3-4%. Contrasted and other arising nations, Brazil has a lower speculation rate (in any event 25%) because of the great degree of genuine financing costs, charges and venture costs and advancement relies to a great extent upon homegrown interest, where utilization assumes a significant part (half of Gross domestic product). In Russia, utilization represents 70-80 % of Gross domestic product, venture 25% and 15% net fares
- BRICS Nations have an unequal monetary design. Normal private area across the economy is practically half below the normal for cutting edge nations. BRICS depends basically on essential areas and intensely reliant upon unfamiliar business sectors globally.

Table- 2.0: BRICS Nations: The tertiary sector contribution in year-2019

	Primary industry	Second industry	Tertiary industry
Brazil	11.5	41.2	48.8
China	14.2	45.3	41.9
India	18.7	26.4	54.5
Russia	6.2	37.6	58.6
Source:The Economic Times-2019			

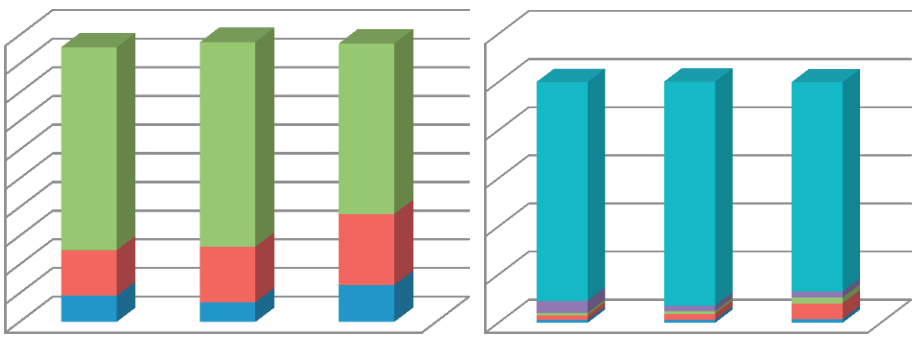
In terms of intensity, BRICS nations have exceptionally low rates, in spite of the fact that they have outperformed a few nations by their monetary presentation.

Table -3.0: BRICS Nations: World competitiveness rankings Reports

	2010-2015	2015-2019
Brazil	56	71
China	29	30
India	49	68
Russia	63	64
South Africa	45	60

Source: (The World Economic Forum –For The Global Competitive Ranking Reports-2019, page-11)

Financial execution of these nations occurred because of more noteworthy receptiveness to developing business sectors. Normal development pace of fares was from 11.4% somewhere in the range of 2010 and 2015, to 31.8% somewhere in the range of 2015 and 2019,



100					120			
90								
80					100			
70 60	70,8	71,4	59,5		80			
50								
40					60	90,9	93,1	87,1
30 20	15,9	19,3	24,7		40			
10 0	9,1 2010	6,9 2015	12,9 2020		20 0	15,1	212,21	2,4 6 5
						2010	2015	2020

Fig. 5.0: Foreign trade Share (%)

Source: www.worldbank.org

The expanded receptiveness of arising GDP growth and dependent of exchange which basically centered around crude materials. In 2010, China turned into the main shipper of farming crude raw materials (16.9% on absolute WTO of imports) ,raw metals (21.2%) & 3rd merchant for industrial oil (7.1% in aggregate, U.S.A & the country Japan) where Brazil comes the 10th of fare list on horticultural products.

BRICS nations have generously incorporated in the monetary field, the primary driver being immediate speculations. On the off chance that in the years' 20th the high level nations produced and outpourings of capital inflows, in year 2010-2015 of foreign direct investment streams arising 15.1% of economic growth. BRICS's performance for economic development is applicable for practically 51% in immediate speculation inflows in developing economies.

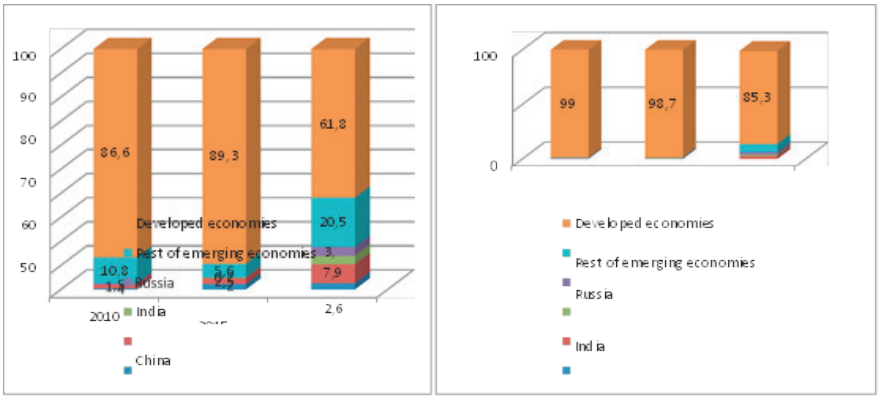


Fig. 6.0: a) FDI Inflows (%); (b) FDI Outflows(%) ,

Source:www.worldbank.org

It should be obvious, that BRICS nations are progressively associated with economic growth and funds advancement of worldwide. The institutional development with lawful securities is as yet now not to be similar. This can be seen by analyzing quite possibly the most monetary opportunity records utilized for BRICS nations, in particular financial opportunity pointer determined by the Legacy Establishment. From the figure we can notice an overall relapse of the BRICS nations, regardless of whether some of them are important for the G-20 group.

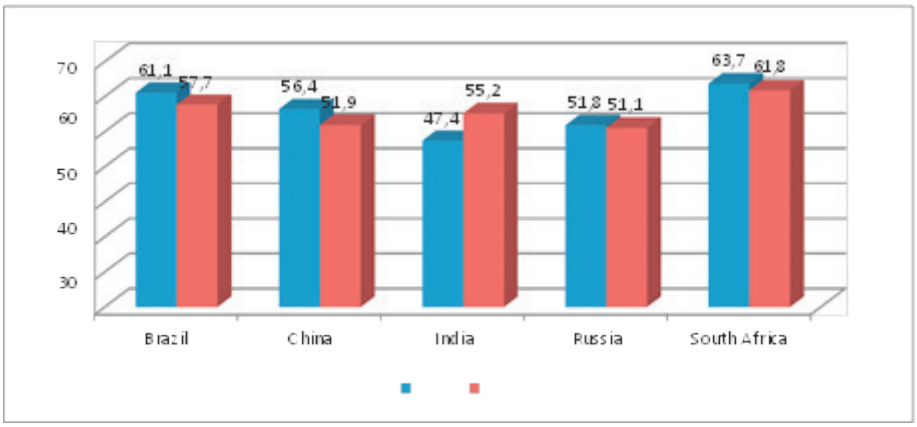


Fig. 7.0 : BRICS Source Economic freedom Index : The Heritage Foundations, 2020

BRICS NATIONS FUTURE

Table -4.0: BRICS Nations : Index of Corruption perceptions (Index Year-2019)

	Ranking	Score card
Brazil	106	35
South Africa	70	44
China	80	41
India	80	41
Russia	137	28

Source: www.transparency.org

BRICS nations need to confront various difficulties in the current setting, to be specific which are following:

- There are numerous holes in their monetary turn of events interaction on arrive at created nations. BRICS represented in 2008, that almost global economic about 15%, however Gross domestic product per capita was just a single third of the world normal and short of GDP what one 10th of the normal of created nations.
- Secondly, there is a pattern in the arising economies to incorporate however much as could reasonably be expected during the time spent monetary globalization which makes them more helpless to vacillations in the unfamiliar business sectors. At present, there are a few requirements identified with BRICS exchange, account, trade rates, and so on.
- Third, participation among BRICS nations given their shared objectives. Yet, in a similar future BRICS Nations should have steady rivalry for control over international markets. In this way, the participation and rivalry between BRICs nations have a double job in their financial turn of events. COVID-19 vaccination drive is very helpful to regain the highest GDP growth rate of BRICS Nations.
- There are other non-industrial nations coming behind the BRICS groups, the supposed VISTA groups states (Argentina, Turkey ,Vietnam, South Africa, & Indonesia), which put focused towards gathering with respect to the activities of business sectors, worldwide assets and their portion of economic growth globally.
- There is some trouble with respect to the development model in the BRICS nations. They center more around the development of Gross domestic product and less on quality given the absence of inventive personalities and advancement motivations. Interests in innovation and schooling framework are inadequate, there is no inspiration and enterprising soul, and it doesn't exist a levelheaded portion of assets. India is extremely focused to achieve highest economic growth rate via COVID-19 vaccination drive with comparison to other 4 nations of BRICS economy in this pandemic crisis.

CONCLUSION

BRICS Nations has proposed a development pace of 5.0% each year, which is the most noticeably lawful presentation of arising economies somewhat recently. This might be the finish of the main phase of developing business sectors. Time in which there were financial execution of more than half and can cover misfortunes from lawful advances and the influence to invigorate the economy. Regardless of whether there were some financial

requirements, arising economies have a guard strategy that incorporates adaptable trade rates, moderately low obligation and high unfamiliar stores. More slow development pace of China will influence the presentation of other arising nations. Despite the fact that there was a blast in items and credit, Brazil presently doesn't develop at a similar speed and in India there is an overall disarray about the expected recuperation of this nation considering its yearly growth and development ratio. In upcoming future, developing countries have to in any case of economic development yet slowly which will influence worldwide economy on the long haul due to pandemic COVID-19 crisis. In the interim, collaboration between arising powers assume an essential part in advancing pluralism and equilibrium in international concerns and decrease their reliance on created economies. As every one of the BRICS nations has restricted force, reinforcing collaboration isn't just a prerequisite to battle the worldwide monetary emergency, yet in addition a protected decision for the five nations to fill together in the post-emergency period.

All these highlights along with various normal interests' shows that BRICS nations have arisen as an alliance of non-industrial nations where government delegates have some weight in dynamic at the global economy. Nonetheless, it ought to be noticed that there are significant contrasts in the four nations as far as creation structure by area, opening outward, swapping scale system and so forth making this alliance to be more a driven task. China has a lot more prominent monetary force as against the other four BRICS nations which don't have excellent possibilities in its nonappearance. Nonetheless, China's quality in the BRICS countries of agricultural nations is valuable (on the off chance that we make a correlation with its allianceto G-8 group), both for this group of countries. We have concentrated in on their becoming stronger and advancement to make an organization to equal the World Bank. In this regard the part nations have been marked a few exchange courses of action for broad utilization of neighborhood monetary forms in their business trades, the principle reason for existing being to diminish exchange costs (Yardley, 2012). Now Indian Economy becomes V-Shape economy in the global world due to pandemic COVID-19 crisis. I as a Ph.D Research Scholar suggest to Indian Government to successfully implement the COVID-19 vaccination in India which can boost up the economy in excellent way and we will achieve the best results in exponential growth of GDP in Indian economy

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CHAPTER 23

A Study on Customer Experience and Loan Credit Services with Reference to Corporate Banks in Chennai City

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INTRODUCTION

This study represents the customer experience and loan credit services provided by the corporate banks in Chennai city. It also shows the behavior of the customers and their experiences while taking loan, and it analysis the loan credit services provided by the bank for their customers. This study shows is useful to banks and financial institution to take necessary actions to improve their loan credit services for the customer.

PRIMARY OBJECTIVE

- To study the customer experience and loan credit services with reference to corporate banks in Chennai city.

SECONDARY OBJECTIVE

- To identify the customer experiences while taking loan.
- To analysis the credit services provided by the bank.
- To identify the behavior of the customer with respect to their monthly income.
- To analysis the relationship between the monthly income and the choice of the taking loan.

RESEARCH DESIGN

A research design is purely and simply the framework or plan for a study that guides the collection and analysis of data. It is a blue print that is followed in completing a study.

SAMPLING METHODOLOGY A) POPULATION

The study of various characteristics relating to items individuals belong to a particular group is called population. The population of the study consists of the different target customers like business, employee, professional and student.

b) Sampling frame

The frame describes the population in terms of sampling units. Samples drawn from lists are called sources lists sampling frames. The source list of customer who are all taken loan from the corporate banks in Chennai city.

c) Sampling Unit

It is set of elements considered for selecting a sample. In this research, we have taken surveys from customer who are all taken loan from the corporate banks in Chennai city.

d) Sampling Methods / Technique

The sampling technique used was probability sampling method is adopted in this study. It refers to the technique where the probability of each cases being selected from the total population is known. The sampling technique used in this study is random sampling.

Random Sampling: A method of selecting a sample (random sample) from a statistical population in such a way that every possible sample that could be selected has a predetermined probability of being selected.

e) Sample Size: A total of 60 respondents were chosen for the study.

DATA COLLECTION RESEARCH INSTRUMENT

Questionnaire is used in this study – A research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents.

Friedman Test

Null Hypothesis (H_1): There is no significant difference between the customer experiences while taking loan.

Alternate Hypothesis (H_{a1}): There is significant difference between the customer experiences while taking loan.

One Way Anova Test

Null Hypothesis (H_2): There is no significant difference between the services rendered by the bank, the customer meet helps to improve the customer relationship and behavior of the staff while taking loan.

Alternate Hypothesis (H_{a2}): There is significant difference between the services rendered by the bank, the customer meet helps to improve the customer relationship and behavior of the staff while taking loan.

Chi – Square Test

Null Hypothesis (H_3): There is no significant difference between the monthly income of the customer and the change in customer behavior, when unexpected expense occurs.

Alternate Hypothesis (H_{a3}): There is significant difference between the monthly income of the customer and the change in customer behavior, when unexpected expense occurs.

CORRELATION ANALYSIS

There is any relationship between the monthly income and the type of loan taken by the customer.

ANALYSIS

1. It is found that 40% of the male respondents and 60% of the female respondents.
2. It is observed that the 85% of the respondents were between 21 to 30 years, 10% of the respondents were above 40 years, 5% of the respondents were between 31 to 40 years and there is no respondents below 20 years.
3. It shows that the 40% of the respondents were married and 60% of the respondents were unmarried.
4. It is observed that the 28.3% of the respondents are qualified in Under Graduate, 60% of the respondents are qualified in Post Graduate, 10% of the respondents are Professionals, and 1.7% of the respondents are qualified in Diploma.
5. It is identified that the 30% of the respondents are the students, 46.7% of the respondents are the employees, 10% of the respondents are the professionals, and 13.3% of the respondents are the business persons.
6. It is observed that the 50% of the respondents have the monthly income of below Rs.20,000, 15% of the respondents have the monthly income of Rs.20,001 – Rs.30,000, 20% of the respondents have the monthly income of above Rs.50,000, and remaining 15% of the respondents have the monthly income of Rs.30,001 – Rs.50,000.

7. It is found that the 35% of the respondents taken loan from the HDFC Bank and the State Bank of India, 15% of the respondents taken loan from the Axis Bank, 5% of the respondents taken loan from the ICICI Bank, Bajaj FinServ Lending and the Muthoot Finance.
8. It is identified that the 51.7% of the respondents are taken the Educational Loan, 15% of the respondents are taken the Two – Wheeler Loan, 13.3% of the respondents are taken the Car Loan, 10% of the respondents are taken the Home Loan, 5% of the respondents are taken the Business Loan and Gold Loan.

HYPOTHESIS RESULT

Hypothesis (H_1) : There is no significant difference between the customer experience while taking loan.

Based on the relevation in the data the Null Hypothesis Accepted.

Hypothesis (H_{a2}) : There is significant difference between the services rendered by the bank, the customer meet helps to improve the customer relationship and behavior of the staff while taking loan.

Based on the relevation in the data the Null Hypothesis Rejected.

Hypothesis (H_{a3}) : There is significant difference between the monthly income and the change in customer behavior, when unexpected expense occurs.

Based on the relevation in the data the Null Hypothesis Rejected.

Correlation Analysis : The result were statistically significant, strongly positive correlation between occupation and the type of loan taken by the customer and moderately positive correlation between monthly income and the type of loan taken by the customer.

CONCLUSION

This study finds the relationship between the monthly income and the type of loan taken by the customer. When the customer is not unable to fulfill his financial needs by his income, he will go for bank to lend the money. This information is useful to banks and financial institution to take necessary actions to improve their loan credit services for the customer.

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CHAPTER 24

Increasing Cyber Threats in Covid-19, Impact on General Life and Business

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ABSTRACT

The unprecedented event of the COVID-19 epidemic, which changed the lives of billions of trillions of people around the world, resulted in a complete change in the way we live and work. In addition to the extraordinary impact on society and business, the epidemic generated a set of unique cyber-crime related circumstances, which also affected society and business. The increased concern due to the epidemic increased the number and extent of cyber-attacks, as well as increased likelihood of cyber-attacks being successful.

This paper analyzes the COVID-19 pandemic from the point of view of cyber-crime and highlights the extent of cyber-attacks experienced globally during the pandemic. Cyber-attacks are analyzed and considered in the context of major global events to reveal modalities of cyber-attacks.

As cyber security incidents continue to increase and stakeholders are increasingly concerned, companies are devoting substantial resources to their cyber security risk management efforts and related cyber security related disclosures. This paper outlines how accountants are uniquely positioned to assist companies with these efforts in advisory and assurance capabilities.

Keywords: *COVID-19, Cyber security, Cyber-attack, Stakeholders, Risk Management*

INTRODUCTION

The whole world was celebrating the beginning of a new decade together, so some people could not even imagine what would happen in 2020?

In the past 15 months, the novel corona virus has crippled economies, ravaged communities and confined nearly 4 billion people to their homes. It was a year that probably changed the world for at least a generation after World War II.

COVID-19 has not only affected day-to-day life but has also slowed down the global economy, affecting thousands of people who are either sick or dying due to the spread of the disease.

The pandemic has left businesses, enterprises and governments to grapple with a complex collection of supply chains. For the past 15 months, we have been facing upheaval in health, education and workplace systems.

The COVID-19 pandemic has not given rise to changes that seemed unimaginable a few months ago, with millions of migrant workers in India forced to walk thousands of miles to their home villages.

As the world grapples with increasing uncertainty and new working environments, cybercriminals have been increasingly engaged in launching phishing attacks and acting as trusted authorities to exploit vulnerabilities in remote work applications. The number of cyber-attacks is increasing continuously. Several bodies issued comprehensive advisories to ensure that individuals and organizations remain cyber resilient throughout the pandemic. Given the increasing amount of attacks, it is more important than ever that company proactively manage their cyber security.

Fiber risk refers to the potential risk of damage resulting from a failure or breach of an organization's IT systems.

REVIEW OF LITERATURE

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Author: kunal chaturvedi, Dinesh Kumar vishvakarma, Nidhi singh

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OBJECTIVES OF THE STUDY

1. The crisis of Covid- 19 changed the fundamental form of life.
2. The pandemic and the lockdown seriously affected the country's economy and society.
3. My Objective is to know what will happen, what will happen, and what will be the reaction of business leaders about the impact of Covid. How will they see it?
4. The existence of lakhs of industries is under threat.
5. This pandemic is affecting the entire food system.

RESEARCH METHODOLOGY

Secondary sources of data have been used to analyze the contribution of cyber threats to COVID-19 in the Indian economy and the impact of the global crisis on Indian industries, normal lives of people and the Indian economy.

Secondary data is collected from government publication reports, textbooks, articles, papers, magazines and through internet etc. The study is a descriptive research, based on secondary data.

HYPOTHISES

1. Human and food security catastrophe caused by the pandemic?
2. Due to the crisis of the epidemic, the demands of industry and trade decreased?
3. Are millions of people at risk of falling into poverty and increasing the number of malnourished people due to the pandemic?
4. How did the global nature and universal impact of the crisis ease the job of a cyber-criminal?
5. What are the consequences of cyber pandemic?

(A) GENERAL LIFE AND BUSINESS

(A1) General Life

The COVID-19 pandemic has caused irreparable loss of human life around the world and posed an unprecedented challenge to public health, food systems and the world of work. The economic and social disruption caused by this pandemic is devastating: millions are at risk of falling into extreme poverty, while the number of malnourished people, currently estimated at 690 million in the world, will rise to 132 million by the end of this year likely to increase.

The existence of small scale industries is also under threat; nearly half of the 3.3 billion global workforces around the world are at risk of losing their livelihoods unable to feed the family.

The pandemic has not only affected but destroyed the entire food system, highlighting its fragility. The closure of the country-foreign border, restrictions on trade, due to which farmers are not able to reach the markets, as a result of which they are neither able to buy raw materials nor are they able to sell their produce. Preventing agricultural workers from harvesting crops, disrupting domestic and international food supply chains, reducing access to healthy, safe and food all indicate that the pandemic has destroyed jobs and threatened the livelihoods of millions has been put in.

As the earners are losing their jobs, they are getting sick and dying. The food security and nutrition of millions of women and men are at risk, especially in low-income countries where the majority of the population is hand-worked, including small-scale farmers and indigenous people. Millions of agricultural workers around the world, regularly face high levels of working poverty, malnutrition and poor health.

Along with safety and labor protection, they are also being victimized by other forms of abuse. The lack of social support pushes many people with low and irregular incomes to continue working on low incomes, often in unsafe conditions, putting themselves and their families at additional risk. Moreover, when they face a disproportionate loss, they To combat negativity, you can resort to negative strategies such as selling your property in times of crisis, taking out loans or turning to child labor. Migrant agricultural workers are particularly vulnerable as they face risks to their transport, working and living conditions, and struggle to access support measures taken by the government.

(A2) BUSINESS

(A20) Impact on Energy Sector and Emissions

The national lockdown has had an immediate impact on the energy sector, both in terms of consumption and production. There has been an unprecedented reduction in electricity demand since the Great Depression. Electricity usage has typically dropped by 20% in each month of the lockdown. Although homework has increased household electricity usage by about 40% But this is not enough to meet the lost demand due to the closure of offices and factories. Overall global electricity use is projected to decline by about 6% in 2020 compared to the previous year. The demand for oil and gas has also declined.

(A21) Redefining Time

The pandemic has exposed vast social inequalities, with workers working zero-hours in factories, warehouses and taxis, factory workers being forced to make decisions about the risk of infection rather than losing their jobs and losing valuable income Is. Working from home has become the norm for millions of white-collar workers, with flexible hours and virtual conference calls replacing daily commutes and meetings. Some organizations showed great readiness to close down the expensive city office. It was realized that any collaborative projects take more time and training for the same in a remote context is difficult. The pandemic has not only tested the strength and security of systems but has also changed how we work remotely.

(A22) Cities' Warning of Environmental Crisis in the Future

The built environment has experienced impacts from the crisis. In recent years, as cities in developing countries continue to grow as a result of inward migration from rural areas, the epidemic has accelerated in the opposite direction in cities in developed countries, as an increasing number of workers move to the suburbs. Smaller cities can accelerate hybrid functioning because no, are emerging as active hubs People give up long commutes for more local 'micro mobility'. Green city initiatives can be seen as the only real way to protect the environment. To create a positive projection of the city of the future, large parts of the world are pedestrians and e-bikes and use scooters as an alternative form of personal transport. But the actions of many global cities in response to the pandemic suggest we may be getting there much sooner.

(A23) Exposing the Fragility of the Food Supply

The fragility of large-scale 'just-in-time' economies of food supply was easily exposed behind the scenes despite state intervention, in part, because the shortages were actually short supply, rather than panic buying. With is driven more by the increase in demand. The pandemic has highlighted the importance of small, local supply networks, which managed to rapidly respond and adapt to the needs of local communities when national and international chains were disrupted. COVID-19 has shown that people value local food networks. Informal markets and adaptable businesses are emerging and moving things along. However it remains to be seen how sustainable or comprehensive any move towards a more seasonal, localized product supply chain will be without any dedicated support or state intervention and in the event of a global recession. The pandemic had a significant impact on the meat and dairy industries. The closure of retail and hospitality destinations has been the biggest result in impact on demand and sales. But the outbreak of COVID-19 among workers at meat processing plants and increased scrutiny of poor conditions that have contributed to these plants becoming hotspots has also been a factor in infection. COVID-19 has laid the foundation for a serious link between food security and pandemic risk for people.

(B) CYBER ATTACK

(B1)Cyber attacks

The global pandemic has seen a huge increase in people working from home, shopping online and generally more digitally connected than ever before. A lot of good things have come out of this, but a lot of bad has happened at the same time. According to cyber security firm Monster Cloud, one of the biggest issues is that cyber-attacks have skyrocketed during this period. Cybercriminals have taken this opportunity to increase their attacks both in frequency and in scope. Here's what we need to know about the rise in cyber-attacks during the 2020 COVID-19 pandemic. 2020 will be remembered as the year when security incidents exploded and cyber incidents changed society in many ways. The online set of internet trends have revealed many positive benefits as many people are taking advantage of the quality of life gained by the move of working from home. Experts argue that technology has been a silver lining during this pandemic, as a lot of communication, business and personal interactions for 80% of the economy (excluding travel, hotels, restaurants, etc.) have gone online without significant interruption or business impact. Space has met the challenges brought on by COVID-19 in ways that did not or could not have occurred during the last major pandemic in 1918.

Excerpted from a CNBC article "UAE sees at least 250% increase in cyber-attacks this year." "This is a cyber-pandemic, not just a biological pandemic"

(B10) Consequences of cyber pandemic

Defining a cyber-pandemic is like defining a perfect storm only this storm is in cyberspace. From ransom ware to data breaches and from electoral security to unemployment fraud, COVID-19 has in many ways brought a new set of challenges and/or intensified existing challenges within global enterprises. . The World Health Organization reported a 5-fold increase in cyber-attacks at the end of April 2020. Around 40 million people worldwide have contracted COVID-19, and more than 1 million have died from the virus. The devastation has been compounded by the global recession and rising political unrest. Research suggests that governments around the world have taken advantage of the pandemic to expand their home surveillance capabilities and curtail Internet freedom and speech.

Published in its annual report "Freedom on the Net" in "Human and Digital Rights Watch the Freedom House" tracks the ebb and flow of censorship laws, net neutrality protections, internet shutdowns and more, around the world. The report covers not only the COVID-19 pandemic from June 2019 to May 2020, but also the trade war between the US and China, which has resulted in a dramatic spurt in the cyber sovereignty movement, with a massive shutdown of global Internet freedom in 2020, has been done."

One scientist put it this way - "We are sleeping in a world where our most sensitive personal and biometric data will soon be at the mercy of private companies, security agencies and even cybercriminals."

(B11 Covid-19 - Cyber Crime Statistics

The numbers are staggering and frightening. The FBI recently reported that the number of complaints to their cyber division about cyber-attacks is up to 4,000 per day. This represents a 400% increase from what they were seeing pre-corona virus. Interpol is also seeing "an alarming rate of cyber-attacks aimed at major corporations, governments and critical infrastructure". These attacks are targeting all types of businesses, but large corporations, governments and important medical organizations have been the prime targets.

Microsoft reports that COVID-19 themed attacks, where cybercriminals gain access to a system through phishing or social engineering attacks, are more common in the U.S. alone. I have reached 20,000 to 30,000 in a day.

Cyber terrorism expert and cyber security firm Monster Cloud reports that ransom ware attacks increase by 800% during pandemics.

(B12) High-Profile Cyber Attack- Corporate Ransom Ware Attack

Let's take a look at some of the major attacks on large institutions during the 2020 pandemic.

Ransom ware attacks, where cybercriminals hold your computer data or network hostage until a ransom is paid, have been successful during the pandemic at a level we haven't seen before. Hackers have taken control of the systems of big companies and demanded huge ransom. Exactly how much data was compromised and if the ransom was paid is not officially known, but these attacks seem to have been massive.

These attacks, which succeeded during the pandemic, illustrate how cybercriminals are targeting large corporations as their targets. The success rate may be due to these companies, as there are now so many more people working remotely. The fact that some of these companies may have paid the ransom may be related to a new type of ransom ware attack.

(B13) Covid-19 Research and Vaccines

Cybercriminals have also set their sights on another type of target during the pandemic. Companies those are important in the fight against the virus. These companies are so stressed and busy doing all the important things in trying to stop this global pandemic that they have become easy targets. They also hold incredibly valuable data such as research or potential vaccines that other companies or governments would love to get their hands on.

(B14) Social Engineering -Twitter Hack

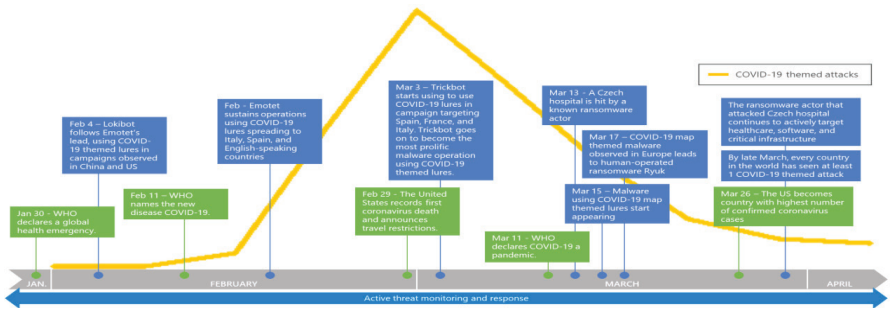
The most famous and highly publicized attack during the pandemic is the Twitter hack. On July 15, someone took control of the Twitter accounts of several celebrities, business executives, companies and politicians, prompting people to send bit coins to one account. The scam brought in about $1, 17,000, but eventually led to the arrest of a 17-year-old hacker in Florida.

FINDINGS OF STUDY

1. Immediate and purposeful action to save lives and livelihoods must include providing social security for universal health coverage and income support for those most affected. These include workers in the informal economy and in less protected and low-paid jobs, including youth, old workers and migrants. Particular attention should be paid to the status of women, who are over-represented in low-paying jobs and care giving roles. Various types of support are important, including cash transfers, child allowances and healthy school meals, shelter and food relief initiatives, support for job retention and recovery, and financial relief for businesses including micro, small and medium-sized enterprises. We need to develop long-term sustainable strategies to address the challenges facing the health and agriculture-food sectors.

   The question that needs to be raised is – we need to think of moving to a system and economy that is based not just on quantity, but on well-being and quality,'

2. Across the world, we saw COVID-19 themed attacks peak in the first two weeks of March. This coincides with several countries beginning to take action to reduce the spread of the virus and enforce travel restrictions. By the end of March, every country in the world had seen at least one COVID-19 theme attack.



Source-Microsoft statistics report 2020

Figure1. Trend of COVID-19 themed attacks

The rise in COVID-19 themed attacks closely mirrored the unfolding of the phenomenon around the world. The subject of controversy was whether these attacks were new or a re-purposed threat. Looking at Microsoft's extensive threat intelligence on endpoints, email and data, identities and apps, we concluded that this surge of COVID-19 themed attacks was actually the use of malware by known attackers with existing infrastructure and new lures. There was a re-purpose to do.

In fact, the overall trend of worldwide malware detection (orange line in Figure 2) did not differ significantly during this time period. The spike of COVID-19 themed attacks you see above (yellow line in Figure 1) is hardly a blip in the total amount of threats seen in a month. Malware campaigns, attack infrastructure and phishing attacks showed signs of this opportunistic behavior. These cybercriminals also targeted key industries and individuals working to contain the outbreak. These changes were specific to the global threat landscape, but what was strange in this case was how the global nature and universal impact of the crisis made the job of a cybercriminal easier. They prey on our anxiety, confusion and desire for solutions.

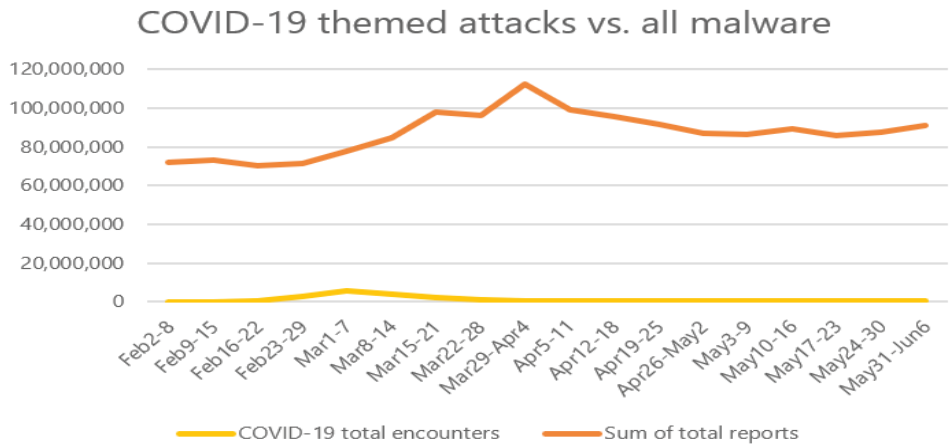


Figure2. Trend of overall global attacks vs. Covid-19 themed attacks

Source-Microsoft statistics report 2020

After peaking in early March, COVID-19 themed attacks settled into the "new normal". While these themed attacks are still higher than they were in early February and are likely to continue as long as COVID-19 persists, this pattern of changing greed proves to be the outlier, and the vast majority of the threat landscape is specific to phishing and becomes recognized.

Cybercriminals are adaptable and are always on the lookout for the best and easiest ways to acquire new victims. Commodity malware attacks, in particular, are looking for the greatest risk-versus-reward payoff. Starting in April, we saw defenders greatly increase phishing awareness and training for their enterprises, raising the cost and complexity barrier for cybercriminals to target their employees.

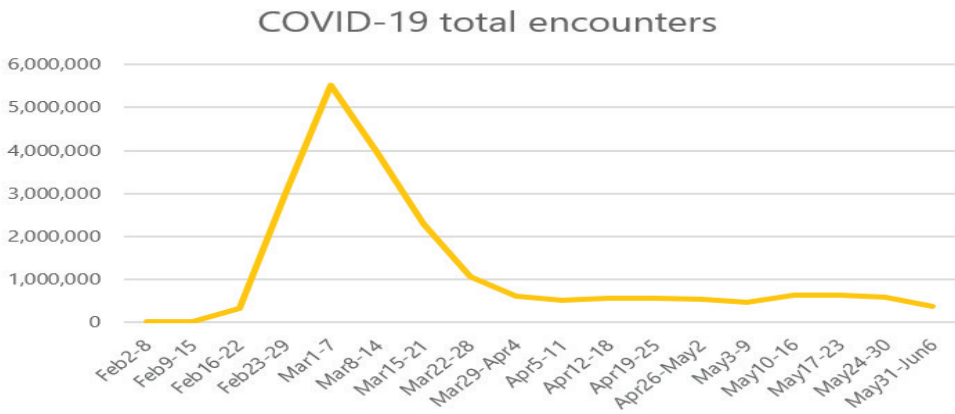


Figure3. Trend of Covid-19 themed attacks

Source Microsoft statistics report 2020

CONCLUSION AND SUGGESTIONS

1. In the COVID-19 crisis, issues of food security, public health, and employment and labor, particularly the health and safety of workers, converge. Adhering to workplace safety and health practices and ensuring good work and protection of labor rights across all industries will be critical in addressing the humanitarian dimension of the crisis.
2. We must commit to pooling our expertise and experience to support countries in their efforts to address the crisis and achieve the Sustainable Development Goals. Addressing the underlying food security and malnutrition challenges, tackling rural poverty, especially through more and better jobs in the rural economy, providing social security for all, facilitating safe migration routes and promoting the formalization of the informal economy, should be given priority.
3. The COVID-19 pandemic of 2020 is having many lasting effects. One of them is that we now know how important cyber security is, especially at a time when we are more vulnerable. This is why it is so important nowadays to learn the best ways to protect you and your company's data and it is more important than ever to work with cyber security professionals. Over the past several months, conflicting data has been published about cybercriminals taking advantage of the COVID-19 outbreak to attack consumers and enterprises alike. Cybercriminals adapted their strategy to match what was actually going on in the world and what we saw in the threat environment paralleled the boom in COVID-19 headlines and a desire for more information. It was clear that cybercriminals wanted to take advantage of the situation: people around the world were becoming aware of the outbreak and actively seeking information and solutions to combat it.
4. The outbreak of COVID-19 has been a truly global phenomenon. Cybercriminals take advantage of the crisis by using existing malware threats to lure new victims. Overall, COVID-19 themed attacks are a small percentage of the overall threats Microsoft has seen over the past four months. In these last four months a lot of attention has been paid to the outbreak of both virus and cyber. Cybercriminals employ their tactics to take advantage of local events, which are more likely to lure victims to their schemes.
5. These COVID-19 themed attacks show us that the threats our users face are persistent on a global scale. Investments that increase the cost of the attack or reduce the chance of success are the optimal path forward.
6. Organizations should further improve security posture by educating end users about detecting phishing and social engineering attacks and practicing credential hygiene. Organizations can use Microsoft Safe Score to assess and measure security posture and to implement recommended improvement actions, guidance and controls. Using a centralized dashboard in the Microsoft 365 Security Center, organizations can compare their security posture with benchmarks and establish key performance indicators (KPIs).

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CHAPTER 25

Statistical Weighted Indicator for Enhanced Growth of Economy Employing Fuzzy Decision System

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ABSTRACT

COVID-19 pandemic has caused a global economic avalanche like we've never experienced in our lifetime. Many countries have implemented control measures such as blockades and curfews leading to major economic slowdown. India is currently going through the most significant economic slowdown it has experienced in at least the past 20 years. In difficult times like these, health of a state primarily depends on number of factors, no single point indicator has been defined to address all dependent variables owing to the diversity in the nature of parameters, parameters consumer price index (CPI), gross domestic product (GDP), unemployment figures and the price of crude oil are all have been addressed in literature but non takes into account emergency situations as Pandemic: COVID-19. Proposed study is an effort to formulate an indicator that considers all dependent sectors, allied sectors and services which become vital in the Pandemic times, indicator proposed will provide a weighted contribution of each variable. Indicator so established can be employed for recommending major as well as minor areas requiring attention and investment for healthy and stable growth of economy as well as sectors whose impact have deteriorated. Proposed work will employ Fuzzy assisted learning algorithm for classification and formulation of indicator. Work proposed comprises of two layers First Layer: Acquiring data samples from effected, dependent, and allied sectors to establish major and minor factors to boost economy. Second Layer: classification with Fuzzy assisted learning algorithm of acquired data samples to design a model with optimal accuracy and efficiency for establishing indicator.

Keywords: *COVID-19, Indicator, Economy, Backword link, Forward link, Fuzzy.*

INTRODUCTION

COVID-19 pandemic has caused a global economic avalanche like we've never experienced in our lifetime. Many countries have begun to implement control measures such as blockades and curfews leading to major economic slowdown. In difficult times like these, health of a state primarily depends on number of factors, no single point indicator has been defined to address all dependent variables owing to the diversity in the nature of parameters, GDP does act as an indicator, GDP includes what is spent on environmental protection, healthcare, and education, but it does not include actual levels of environmental cleanliness, health, and learning. GDP includes spending on medical care, but it does not address whether life expectancy or infant mortality have risen or fallen. Objective of the work is to define an Indicator; a statistically estimated empirical variable that directly measure and account for leisure, environmental quality, levels of health and education, changes in inequality of income, increases in variety, variations in technology, or the: positive or negative: value that society may place on certain types of output; can be helpful in estimating monetary resources that government needs to do in healthcare services and allied support services and in addition to this effect, time to time COVID 19 measures that Government agencies are forced to implement to ensure safety and wellbeing of citizens, often have diversified effect on economic conditions. Indicator so estimated can be employed for recommending areas requiring attention and investment.

Confirmed cases of the COVID-19 coronavirus have surpassed 17 million globally, many nations are facing second and third wave of the highly dangerous infection and by the time this work surfaces numbers will further grow. Businesses are coping with lost revenue and disrupted supply chains as factory shutdowns and quarantine measures spread across the globe, restricting movement and commerce. Unemployment is on rise, while policymakers across countries race to implement fiscal and monetary measures to alleviate the financial burden on citizens and shore up economies under severe strain. Many countries have begun to implement control measures such as blockades and curfews leading to major economic slowdown. In difficult times like these, health of a state primarily depends on number of factors, majorly can be summarized as

1. Stringent compliance of measures issued by Government agencies
2. Climatic conditions
3. Modified Work Culture
4. Agricultural productivity
5. Economic Status
6. Lifestyle
7. Alcohol Consumption/ Smoking
8. Education System
9. Health of small scale and large industries
10. Availability of essentials
11. Services: Banking, Administrative support, telecom and internet

Factors mentioned, not among leading or lagging indicators as defined globally, however though not directly but do contribute in establishing a stabilized economic growth of the nation. GDP provides an economic snapshot of a country and is used to estimate the size of an economy and growth rate, however there are still factors which play a significant role in economic growth other than that covered by GDP estimation. Proposed study is an effort to design a recommender system taking in to account missing factors especially in light of emergency situation with Pandemic (COVID-19), with weights as per effective contribution in economy, the system so designed can be employed for recommending major as well as minor areas requiring attention and investment for healthy and stable growth. Figure below depicts flow diagram of the proposed work.

LITERATURE REVIEW

Numerous works have been conducted and many are in progress relating to COVID-19 outbreak, its rate of spread, effect of vaccine, measures to be adopted in order reduce infection rate, measures to be taken if infected, effects on different age groups, effect on animals, ways and means of spread and guidelines to combat different waves of infection. Vomlel at al presented classification results of Logistic Regression, Decision tree, Neural Network and Bayesian network classifiers to predict the spread employing dataset acquired from STEMI. Kumar et al employed ARIMA model for estimating the outbreak in European nations. Tuli et al presented a technique utilizing ML model that acquire and analyse data continuously on CDC for accurate estimation of outbreak and development of action plan for efficiently handling the situation. Robust Weibell developed a model that

fitted well as compared to Gaussian models. Petropoulos et al presented a novel idea to predict live spread of COVID-19 by live forecasting. Technique estimates and predicts forecasts of 10 days in advance. SIER meta-population technique was employed to predict the outbreak in all important cities of China, with 95% credible intervals. Yang et al utilized modified SEIR technique to predict the epidemic curve. Work used AI technique approach, trained on SARS dataset from 2003, to estimate the epidemic. Bhtanagar et al designed a model for predicting the spread of COVID-19 in different nations with real time data. Poisson technique was added on to power law and Exp. law to study COVID-19 pandemic in 6 different nations by Zhang et al. [13]. Maier et al proposed a parsimonious technique that segregates the infected case and policies that are being followed in that part of nation. Li et al presented a model that worked on transmission process of infection, it employed forward estimation and backward conclusions on infection status, the work may be used for efficient policy decisions. Tomar et al employed data based models for estimation like LSTM and curve fitting for month based infection spread of pandemic in Indian scenario and also change in spread with lockdowns and preventive measures imposed by Government agencies. Kumar et al used cluster technique to segregate groups of infection in different parts of India based on similarity index.

OBJECTIVES OF THE STUDY

Objective of the work is an effort to design an Indicator; a statistically estimated empirical variable that estimates and account for leisure, environmental quality, levels of health and education, changes in inequality of income, increases in variety, variations in technology, or the: positive or negative: value that society may place on certain types of output; can be helpful in estimating monetary resources that government needs to do in healthcare services and allied support services and in addition to this effect, time to time COVID 19 measures that Government agencies are forced to implement to ensure safety and wellbeing of citizens, often have diversified effect on economic conditions. Indicator so estimated can be employed for recommending areas requiring attention and investment.

COVID-19 pandemic has caused a global economic avalanche like we've never experienced in our lifetime. Many countries have begun to implement control measures such as blockades and curfews leading to major economic slowdown. In difficult times like these, health of a state primarily depends on number of factors, majorly can be summarized as

1. Stringent compliance of measures issued by Government agencies.
2. Climatic conditions
3. Modified Work Culture
4. Agricultural productivity
5. Economic Status
6. Lifestyle
7. Alcohol Consumption/ Smoking
8. Education System
9. Health of small scale and large industries
10. Availability of essentials

Factors mentioned, not among leading or lagging indicators as defined globally, however though not directly but do contribute in establishing a stabilized economic growth of the nation. GDP provides an economic snapshot of a country and is used to estimate the size of an economy and growth rate, however there are still factors which play a significant role in economic growth other than those covered by GDP estimation. Proposed study is an effort to design a recommender system taking in to account missing factors with weights as per effective contribution in economy, the system so designed can be employed for recommending major as well as minor areas requiring attention and investment for healthy and stable growth of economy, especially in emergency situations as Pandemic. Severe impacts are predicted as the nations are struggling with diversified issues and challenges with COVID 19, on the positive side this has in-fact opened new frontiers of work domains and research. Proposed work explores resources, services and technology to invest in-order to have safe, secured and positive growth.

RESEARCH METHODOLOGY

Proposed work comprises of two layers First Layer: Acquiring data samples from effected, dependent, and allied sectors to establish major and minor factors to boost economy Second Layer: Classification of acquired data samples to design a model with optimal accuracy and efficiency detailed Framework & Methods:

First layer:

1. Sample population survey to establish commodities, services and sectors most vital for wellbeing and survival during Pandemic emergency.
2. Weight assignment to major, minor and allied sectors based on expert survey via questionnaire from targeted sector.
3. Weight assignment to commodities (consumable and non-consumable), services (technology and administrative) and maintenance issues via questionnaire from concerned effected and involved in handling Pandemic situation.
4. Acquiring data for parameters mentioned in part 2 and 3.
5. Formulation of empirical formula by combining weighted contribution from part 2 and 3

Second Layer:

1. Data obtained from part 2 and 3 is subjected to cleaning and is linearly rationalized to map data on same platform for fuzzy classification.
2. Weights are tuned to achieve optimal values of Accuracy, Recall and Precision
3. Results obtained are compared with pre Covid standards, discussion and documentation, Figure 1 below depicts the flow graph of proposed work

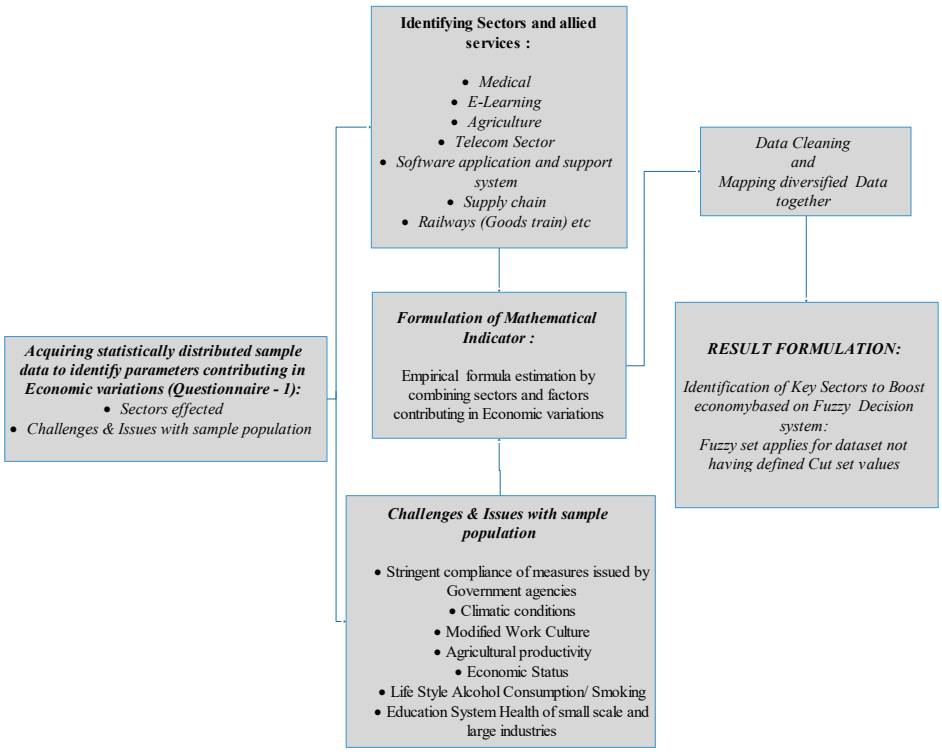

Figure 1. Generalized flow graph for Weighted Indicator for Healthy Growth of Economy Employing Fuzzy Assisted Learning Algorithms

SUITABLE SUGGESTION OF MODEL

Overall magnitude of the pandemic will decide the impact on economy, this will in turn depend on the duration and severity of the infection, lockdowns with their regulations on business and the process in which un-lock in enforced. With intermittent lockdown has already resulted in substantial loss to the economy. This debacle has visited the nation in the most difficult time when India GDP is on all time low, and unemployment in such pandemic environment is on rise, many people have lost their jobs. The unstable situation that the economy was will further deteriorate. Earlier, Indian economy was having slowdown in demand but now both demand and supply due to pandemic situation has disrupted. The factors may be attributed to demand constraints due to global recession and disruption of global supply chains, domestic supply disruptions, and decline in domestic demand. The economic shock is impacting both formal and informal sectors.

GDP (gross domestic product) growth rate has been on a downward trajectory since 2015-16. According to the official statistics, GDP growth slowed down to 4.2% in 2019-20, the lowest level since 2002-03. Industry, which accounts for 30% of GDP, shrank by 0.58% in Q4, 2019-20. Unemployment reached a 45-year high. A major driver of growth in any economy is investment by the private corporate sector.

Before the Pandemic - Covid19 period, investment in private sectors were already declining. Total investment on projects by private sectors between 2015-16 and 2019-20 almost reduced by 2.4%, while new initiatives taken up reduced by 4%, as per record from Centre for Monitoring Indian Economy. Expenditure on consumption has also been on decrease, first time over several years. High frequency indicators as depicted in table 1 of consumption demand present that sales of vehicles and products – consumer growth reduced in second month of 2020. From the indicators of rural market, motorcycle and the non-durable sector also contracted in second month of 2020, presenting decreasing rural demand. Severe lockdown and restrictions further dampened what soever chance of revival of demand for private investment. In India's scenario certain factors contribute in making its position vulnerable as the nation is trying with all its effort to handle current economic challenges.

For any nation with lockdown and restrictions on movement, supply and demand disruptions would be there. On demand side wherever manufacturing, packaging and supply chain is involved there would be disruptions, further with restrictions the Indian economy, there would be both supply and demand side disruptions. On the demand side, units such as travel, tourism, sports, entertainment, financial services, and trade would be badly impacted with serious losses, even firms with small scale setups might have closed down. On supply side commodities exported from supporting nations have suffered majorly.

Table 1: High frequency indicators of economy [SM Dev et al (2020),]

Sector	*GVA (Rs. in lakh Cr.)*	*% to total*	*Disruption severity*	*Loss estimated (Rs. in lakh Cr.)*
Agriculture, forest, and fishing	27.76	16		
Industry	37.08	22		
Mining and quarrying	4.1	3	Complete	0.31
Manufacturing	28.18	16	Near complete excluding medicines etc.	2.16
Electricity, gas, water supply and other utilities	4.8	3		
Services	107.15	62		
Construction	13.76	8	Complete	1.06
Trade, hotel, transport, communication and services relating to broadcasting	31.51	18	Near complete excluding broadcasting	2.42
Financial, real estate and professional services	36.66	21	Near complete expect banking, healthcare services	2.81
Public administration, defence, and other services	25.22	15		
Total	171.99	100		8.76

COVID-19 not only heavily burdened Health sector but also led to economy crises owing to lockdowns, supply, and demand issues. Prohibited and limited permission on small scale business, travel, trade and movement has created a big gap in demand and supply, in addition people owing to slow down have stopped certain expenses. India has almost 81% of employment, informal in nature and above conditions will have a severe impact on it. Daily wagers and people living on day-to-day earnings have been severely impacted owing to lockdowns. Approximately 90% workforce from informal sector has survived with almost no earning was presented by Sharma et al in 2020.

Table 2 depicts analysis conducted by Mohanty et al in 2019, summarizing status as per Periodic Labour Force Survey of 2017–18.

As per Periodic Labour Force Survey	*Criteria*	*Percentage*
	People had no job contract	71.1%
	People were not eligible for paid leave	54.2%
	People had no social security	49.6%

The exact spread and impact of the crisis cannot be estimated at present and with time only the evaluation of extent of damages can be determined. Investment into any sector is mostly influenced by economy stability. Sectors like Health, Education and infrastructure are the ones which parallelly are running and strengthening these will strengthen economy. Figure 2 depicts the short run and long run effects of pandemic.

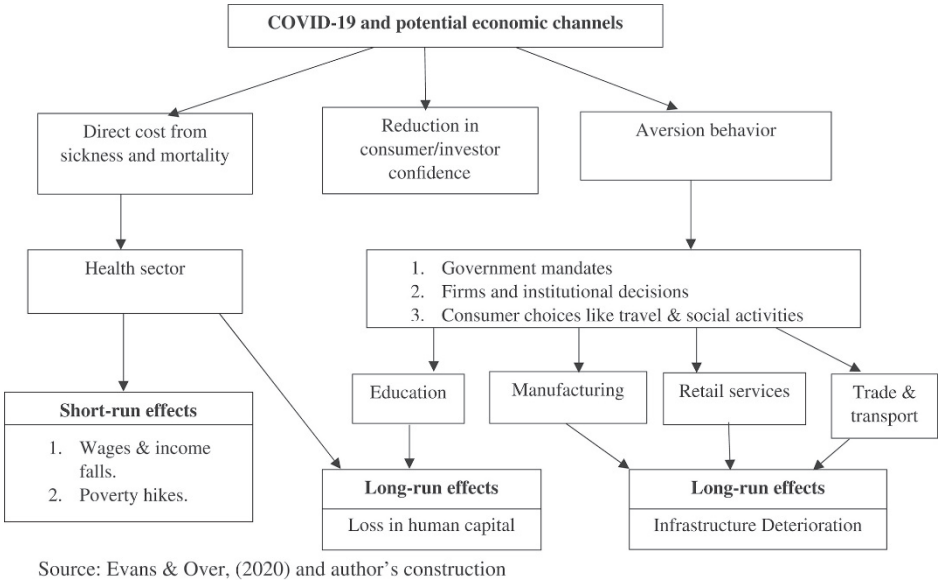

Figure 2. Potential Economic Channels of Different Sectors [Evans & Over (2020)]

Based on above analysis we can summarize those sectors mentioned have progressed rather helped in stabilizing economy and could be key factor, further there are new trends and sectors which have come into picture with lockdown restrictions.

1. **Grocery Products** – Food items either readymade or raw were in demand by common households.
2. **Healthcare Products & Services** – Medication and Diagnostic Tests have been conducted throughout the time.
3. **Delivery Services** – Services of Swiggy and Zomato worked continuously under essential services for home delivery of products and even started online booking and delivery.
4. **Telecom services** – Almost all booking from Vaccine slot, Grocery, Medication, Bill payment and Doctor consultation is happening online.
5. **Repair & Maintenance** – Several organizations have started giving safe and secure home support for all kinds of repair and maintenance, for example Urban Clap.
6. **Agriculture** – Demand of nutritional food products like vegetables and fruits have increased.
7. **Manufacture & Production** – Various manufacturing industry and in tandem production units have been working continuously even during pandemic, be it food products, infrastructure commodities or public support equipment's.
8. **Banking Services –** Banks were almost open during all time even in between lockdown to manage and monitor currency flow.
9. **Retail Services –** With manufacture and production machinery functioning, retail service was also functional as permitted by restrictions imposed
10. **Liquor** – This sector has as many dis-advantages as it might have advantages yest the sales have gone up.

11. **Entertainment** – Limit in terms of movies halls, new releases and malls demand for home entertainment is in demand, and channels like Zee, Disney, Net Flix are in high demand.
12. **Internet Providers** – With almost everything happening online, these services became backbone for most the services, be that be education, online booking of products or medical consultation. Even with lockdowns and severe restrictions these services and their offices were functional.

Questionnaire was employed to establish weightage of different sectors and then their contribution was estimated in strengthening economy.

MATHEMATICAL ANALYSIS:

As per literature from Bharat R. Hazari,(1970) , the gross output levels X's required to sustain a given vector of final demand F in the input output model are determined by the following equation:

$$X= (I-A)^{-1} \quad \text{(i)}$$

The analysis of the elements of the $(I-A)^{-1}$ would reveal the structure of the economy as well as that of the industry. Let us denote the elements of the $X= (I-A)^{-1}$ matrix by (K_{ij})'s.

The sum of the column elements of the $(I-A)^{-1}$

$$\sum_{j=i}^{m} K_{ij} = K_j \quad \text{(ii)}$$

indicates the total input requirements for a unit increase in the final demand for the J_{th} sector.

In a similar way the sum of the row elements

$$\sum_{j=i}^{m} K_{ij} = K_i \quad \text{(iii)}$$

indicates the increase in the output of sector number ***i*** needed to cope with a unit increase in the final demand of all the industries.

These indices are not suitable for making inter-industrial comparisons and for this purpose the set of averages in (4) and (5) are normalized by the overall average defined as

$$\frac{1}{m^2}\sum_{j=1}^{m}\sum_{i=1}^{m} K_{ij} = \frac{1}{m^2}\sum_{j=1}^{m} K_{.j} = \frac{1}{m^2}\sum_{j=1}^{m} K_i \quad \text{(iv)}$$

and thus we consider the indices

$$U_j = \frac{\frac{1}{m} K.j}{\frac{1}{m^2}\sum_{j=1}^{m} K.j} \quad \text{(v)}$$

$$U_i = \frac{\frac{1}{m} K_i}{\frac{1}{m^2}\sum_{j=1}^{m} Ki} \quad \text{(vi)}$$

The indices U_j and U_i are termed by Rasmussen as the "Index of Power of Dispersion and Index of Sensitivity of Dispersion." The relations (v) and (vi) are based on the technique of averages. However, relations (v) and (vi) do not fully describe the structure of a particular sector. To overcome this problem a variable measure must be included, further coefficient of variation are defined as

$$V_j = \frac{\sqrt{\frac{1}{m-1}\sum_{i=1}^{m}(K_{ij} - \frac{1}{m}\sum_{i=1}^{m} k_{ij})^2}}{\frac{1}{m}\sum_{i=1}^{m} K_{ij}} \quad \text{(vii)}$$

Where j=1,2,3….m

$$V_i = \frac{\sqrt{\frac{1}{m-1}\sum_{j=1}^{m}(K_{ij} - \frac{1}{m}\sum_{j=2}^{m} k_{ij})^2}}{\frac{1}{m}\sum_{j=1}^{m} K_{ij}} \quad \text{(viii)}$$

Where j=1,2,3….m

From a large value of V_j it can be concluded that that a particular sector draws heavily on other sectors and a small value of V_j as an sector is drawing evenly from the other sectors. A key sector can be defined as one in which

a. both U_j and U_i are greater than unity ($U_j > 1$, $U_i > 1$),
b. both V_j and V_i are relatively low.

FINDINGS

Covid-19 has moved like wildfire: at first seemingly far away, then unnervingly close; as it has ripped across the world in a few months, leaving tens of thousands of dead, economies flattened, and the futures of hundreds of millions shattered. Work proposed analyses major, minor and allied factors contributing for economic variations, these factors have been formulated taking into consideration emergency situations arising due to Pandemic (COVID 19) having direct impact on society. Many countries have begun to implement control measures such as blockades and curfews leading to major economic slowdown. In difficult times like these, health of the society primarily depends on number of factors, majorly can be summarized as

1. Stringent compliance of measures issued by Government agencies: Nations with best of support services in terms of medical, infrastructure and technology owing to Pandemic; have succumbed to strict control measures but still they have witnessed tens of thousands of dead, economies flattened, and the futures of hundreds of millions shattered.
2. Climatic conditions: Across the globe nations have varied climatic conditions, ranging from extreme cold to humid and hot, thus it puts limitation; on requirements and the way people eat, live and travel. With pandemic situation all these requirements undergo stringent transformation to curb infection.
3. Modified Work Culture: with work from home – online work hours have gone up from home resulting in increased screen hours and issues related i.e headache, sore eyes.
4. Agricultural productivity: Continuous production and supply of essentials is mandatory to maintain supply chain functional and working – to avoid chaotic conditions of demand and supply
5. Economic Status: Society comprises of people from all sectors of life with varying affordability's and thus puts limitation on survival support under lockdown conditions
6. Lifestyle: A healthy life majorly depends on lifestyle people follow, a healthy lifestyle includes nutritious diet, regular exercise and mental health
7. Alcohol Consumption/ Smoking: Consumption of alcohol / Smoking causes high blood pressure, gastric problems, liver cirrhosis, liver cancer, pancreatitis, memory impairment and many other health issues. Emergencies and administrative orders due to pandemic situation often cause depression and mental stress.
8. Education System: With social distancing and lockdown as a result of pandemic (COVID 19), issues related to examinations, curriculum coverage, mode education system will follow, courses that will grow and prosper, job scenario after competing education and hence stable future growth is all under question and being formulated by the best brains across the globe.
9. Health of small scale and large industries: Almost all commodities that are being consumed, lifestyle products, Medicines, health products, infrastructure support articles, clothes etc are being manufactured with a continues supply chain to reach every corner of the world.

Table 3: Key sectors in India before Covid [Bharat R. Hazari,(1970)]

Name of Sector	U_j	U_i	V_j	V_i
Metal Products	1.0626	1.3629	5.8	4.2
Iron and Steel	1.0780	1.8788	6.5	5.6
Rubber	1.3090	1.3090	5.2	6.3
Leather	1.1704	1.2782	5.2	5.1
Vegetable Oils	1.3167	1.7480	5.8	5.1
Petroleum Products	1.3965	1.5169	5.8	3.8
Paper and Paper Products	1.0395	1.4245	6.3	4.7

The backward and forward equations and links have been estimated by using relations (v) and (vi) respectively and variations in coefficients by using relations (vii) and (viii). In table 1 the values of U_j, U_i, V_j and V_i for the key sectors of the Indian economy are listed. A study of table 3 indicates that metal products, iron and steel, rubber, leather, vegetable oils, , petroleum products paper products are the key sectors.

In table 4 are sectors where backward link has more value and the variation in coefficient is small. Tables 3 and 4 depicts that the sectors having high backward link is more as compared to sectors having strong forward links. [Bharat R. Hazari,(1970)]

Table 4: Sectors With High Forward Linkage and Low Coefficient of Variation. [Bharat R. Hazari,(1970)]

Name of the sector	U_i	V_i
Metal Products	1.3629	4.2
Iron and Steel	1.8788	5.6
Rubber	1.3090	6.3
Leather	1.1704	5.1
Plantations	1.5400	4.5
Vegetable Oils	1.7480	5.1
Food Grains	2.6411	3.0
Cotton	1.4091	4.7
Sugar Cane	1.8788	5.1
Tobacco	1.1297	5.2
Fruits and Vegetables	1.3090	5.4
Other Crops	1.5324	4.0
Wood Products	1.0549	5.4
Petroleum Products	1.5169	3.8
Paper and Paper Products	1.4245	4.7
Electricity	1.4784	3.8

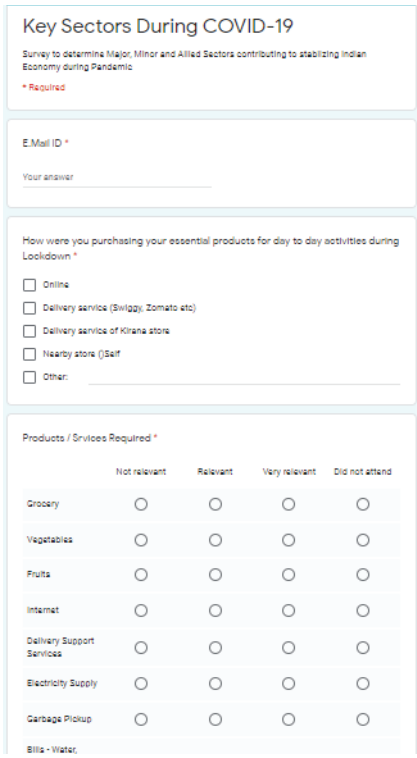

Figure 3: Sample Questionnaire through Google Form

The sample questionnaire was filled by 56 people from service class middle income group to collect information about products and services which has made their life convenient, even in the time of severe lockdowns another feedback was taken from about 7 retailers cum shop owners to conclude on the sectors and services which was fully functional during pandemic. Questionnaire is depicted in figure 3. Weights were assigned to features of response Non-relevant, Relevant, very relevant and Did not attend as 0, 1, 2 and 4 respectively for estimation purposes of key sectors. Further as the values are in range their Fuzzy range was used as compared to strict cut sets ranges in order to obtain optimal value as result. Figure 4 depicts initial weight values employed for forward and backward linkage calculation.

Range	Category
0 to 30	*Redundant*
20 to 60	*Over-lapping*
> 60	*Essential*

Figure 4. Initial weight values employed for forward and backward linkage calculation.

Using indicators mentioned in equation vii and viii the work has identified following sectors, that have emerged as potential units which gained importance and can have positive impact on economy: Grocery products, Healthcare products, Delivery supply chain, Telecom services, Repair & Maintenance, Agriculture, Manufacture & Production, Banking, Retail services, Liquor, Entertainment and Internet providers, although these were identified from a limited sample space but potentially if supported can play a significant role in stabilizing economy. Due Pandemic certain sectors have faced severe financial crises, like tour & travel, construction, Toy industry, garment industry to name a few and have even changed the thought process of investors. Analysis was conducted for a limited sample space and possibly few factors may have got overlooked but the work is an effort towards building a strong economic foundation.

SUGGESTIONS

Government should take serious concern on the priority's basis, first, improving the healthcare services along with the health infrastructures as per the requirement of epidemic further measures such as demand and supply of necessary material in case of Curfew/Lockdown. The following remarks may help:

1. Create easy and convenient channels to support essential and supporting sectors.
2. Promote the factories for more production of health accessories and essential. Encourage other factories which are producing similar types of product and those, who can be easily modified.
3. Supply chain should be permitted and supported to be functional throughout lockdown.
4. The government should ensure safety, security and welfare of the front-line workers who at the high risk and should provide monetary incentives.
5. Government should support new initiatives and encourage more to join.

And second, provide the economic assistance and incentive to the establishment of the economy in present and more likely in future through:

1. Distribution of cash transfers to the informal workers through geographical targeting and this can be done by the local administrative units.
2. Government should provide ecosystem to maintain forward and backward linkages of MSME and other exempted sectors along with special packages for MSME through moratorium of payments like bank loan, GST and others payments. This will ensure MSME to continue economic activity and employment.
3. Increase the scale of amount of direct benefit transfer like Jan Dhan Yojana, MGNREGA, PM-Kisan and pension scheme along with recapitalisation of banks which will revive the demand in the economy.
4. There should also need to temporarily increase the quantity of food distribution through the public distribution system (possibly free of cost) to ensure the food security of the vulnerable groups.
5. Lockdown should not functioning of essential services, so that continuous supply is maintained. and provision of minimum support price should be required for the survival of 58% population whose livelihood is based on agriculture.

Above all, the government should increase the productive social sector expenditure without any consideration of fiscal deficit.

CONCLUSION

COVID-19 pandemic has caused a global economic avalanche like we've never experienced in our lifetime. Many countries implemented control measures such as blockades and curfews leading to major economic slowdown. India is currently going through the most significant economic slowdown it has experienced in at least the past 20 years. Work is an effort to design a recommender system taking in to account missing sectors that might play an effective role contributing in economic stability, the system so designed can be employed for recommending major as well as minor sectors requiring attention and investment for healthy and stable growth of economy, especially in emergency situations as Pandemic. Severe impacts are predicted as the nations are struggling with diversified issues and challenges with COVID 19, on the positive side this has in-fact opened new frontiers of work domains and research. Proposed work explores resources and services to invest in-order to have safe, secured, and positive growth.

The Process started with data collection in the form of questionnaire which was filled by 100 people from service class middle income group to collect information about products and services which has made their life convenient, even in the time of severe lockdowns another feedback was taken from about 14 retailers cum shop owners to conclude on the sectors and services which was fully functional during pandemic. Using indicators mentioned in equation vii and viii the work has identified following sectors, that have emerged as potential units which gained importance and can have positive impact on economy: Grocery products, Healthcare products, Delivery supply chain, Telecom services, Repair & Maintenance, Agriculture, Manufacture & Production, Banking, Retail services, Liquor, Entertainment and Internet providers, although these were identified from a limited sample space but potentially if supported can play a significant role in stabilizing economy. Due Pandemic certain sectors have faced severe financial crises, like tourism & travel, construction, Toy industry, garment industry to name a few and have even changed the thought process of investors. Analysis was conducted for a limited sample space and possibly few factors may have got overlooked but the work is an effort towards building a strong economic foundation.

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CHAPTER 26

E-Payment is the Power Fuel in Advancement of E-Commerce Their Trends and Consumer Insights

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ABSTRACT

*In modern era technologies help to shading the border between the physical, digital and biological trends it's a breakneck development of the network and the progressive advanced development of E-payment which became the power fuel in advancement of E-commerce. The technology required to support the enormous volume of E-payment that now develop forms a various payments infrastructure of estate, hybrid systems and threat. The advancement of E-commerce is a fusion between online shopping and online payment by facilitating us with transforming at 24*7 services. This collaboration become the milestone in Digital marketing.*

Making and Receiving E-payment can huge increase of consumers, organizer and business entrepreneur participant in E-commerce and improve their collaboration with shoppers, dealers, and financial organization. E-payment can help them overcomes such limits on their transportability by making it easier to access money and the marketplace. E-payment system make their payment at anytime through your smart phone directly transfer settlement and form online business. E-payment system is integral part of E-commerce with their efficient payment which can reduce the cost of exchange in goods and services. E-payment has revolutionized the E-commerce business processing by diminishing the transaction costs, reducing the paper work and labor cost being user friendly and save time consuming than hand operated processing. E-payment provide to their online consumers to pay a variety of choice, which opens up more fortuity to collect revenue E-commerce transaction through E-payment draw up consumers for an everlasting shift.

The present study that there is a positive correlation between the use of constancy of E-payment and E-commerce, the study also concluded that the various mode of E-payment affects an online shopping decision. The paper mainly focuses on the E-commerce growth via E-payment their trends and their revenue addition it helps us to understand the growth and challenges faced by consumers.

Keywords: *E-payment, E-commerce, digital marketing, Online shopping, Business entrepreneur, Financial organization.*

INTRODUCTION

The method we pay derive to developed economies it played a critical role in financial incorporation. In India's journey of E-commerce towards E-payments, digitization, operator, as well as consumers are getting more satisfying to adopting new digital technology with online shopping. An E-commerce platform accelerate with adoption of E-payment system for online payment and transaction its also called (EDI) Electronic Data Interchange, E-commerce via E-payment became more popular for online shopping and transaction its acceptance is must to have for any business. Nowhere it has remarkable and unexpected growth occurred as in the E-payment via E-commerce sectors. Businesses and consumers that were able to go with digital mode and have helped to drive the economy upward. E-payment help overcome the problematic and excessively costly transaction process of physically collecting cash payment for a product sold or buying via online, E-payment drive E-commerce achievable and efficient. The broadband internet connected with E-payment also increase in buy and sale of new digitalized product and services. Although, problems related with cross border payment endure a major hurdle. In Cross border businesses E-payment as the largest congestion in the process progression to compared with other payment mode as an E-commerce. E-payment often arise with challenge to face the businesses expand in global E-commerce as well as small and medium businesses. E-payment also increasingly impacted into consumer lifestyle connected to digital mode but these E-payment mode is also not free from hurdles. There are lots of issues of E-payment to our consumers, systemic challenges related while online shopping which are highlighted as follows, fear of fraud, fear of advance payment, hidden charges technical issues, privacy consumer protection and many more. The strategy for fostering to expand our business and also increase in level of confidence in consumers to use digital device for online shopping and their payment. In modern era most of businesses is connected with digital mode in all over the world even every place as national as well as international and as urban as well as rural they can easily sold their product by E-commerce platform from groceries to fashion apparel, our present generation of smart shoppers and technology lover digitalization spread everywhere and this technology evolution effect in consumer behavior too consumer experience omnichannel and have same experience irrespective of their choice of various channel, also they have variety of option to pay as (RTGS) Real Time Gross Settlement, (NEFT) National Electronic Fund Transfer, (NECS) National Electronic clearing Services, Debit card, Mobile wallets, UPI and many more. All these Payment adopted by businesses and consumer to be a smart, save costs and save time. By reason for selecting this topic is the importance of such study as an economic and scientific contribution in field of E-payment and E-commerce. The correlation between the use and reliability, trust and safety, awareness and recognition of E-payment with the decision of shopping by E-commerce platform. E-payment will increase intensely coming years and more increase in the mass of consumers and Businesses in E-commerce platforms.

In pandemic COVID-19 crisis is accelerating in spike growth of E-commerce and E-payment towards new firms, small and medium business, consumer and their types of products. It can change their essential needs, more aware about hygiene, protection and safety of their homes etc. Impact of the COVID-19 outbreaks on E-payment and E-commerce.

REVIEW OF LITERATURE

After studying and researching in relevant studies. Most of previous researcher talked about consumer behavior in online shopping, their safety and security, their appreciation and acknowledgement, problem in direct payment method with extra physical extinction and their impact on E-commerce. Some of relevant study are finding from literature are presented below-:.

(1) Mar Negreiro Member of Research service in European Parliament, March (2020) in "The rise of E-commerce and the cashless society" they explained in their study how the growth of E-commerce depend on E-payment. In pandemic situation E-payment is drives and revolt in E-commerce.

(2) Roman Chuprina in SPD Group Blog in 2021 "E-commerce payment systems for business in 2021". They revealed the Top E-commerce payment Gateways and the Emergence of Payment systems in the Age of E-commerce and the review of E-payment process, trends and top solutions for businesses and consumers.

(3) Dillon Phillips on Jan 6 ,2020 in " The Evolution of the E-payment system until 2020" they explained the technology required to support the massive volume E-payment . E-commerce boost with the help of E-payment.

(4) Karamjeet Kaur, Dr Ashutosh Pathak in Feb ,2015 in " E-payment system on E-commerce in India" explained the various types of E-payment methods via E-commerce , component of effective e-payment and their future scope with E-commerce.

(5) Khaled Aldiabat at 2, may,2019 " The Impact of Electronic payment on Electronic shopping decision in Jordan" explained the relationship between the use and reliability of E-payment cards with the decision of E-shopping, the relationship between awareness and recognition in E-payment cards with the decision of E-shopping .

(6) Cardknox A fidelity payments company at April 2021 in " Payment Solutions to fuel the growth of E-commerce" describes that how the E-payment can empower merchants to provide secure and positive online shopping and give positive experience to their consumers and client.

(7) CET News on 7 May 2021 in " COVID-19 triggers changes in payment behavior among 86% of consumers, Paysafe reveals" describes that not only in India but all over the World people have a choice of payment through online they reveals the results through their survey.

OBJECTIVES OF THE STUDY

(1) Th basic objectives of the study is to find the growth in various sectors of E-commerce via various mode of Digital payment.

(2) To analysis how E-payment helps to small businesses sell their product and easily receive their payment via E-commerce.

(3) To establish strong relationship between E-payment and E-commerce.

(4) To examine the role of an E-payment system in E-commerce.

(5) To examine the change in consumer buying and payment behavior.

RESEARCH METHODOLOGY

The study is descriptive, quantitative cum analytical in nature. It's a blue print of the various elements of the study and research objectives and the set of methodologies adopted to achieve those objectives. The sample in this study by respondent were obtained using random sampling techniques. The data has been collected will then be processed using the Micro soft Excel application.

COLLECTION OF DATA

In every statistical investigation beginning we collect the content method and structured questionnaire. The collected data will be edited, coded, classified, tabulated and will be analyzed by Microsoft excel.

PRIMARY DATA

The primary data used in this study are obtained directly from respondents answers through questionnaires. The questionnaire in this study was made using Monkey survey site and google forms and then distributed online to 200 respondent who were give answer according to the topics.

SECONDARY DATA

Secondary data has been conducted to refine the available data from Newspapers, Research papers, Articles, news Blogs in websites of companies, Surveys earlier conducted by E-commerce companies.

TOP REASONS WHY E-COMMERCE AND E-PAYMENTS IS A WINNING COUPLE-:

According to Rajeev Kumar K. says, "In past few years, there has been tremendous growth in India's digital payments space as consumers and merchants have experienced the convenience and safety of digital adoption"

E-payment is undoubtedly driving a significant share of the current E-commerce and preparing consumers for a permanent shift Let us look at some top-notch reasons why the E-commerce flow with revitalize of the E-payment bio network-:

(1) While hygiene was the primary reasons for adopting new payment forms cause of COVID-19 pandemic.

(2) It is Convenience for every age and gender.

(3) Ease to use by anyone and anywhere.

(4) Accepted easily by all demographics.

(5) Attractive incentives and cash back offers have given motivation for this adoption.

(6) E-payment eliminate geographical boundaries.

(7) They provide an additional layer of purchase protection.

(8) Promotes by Government and RBI, contactless transactions and secure payments mode.

(9) Increasing awareness in Tier II and Tier III cities as well as rural areas.

(10) Facility of Tokenization to E-commerce businesses.

(11) Enormous potential to expand the use of E-payment by MSMEs.

(12) E-payment appealing to impulse buyers to increase their sales.

BENEFITS OF E-PAYMENT TO THE CONSUMERS WHILE ONLINE SHOPPING

Every E-commerce business require to maintain a higher cash flow for performing fluently. Everything investors need to know about the war on increase their revenue and E-payment helps them to save their money and time consumers can process their payment quickly. While shopping through E-commerce E-payment will also allow you to make cash application immediately and make you conform your financial records with great accuracy here are some essential benefits of E-payments are-:

(1) E-payment saves the processing costs E-commerce just have to pay a fixed subscription to their service provider through E-payment.

(2) Instant payment which is one of the best advantage of E-payment anyone can easily make their payment at any time and any where and also eliminated the need for going to the banks to make their payments.

(3) E-payment offers higher payment security by multiple ways such as tokenization, encryption, SSL etc.

(4) Low risk of theft if you using E-payment system.

(5) Transparency in your transaction becomes as essential factor when it comes to payment with E-payment.

(6) Contactless and helps to reduce our carbon footprint.

(7) E-payment increases confidence and security to their users.

(8) E-payment offers a better experience to their users.

Figure-1: various mode of E-payment through your Smart phone

Source-: customer think Jan 8,2021

India's E-commerce market , mobile commerce and E-payment trends: huge growth predicted as internet penetration rises-:

The exponential growth in internet and online platform infrastructure in India

W ith an estimation compound annual growth rate of 9.58% to 2025. India's E-commerce market represents a fast- growing opportunity for E-commerce industry. India's E-commerce sector is expected to touch the US$ 84-billion mark in 2021. Sales have been driven by a rising in use of E-payment its all become to increasing smartphone users and the marketing efforts of both brands and the government to promote online shopping and E-payment, RBI also gives incentives to user of E-payment. In pandemic COVID-19 also accelerate E-commerce and boost in use of E-payment when the people faced lockdown, store closure and many more restrictions by the government then people turn to online and mobile shopping to buy groceries, daily necessities, and other products and Ease to pay via E-payment. A survey revealed that a double – digit share of E-commerce via E-payment India became more digitally due to COVID-19 mostly consumer and businesses first time adopted E-commerce and E-payment platforms and practice during the outbreak . The share of retail sales generated by E-commerce via E-payment is rising, as a result, projected to reach one-third by 2024.

Consumer may select various types of payment system to payment for E-commerce transaction based on their preference. This may be driven by their availability, security, their convenience or various types of reason. There are different types of mode to make payment through E-payment like as mobile wallets, smart cards, net banking and many more. Credit cards remain most common and easiest mode of payment for E-commerce and online retailers transaction, Debit cards is second most largest medium of payment in E-commerce in India than cash on delivery (COD) has emerged as one of the most sought after services for E-commerce , net banking another easy mode to make payment for E-commerce there are many more various type of E-payment mode in India all of these payment mode are like power fuel between consumer and E-commerce, But now Mobile wallets or Digital wallets is a simplest and virtual mobile based wallet they are growing rapidly as they help in increasing the speed of transaction, especially in E-commerce platforms.

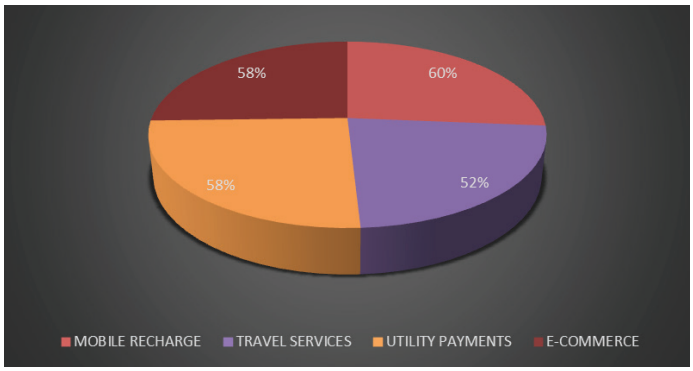

Figure 2: The Smartphone Wallet Pyrchases in India

Source-: ACI survey 24 may, 2021

In figure 2 some interesting findings on E-payment adoption from the recent survey by ACI they find that the India ranks second highest for digital payment adoption in Asia Pacific more than 40% of respondents used a smartphone wallet in India here some of the smartphone wallet purchasers in India can be categorized as about 60% purchaser use Mobile wallet in Mobile Recharges , 52% purchaser used Mobile wallet in travel services , 58% users use for Utility payments and 58% purchasers used for E-commerce or online shopping these numbers indicate the growing need for faster secure and efficient payment methods *for E-commerce .*

Here latest Top 10 Mobile wallets in India &UPI payment app are-:

- Google pay
- Phone pay
- Amazon pay
- Paytm
- Dhani
- BHIM
- Mobikwik
- Yono by SBI
- ICICI Pockets
- HDFC payZapp

Figure 3: Top Payment Apps Logo

source:- staruptalky.com May 26,2021.

In figure 3 there are top ten payment apps logo with help of this logo pictures u can easily find the payment app to make their payment while online shopping.

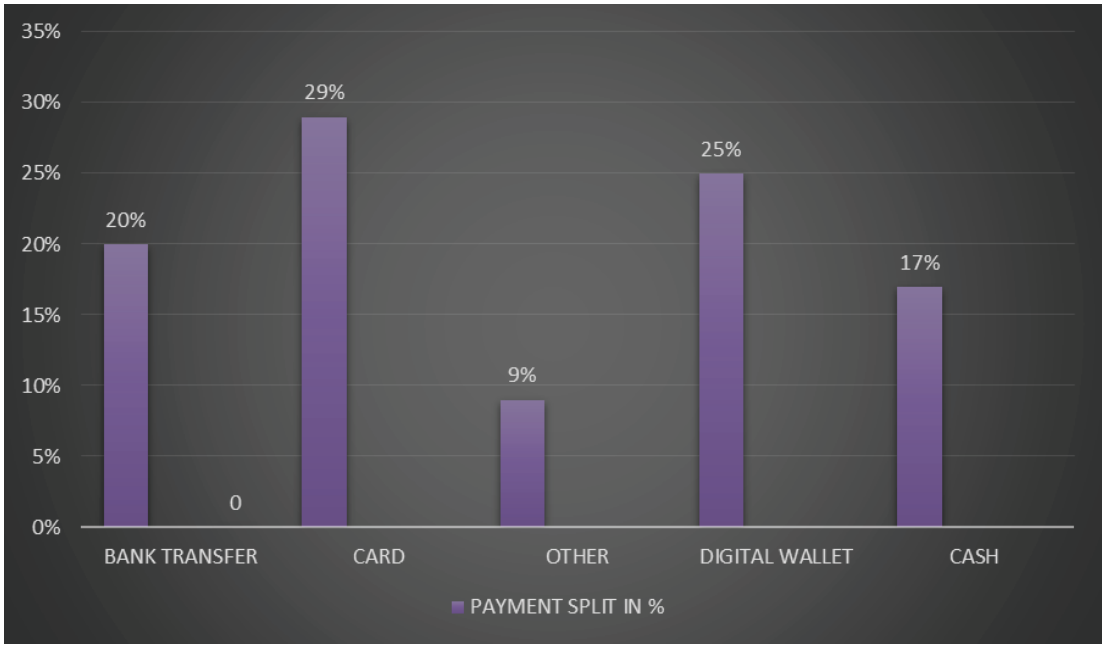

Figure 4: E-Commerce Payment Method Split by Value

Source-: startuptalky.com May 26,2021

In Figure 4 there are large numbers and huge user-base indicate the growing need for faster, secure and efficient transaction in E-commerce methods in this Figure there are various E-commerce payment method split by their users 20% users make their payment while online shopping by bank transfer,29%users payment through cards like as Debit cards, Credit cards etc. 25% consumers use Digital Wallets or Mobile Wallet to make payment for online shopping, 17% consumers believe to make their payment while online in cash-cash on Delivery(COD) , 9% consumers use other method to make their payment while online shopping. More customers started adopting E-payment in order to shop in the safety of their homes at pandemic time all mode of payment like as card payment , bank transfer, UPI, EMIs etc. saw an increase in transactions.

According to Economics times matter About 60% of consumers spends on E-commerce platforms like as Flipkart, Snapdeal, Amazon etc. were through E-payment modes, In Pre COVID-19 time COD also has traditionally constituted as 70% of all E-commerce transaction but during the pandemic COD transaction fell down sharply consumers towards contactless modes.

Only Amazon customers paid through E-payment mode for 65% of orders as their volume term Flipkart executives said that they also has a spike growth of digital payments mode with 55% increase transaction.

According to Vikas Bansal, director and head- financial services at Amazon pay India-" The adoption of financing options at the grassroots increased 56%from tier III cities since the beginning of the year"

In 2020 festive months recorded the term of volume growth of 90% of UPI, 38% on Credit card, on Debit cards growth is 52% and 14% on EMI-based payment. More than 85% buyers on Snapdeal are from Non-metro cities make their payment by E-payment , E-payment on its platform have doubled during the pandemic .

ANALYSIS AND DISCUSSION

At present digitization play a vital role in modern era. Most of people prefer latest technology it gives major impact on Digitization sectors Even our business and payment mode also many changes have from past few years. Majority of buyers and seller prefer latest platform as E-commerce and E-payment mode instead of traditional business and payment methods. In E-commerce platforms , the usage of E-payment system has increased tremendously. The impact of COVID-19 also forced many of the customers to go for online shopping via E-payment rather than the direct cash payment . E-payment boost the platform of E-commerce. Hence, this gave me an opportunity to study on this topic to analysis their benefits, hurdles etc.

DATA ANALYSIS AND INTERPRETATION-:

Table 1: Demographic profile of the respondents

Particular	No. of Respondent	Percentage
GENDER		
MALE	130	65%
FEMALE	70	35%
TOTAL	200	100%
QUALIFICATION		
UG	85	42.5%
PG	65	32.5%
BELOW 12TH	50	25%
TOTAL	200	100%
OCCUPATION		
SALARIED	52	26%
PROFESSIONAL	33	16.5%
SELF EMPLOYED	55	27.5%
HOUSE WIFE	30	15%
OTHERS	30	15%
TOTAL	200	100%
AGE		
BELOW 20 YEARS	24	12%
20-30 YEARS	32	16%
30-40 YEARS	65	32.5%
40-60 YEARS	59	29.5%
ABOVE 60 YEARS	20	10%
TOTAL	200	100%

Source-: primary Data

In table 1 shows the study that 65% of the respondents were male and 35% respondents were women who uses E- payment mode while online shopping and other various platforms this shows majority of males were using E-payment mode, study reveals that 42.5% of the respondents were graduate, 32.5% respondent were post graduate, 25% respondents were below intermediate. In this study shows 26% respondents were salaried persons, 16.5% of the respondents were professionals, 27.5 of the respondents were self- employed, 15% of the respondent were house wife and 15% of the respondents belongs to other categories ex. Senior citizens, students. According to the study 12% of the respondents belongs to below than 20 years of age, 16% of the respondents belongs to 20-30 years of the age, 32.5% of the respondents belongs to 30-40 years of the age, 29.5% of the respondents belong to 40-60 years of the age, 10% of the respondent belongs to above of 60 years.

Table-2: Different Payment Mode Used by the Respondents

Payment Mode	No. of Respondents	Percentage
ATM/DEBIT CARDS	35	17.5%
CREDIT CARDS	15	7.5%
GOOGLE PAY	40	20%
PHONE PAY	55	27.5%
PAYTM	22	11%
AMAZON PAY	6	3%

INTERNET BANKING	7	3.5%
OTHERS	20	10%
TOTAL	200	100%

Source- Primary Data

In table 2 shows that, all the 200 hundred respondents were using various payment mode for make their payment 35(17.5%) of the respondent use ATM/Debit cards to make their payment, 15(7.5%) of respondent use credit cards for E-payment,40(20%) of respondent use Google pay for their payment , 55(27.5%) of the respondent prefer Phone pay for their payment, 22(11%) of the respondent use Paytm to make their payment, 6(3%) of the respondent prefer Amazon pay, 7(3.5%) of the respondent use internet banking to make their payment and 20(10%) of respondent use other payment mode like cash etc. Majority belongs Phone pay to make their payment than Google pay use to make their payment easily. This shows people use smartphone to make their payment easily and those E-payment apps also help to protect the fear of spreading COVID-19 virus buyers and seller easily make and received payment by these E-payment- platform.

Table 3: The Benefits of using E-payment while online shopping-:

Particular	Strongly Agree	Agree	Neutral	Dis-Agree	Strongly Disagree	Mean
SAVES TIME	150	50	--	--	--	4.75
EASY TO USE	60	80	10	50	--	3.75
CONVENIENT	140	52	8	--	--	4.66
24*7 SERVICES	180	20	--	--	--	4.9
NO EXTRA COST-INVOLVED	75	85	30	10	--	4.12
INCREASE-CONFIDENCE	120	70	10	--	--	4.55
HYGIENIC	150	30	20	--	--	4.65

Source-: primary data

In table 3 shows the data is 150 each respondent were strongly agree towards the saves times factor and hygienic, 60 respondents were strongly agree towards easy to use, 140 each respondent were strongly agree towards convenient,180 each respondent were strongly agree towards 24*7 services,75 each respondents were strongly agree towards with no extra cost-charges involved and 120 each respondent were strongly agree towards increase confidence.

The mean value for these different points is saves times(4.75), Easy to use(3.75), convenient(4.66), 24*7services(4.9), no extra cost involved(4.12), increase confidence(4.55), hygienic(4.65).

Table 4: The problem faced by the consumers from E-payment while online shopping-:

Particular	Strongly-Agree	Agree	Nuetral	Strongly-Dis-Agree	Dis-Agree	Mean
FEAR OF FRAUD	50	60	35	35	20	3.42
TECHNICAL PROBLEM	60	70	30	--	40	3.55
HIDDEN CHARGES	40	90	70	--	--	3.85
SECURITY ISSUE	80	70	--	--	50	3.65
FEAR OF ADVANCE PAYMENT	50	75	35	--	40	3.47
LACK OF KNOWLEDGE	30	65	40	25	40	3.1
LACK OF UP-TO-DATE INFORMATION	55	75	70	--	--	3.17

COMPLICATED INSTRUCTION	55	86	29	--	30	3.68
SERVER PROBLEM	60	80	25	--	35	3.52
CONNECTIVITY ISSUE	12	136	48	4	--	3.78

Source-: primary data

Above table 4 shows that majority of respondents are strongly agree towards the problems like technical problem, security issue and server problem. As well majority of respondent are agree towards the others problem of E-payment mode like connectivity issue, hidden charges, complicated instructions, fear of advance payment, lack of knowledge, lack of up-to-date information and fear of fraud.

The Mean values are Fear of Fraud(3.42), Technical problem(3.55), Hidden charges(3.85), security issues(3.65), Fear of advance payment(3.47), lack of knowledge(3.1), Lack of up-to-date information(3.17), Complicated instruction(3.68), Server problem(3.52), connectivity issue(3.78).

Table 5: Do you want to continue using E-payment mode while online shopping-:

Particular	No. of Respondent	Percentage
YES	165	82.5%
NO	35	17.5%
TOTAL	200	100%

Source-: primary data

Above table 5 shows that 82.5% of respondent want to continue with E-payment mode while online shopping and 17.5% of respondent do not using E-payment to make their payment while online shopping. This shows that even through some difficulties from E-payment mode while online shopping, still people prefer to use E-payment . This shows benefits are more compared with the problems.

SUGGESTIONS

(1) Make sure that you have good security to protect any information for you retain and protect consumer information.

(2) Search for best payment gateway provider for your business.

(3) Make sure about use of encryption for sending payment information from your website and protect your consumer detail from cybercriminal.

(4) Trained properly your employees to manage the online payment system and keep the consumer information secure.

(5) Reduce fees for Low risk transaction Provide flexible payment option.

(6) Accept your all eChecks through ACH processing option.

(7) Integrate payment into your customer Mobile Apps.

(8) Incorporate EMV/Chip Card and Synergize with Credit Card companies.

(9) Require essential information only

(10) Allows guest checkout and educate to consumers their recent attractive incentives and cashback offers.

(11) Work with a software expert to configure your website to support with mobile device and browser.

(12) Make your payment process as short as possible.

CONCLUSION

Considering the above study conducted on the E-payment is power fuel in advancements of E-commerce their trends and consumer insights. E-payment is a high-tech, advanced system of cashless transactions, streaming and easy to payment while online shopping. E-payment also accelerate to E-commerce platform in pandemic time. At this time when lots of troubles to go outside to purchase our necessary regular needs than E-commerce facilitates us to have all products at home and only E-payment help to make their payment easily through various E-payment mode without any physical contacts and grow continuously. The result of the study state that E-payment boosting the advancement of E-commerce their trends and consumer insights.

E-commerce trying to attract consumers towards using more E-payment platforms with their great efforts to be increase and continuous growth of their business. After analysis and comparison of various modes and benefits of E-payment systems, its revealed that is has some difficulties to their users so E-payment platform provide knowledge and to make aware about their benefits with attractive incentives and cash back offers, E-commerce also gives additional benefits to their customers who make their payment through E-payment and the study also revealed that the majority of male users comparison to female users . Female users are lean prefer this platforms cause of their difficulties so E-commerce attract their female consumers to adopt E-payment with their best offers and deals and improved their customers satisfaction. Overall E-payment system can help E-commerce to earn more with variety of payment option, improving automation, flexibility and covering new audiences its play a deciding role in the success of an E-commerce business.

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CHAPTER 27

A Study on the Trend, Reason and Impact of Bank Frauds in India

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ABSTRACT

The operations and functions of banks after the liberalization in the year 1991, have undergone a drastic change. The use of internet banking, introduction of BASEL framework and emphasis on financial inclusion has developed, regulated and widened the scope of the banking sector. The importance of banks in the Indian financial system needs no mention. It is one of the most important components because; it not only takes care of the financial transactions and liquidity of the market, but is also a social game changer. As more and more people connect to banking services, the development of market, trade and commerce will pace up. There is a need to make the banking sector safe, transparent and error free. The banks have to face various types of risks vis a vis, liquidity risk , market risk , credit risk etc . The risk related to frauds and under performance of banks, come under the purview of mostly operating risk. The RBI has from time to time issued directives to make banking transactions more transparent and secured. Banking frauds have come forth in a lot of ways, but more of it depends on the failure of the internal control procedures or taking advantage of the loop holes in the system and rules. Whenever a bank fraud occurs and comes in light, it shakes the confidence of the public and harms the economy. Therefore, it is essential to conduct a detailed study on this topic keeping the current economic scenario in mind. This paper focuses on bringing out the trend of bank frauds in India in the past five years. The analyses of the trend will highlight the major causes and the impact of such frauds on our developing economy. The study also attempts to bring out the efficacy of the current control procedures followed by banks.

Keywords: *Financial System, BASEL framework, Financial Inclusion, Internet banking*

SECTION I : INTRODUCTION

The financial System of a developing country is mostly based on banks. The banking sector is the backbone of a developing country like India. Banks have been the most important organ of the financial system, not only do they help in mobilization of savings, but also increasing the ambit of financial services through financial inclusion. It is due to the mechanization and advancement of the banking system, that India is experiencing the benefits of liberalization. From time to time financial sector reforms have been introduced in order to make it

more and more transparent, since the financial frauds have always been a matter of concern for the regulatory authorities, vis a vis , RBI, SEBI etc. There are a number of guidelines issued by the RBI in order to maintain transparency and make the transactions more secure. Even at the international level the BASEL norms have been issued to unify the functioning and operations of the banks. These prudential norms are made to hedge the risk faced by the banks and to enhance the reporting requirement. These rules are primarily made to ensure a higher degree of monitoring and supervision by the RBI. Even after many checks and controls, the amount of frauds occurring in the banking sector are not reducing (Refer Table 1). It can be observed from Table 1 that the amount of frauds in State owned banks is much greater than the amount of frauds in private sector banks owing to the nature of loaning and market share. Almost 190 frauds were reported by The Hindu in 2020. These frauds affect the banks, customers and even the economy adversely. The Indian economy is going through a phase of change, since the year of liberalization. The banks have also undergone a massive transformation with respect to the kind of operations and nature of financial transactions, use of internet and mechanization. The traditional banking system has been replaced by the modern competitive banking environment, which has made them desperate to show profitable results and attract as many customers as possible. In this race the banks sometimes do ignore the security requirement that may be essential for the establishment of a secured banking network. As per the report of the RBI, ICICI bank had the maximum number of frauds during a period from April to December 2016 ,followed by the State bank of India. There are many cases where the staff of the bank is involved in the fraud. Almost 64 employees of SBI were involved in cases. In the above mentioned period, almost 450 employees were involved in around 3870 cases amounting to almost ₹17000 crores. In recent years also we see that the trend of financial frauds have increased. In December 2020, the Hindu reported that top corporate also cheated the banks for more than ₹ 1000 crores[1] This may be due to various reasons discussed in paper.

Table 1: Recent Trends in Bank frauds in India (Amount in crores)

Particular	2017-18	2018-18	2019-20
State-Owned Banks	38260.87	63283.00	148400.00
Private Banks	2478.25	6742.00	34211.00
Foreign Banks	256.09	955.00	972.00
Financial Institutions	164.70	553.00	2048.00
Small Finance Banks	6.19	8.00	11.00
Payments Banks	0.90	2.00	2.00
Local Area Banks	0.04	0.02	0.43
Total	41167.04	71543.02	185644.43

Source: RBI Annual Report 2019-20, retrieved from https://www.bloombergquint.com/business/rbi-annual-report-2019-20-bank-frauds-more-than-double on 20.06.2021.

After demonetization, the economy has undergone a drastic change , especially with respect to financial transactions and trade . The banks are under a burden since the digitalization of transactions have to be facilitated through a strengthened technological support .

However many studies have been conducted on this topic of bank fraud but the dynamism attached to the economy and banking system poses a new challenges every time Given the situation of demonetization, digitalization current pandemic and other major changes in the financial system of the country, this paper attempts to highlight the recent backgrounds of bank frauds along with their causes and impact . The paper is divided into VIII sections. Section I is introduction containing the details and trends of the frauds, Section II contains the literature review. Research objectives and methodology has been covered in Section III. The causes, impact and prevention of bank frauds have been covered in the section IV to VII, while conclusion is covered in Section VIII.

SECTION II: LITERATURE REVIEW

The study on bank frauds has been conducted not only by the academic researchers but also, the audit firms and RBI itself. The subject has been covered by the foreign and the Indian authors in a detailed manner. Khanna A. and Arora B (2009) observed the reasons for bank frauds and concluded that the bank employees and their negligence of the compliance procedures are the prime reasons for fraud and their adequate training will avoid this situation. Hoffmann A and Birnbrich C (2012), discussed the impact of fraud prevention on the quality of relationship between the bank and its customers and found that the customer loyalty and their satisfaction is positively related, which can be measured by the intention and will of the customers to stay with the bank and

continue availing their services. Gates and Jacob (2009) found that bank frauds are the cause for the increase in the operating cost for the banks and loss of confidence among the customers. Beirstaker, Brody, Pacini (2006) stated the techniques for detection of frauds like telephone hotlines, employee reference checks, fraud vulnerability review etc. Krishna & Sharma (2020), in their study highlighted the ill- effect of rising non-performing assets and the strategies to improve the banking operations .

The Indian Banking Fraud Survey II done in April 2015 by Deloitte is a rich source of information on bank frauds. "***Current trends of frauds in the financial sector***" is the report on financial frauds of banks and other institutions by PWC . Sharma and Brahma (2000) have emphasized on banker's responsibility for frauds.

SECTION III: RESEARCH OBJECTIVES & METHODOLOGY

The current paper focuses on some key objectives, to understand the occurrence and impact of frauds in the banks

- To understand the prime causes for the occurrence of financial frauds in the banks
- To classify the frauds to understand their control methods.
- To assess the key reasons for the non compliance or delay in fraud assessment and control
- To understand the impact of frauds on the various interest parties and also the economy
- To suggest measures which can put a check on the occurrence of frauds

The research is based on the theoretical inputs gathered from the secondary data. The data sources are the reports of the audit companies like Ernst &Young, Price Waterhouse Cooper and Deloitte. The paper is based on the theoretical dimension and details provided on bank frauds. No specific bank is taken as a case, but in general the banking service industry is discussed to have a broader and more comprehensive view point. The analysis includes the suggestions which can be instrumental in bringing down the incidences of fraud in the banks.

SECTION IV BANKING FRAUDS

Banks have become a very important channel for saving investment and financial transactions. The growth in the banking sector has been remarkable during the past years, although there is a growth in the number of frauds also. The banks and the customers share a fiduciary relationship. The occurrence of bank frauds not only damages the image of the banks, but also increases the operating cost for the banks since they have to compensate the customers' financial loss (Gates and Jacob, 2009). The RBI has classified frauds into three broad categories

1. Deposit related frauds
2. Advances related frauds
3. Services related frauds.

More than 95 percent of fraud cases and amounts involved in fraud come from commercial banks. Among the commercial banks, public sector banks account for just about 18 percent of the total number of fraud cases, whereas in terms of the amount involved, the proportion goes as high as 83 percent. This is in stark contrast with private sector banks, with around 55 percent of number of fraud cases, but just about 13 percent of the total amount involved in such cases (Refer Figure 1)

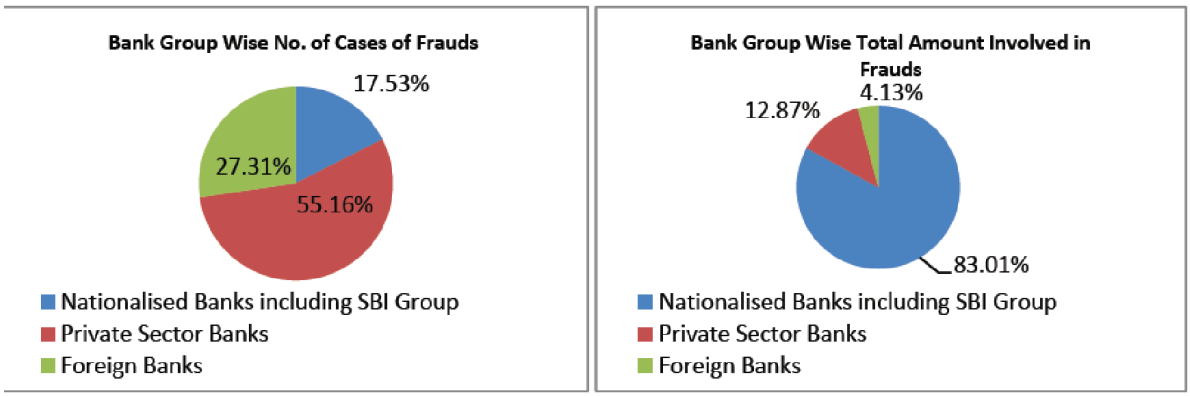

Figure 1: Group wise summary of bank fraud cases

Source: Chakrabarty (2013).

Note: Data pertains to the period from March 31, 2010 to March 31, 2013.

SECTION V CAUSES OF BANK FRAUDS

- **Technological loopholes**: The introduction of technology is important for the growth of the banking sector but there are certain security issues with the online banking system, which has led to many cyber crimes. This technological upgradation has its own pros and cons, but the avoidance of it's misuse is a big challenge for the banks There is a constant increase in the banking frauds using the RTGS and Net banking (Refer Figure 2).

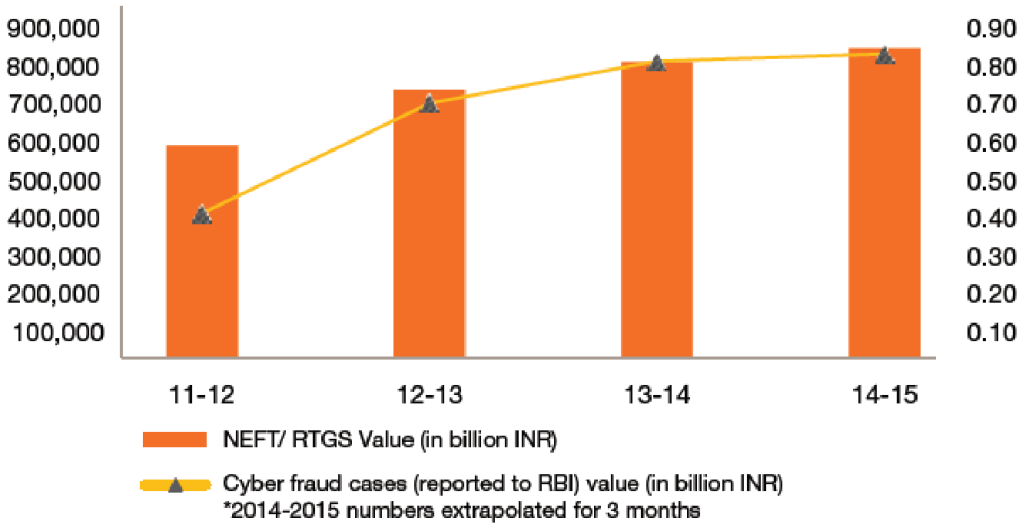

Figure 2 Banking Frauds Using The RTGS And Net Banking

Source : Current Fraud Trends in the Financial Sector , PWC , JUNE 2015

- **Lack of internal control**: The issues with respect to poor internal control arise, when there is a lack of proper coordination amongst the bank employees. The managerial level alone cannot be responsible for the smooth and fraud free working of the banks. It is the entire staff of the bank that plays a very important role in controlling and assessing a fraudulent situation. The employees need to be vigilant and use their presence of mind to judge every situation.
- **Lack of compliance with the rules** : Although the RBI is very strict when it comes to compliance procedures for any operation of the bank ,there is still a lack of compliance and many bankers fail to fulfill those procedures. The non compliance could be for reasons like ignorance ,deliberate favors to the customers ,or non seriousness for the work .
- **Ignorance of the customers**: The customers' vulnerability causes such issues which lead to irregularity in the transactions. There are many fake callers who ask for the ATM pin of the customers or other personal details. If the customers share such data out of ignorance, it gives rise to fraud. Therefore proper customer education is required to prevent such issues.
- **Lack of supervision** : Even the top level managers show irresponsible behavior when they do not re-check and ensure that the work done by the subordinates is good enough and fraud free, till the employee is giving good business to the bank . There is a need to implement the clever management strategies of postings, re -checks and segregation of duties along with random checking of the compliance procedures followed by employees.
- **Target oriented bankers**: In the competitive business scenario today, even the banks are concentrating on the quantity of transactions rather than the quality. Many times in order to make up for the target business, the banks indulge into irresponsible lending and transactions which are harmful for the financial health of the banks . This includes inadequate due diligence reporting, lack of documentation ,and verification of the customers .
- **Improper fraud detecting mechanism:** The fraud risk management systems of the banks are generally restricted to the norms made by the RBI and other regulatory authorities. There is a lax with respect to follow up procedures and self initiated systems of fraud detection and control. The procedures laid down by the RBI are comprehensive, yet there is need to study on a case by case basis each transaction done by the banks and adequate steps should be taken to investigate and verify the transactions before confirming them.

These can be the probable reasons for the occurrence of fraud. There can be other reasons as well like, willful neglect of rules, embezzlement of funds by employees and staff, lack of training to the staff and even inadequate number of employees.

There have been cases where the bank manager has gone beyond his discretionary powers to grant loans and CC limits. The occurrence of NPA is generally not in control of the banks, but they can always be avoided by granting loans with proper collateral and due diligence procedures, at least those cases can be nipped in the bud which might cause a loss to the banks .

SECTION VI: IMPACT OF BANKING FRAUD

Frauds can take place in the form of forgery, account hacking, embezzlement, sanctioning irresponsible loans without proper checks. The objective behind any fraud is to make a financial gain, eventually this leads to financial loss to the other party who has suffered due to fraud. The impact of fraud therefore is adverse on the banks as well as the economy as a whole.

The banks have to go through a lot of humiliation if a fraud is detected in their organization. Since the banks share a fiduciary relationship with the customers, the loss of reputation and goodwill in the industry leads to lack of confidence amongst the public. This not only impacts their profitability, but also affects their position in the stock market .

Trust is a critical success factor in firm-customer relationships (Suarez Alvarez et al., 2011).This trust is the outcome and also the cause of the quality of service provided by the banks. This goes a long way with the customers and their generations to come. A long lasting bank customer relationship is made on the strong foundation of trust and quality service provided by the banks. Fraud hampers this relationship. The banks suffer on account of the loss of their customers and the customers suffer monetary loss. The cost of the banks increase since they have to compensate for their customers' loss .

The detection of bank frauds always has a negative impact on the stock markets and economy as well the moment there is a news on the bank frauds, there is a decline in the share prices of the banks and the entire economy goes for a swing. Even the international markets are not saved from the adverse impact, given the permeability of the global markets

It is clear from the above discussion that the frauds of any kind, financial or non financial always lead to trouble not only to the party who is involved in it , but also to the public who bears it. This is the reason which makes RBI frame rules and bye laws, increasing disclosure requirements and issuing directives so that the fraud incidents can be minimized. In this direction, the RBI has also classified and directed the reporting requirements for each kind of fraud .

SECTION VII CLASSIFICATION, DETECTION AND PREVENTION OF FRAUDS

The frauds have been classified by the RBI in conformity with the IPC. The following categories have been identified (Refer Table 3).

Table 3: Classification of Frauds

S No.	Types of Frauds
1	Misappropriation and criminal breach of trust.
2	Fraudulent encashment through forged instruments, manipulation of books of account or through fictitious accounts and conversion of property.
3	Unauthorized credit facilities extended for reward or for illegal gratification.
4	Negligence and cash shortages.
5	Cheating and forgery.
6	Irregularities in foreign exchange transactions.
7	Any other type of fraud not coming under the specific heads as above.

Source http://iibf.org.in/documents/Frauds-Classification-and-Reporting.pdf Master Circular on Fraud- classification and reporting

The RBI has launched many due diligence procedures n order to control and reduce the number of frauds in the banks. Many suggestions are made by the researchers and academicians with respect to controlling over financial frauds .The control procedures adopted by the RBI includes , reporting all the suspected transactions ,carrying out the KYC procedures with every customer and making frauds reporting a mandatory procedure for the banks .Apart from these requirements ,there are certain other suggestions which can be helpful in fraud detection and prevention :

- Prevention is b better than cure , keeping this in mind, a regular check of all the transactions at the very inception should be done , especially with respect to disbursement of loan money
- The segregation and rotation of duties is a must in all the banking department ,to improve the internal check system
- The training schedules of all the employees must be adhered to. There is a need to ensure that the entire staff follows the compliance procedures and reporting requirements
- Each banker should possess skills to check and pass the online transmissions of money ,like RTGS etc
- It is important to establish a relationship between the client ,technology and the bank ,in order to enable the clients to know the secure ways to transact and avoid problems
- It is essential for the loans department to get into a 360 degrees appraisal of the borrower, before granting credit. The target completion sometimes becomes the cause of many irresponsible loans , leading to NPAs .
- Surprise monitoring, stress testing etc are the tools banks should use to evaluate, measure and predict unforeseen situations. If the mock drills are targeted towards fraud detection ,the problem can be nipped in the bud
- The vigilance and control procedures should be strong enough to pre determine the chances of a fraudulent transaction ,this can be done by making the, transaction documentation and procedures strict and transparent

The regulatory authorities form time to time keep on adding to the documentation and compliance s of the banks

SECTION VIII: CONCLUSION

To conclude, the paper has discussed the general overview of the banking sector with respect to the damages it faces due to frauds that have been growing over the period of time. The major causes can be the lack of employee vigilance, the introduction of technology and the ignorance of the customers. Therefore, there is a need not only to comply with the provisions of the RBI with respect to fraud protection but also to educate the customers with respect to the secured way of making a bank transaction The main reason for protecting bank frauds is not only saving financial embezzlement but also to increase the confidence of the public in the banking sector . This will further the process of financial inclusion as well. The banking sector is the backbone of the Indian economy , many important government policies come alive through the banks like ,promotion of priority sectors , increasing new venture planning and support, reaching out and integrating the rural segment of the country . Therefore it is imperative to maintain the image of the banks, as a safe and secure place for keeping valuables and entrusting the public money.

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CHAPTER 28

FinTech: Harnessing Innovation for Digitalization of Indian Banking Sector

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ABSTRACT

Banking system is considered as a principal nerve in the Indian economy as it serves to the financial requirements in all the spheres of the society. Digital Revolution has transformed the Indian banking sector. Banks are investing heavily in digital technologies so that they can offer sophisticated services to their customers and face the global competition. FinTech innovations have transformed traditional processes involved in banking and are helping to eradicate major bottlenecks in the banking space. It enables a personalized experience of banking to the customers. The growth of fintech innovations has led to a paradigm shift in the entire banking operations and system. The biggest disruptive potential of fintech in banking sector is with payment and settlement system. Mobile and web-based payments, blockchain, big data, artificial intelligence, RegTech and biometrics are some major fintech innovations in digital banking. Government initiatives have also proved to be a strong support in the digitalization of Indian banking sector. The main objective of this study is to explore how fintech innovations have been harnessed for digitalization of banking sector in India. For this, we have firstly studied the evolution of digitalization in Indian banking sector and then examined some statistics and facts to discuss the role of fintech innovations in digitalization of banks. This study is deductive in nature. Data have been collected from the websites, journals, Govt. Publications, newspapers and magazines. The study reveals that fintech innovations have been proved to be a boon for banking sector in the journey of digitalization but simultaneously new challenges has being also raised for the customer security. It is still required to tap the true potential of fintech space in India. Findings of this paper contribute to the existing literature of the digitalization of banking sector and this will play a vital role in moving a step forward towards the dream of digital India.

Keywords: *Digitalization, FinTech, innovations, Banking, Customers*

INTRODUCTION

Digitalization has become the part and parcel of our life. There is no doubt that digitalization of banking sector has affected our daily routine. We can use mobile phones, tablets or computers to access our bank accounts anytime, anywhere. Just a few clicks on these devices enable us to perform banking transactions. Today, even if we go to a vegetable vendor or a small general store, we will find them using QR code based "Scan & Pay" utility. Moreover, we hope that our milkman accepts his payment through Google Pay or Paytm without making any fuss. Initiatives like Make in India and Digital India has enhanced the use of these new innovative digital technologies (Kaur Sumeet, Kaur Harneet, et al., 2020). Demonetization and COVID-19 have also proved to be key milestones in the journey of digitalization of India. It is need of the hour to focus on the fintech revolution in the Indian banking sector. This provides the opportunity for bright and sustainable industrial and financial progress of our nation. Artificial intelligence, big data, blockchain, RegTech and biometrics are some major fintech innovations in banking sector. The biggest disruptive potential of fintech lies in payment system (Thakor V. Anjan, 2019). Banks have offered the latest technology and service offerings in the new age digital space such as Unified Payments Infrastructure (UPI), Bharat Bill Payment System (BBPS), mobile money, e-wallets, etc. It is important to understand how the innovations of fintech sector have been harnessed for the digitalization of Indian banking sector. This will help to unlock the full potential of these innovations in the banking sector. Findings of this study reveals that embracing of technology in banking sector helped in reaching the unreached segments of the population, provides better and innovative experience for bank customers, and help banks prosper. However, it cannot be ignored that banking customers face many challenges while embracing fintech innovations.

LITERATURE REVIEW

Sardana and Singhania (2018) studied the direction and scope of the influence of digital technology in the Indian banking sector. Increase in competition and various other challenges in the banking sector are driving the banks towards the adoption of new digital models that present unique sources of value to them. Banks are revamping their long-term strategies to harness the opportunities offered by digitization. Traditional banks need to realize that they are no longer the sole players in the industry and new entrants such as fintech start-ups have a lot to offer. Both the traditional banks and fintech startups can achieve a win-win situation by collaborating, rather than competing, with one another. They concluded their study by stating that Indian banks must stimulate digital awareness to cope with the possible negative outcomes of digital disruption on their value. Kusuma.K.M and Seshadripuram (2020) discussed digitalization of banks with the help of evidences in India. The modern world we live in is dominated by Digitalization. Digital India Programme has been announced by the Government of India with a vision of transforming India into a digitally empowered society. Digitalization of Indian Banking sector plays a major role in enhancing financial inclusion. They made an attempt to review problems and challenges in Digitalization of Rural Banking. Low digital literacy, security issue of user's information are some major challenges in the process of digitalization. Jagtap V. Manisha (2018) studied the impact of digitalization on Indian Banking sector. Online banking has enabled people to have all time access to banks. MICR based cheque processing, Electronic Funds Transfer, ATM has led to the movement of commercial banks towards the technology. Government initiatives, innovations in banks and fintech companies have changed the way of spending money by Indians. Protection of customers against the cybercrime is the key challenge for the banks in this digital age.

P.Rajeswari & C.Vijai (2021) provided an overview of the Indian Fintech Industry. In India, various government initiatives like Jan Dhan Yojana, Aadhaar and the emergence of UPI has encouraged the fintech industry. This provides a strong foundation to boost financial inclusion in India. India is one among the fastest growing FinTech markets in the world. Anne-Laure Mention (2019) focused on the future of fintech. FinTech is an umbrella term which includes any innovation that relates to how businesses seek to reinforce the process, delivery, and use of financial services. Its impact has been felt primarily in the developing economies like China and India. Fintech, digitization and digitalization are increasingly embedded in everyday economic transactions. Undoubtedly, fintech is rapidly becoming a global phenomenon, led by innovators, followed by academics, and now seeking the attention of regulators. Davis Bundi Ntwigaa (2020) investigates does collaboration of fintech and banks have a positive or negative influence on efficiency in the banking sector. In Kenya, fintech innovations are continuously altering the landscape of banking sector and this will continue to shape the evolution of delivery of services and credit allocation. Fintech collaborations improve management performance, reduce the cost of intermediation and increase the scale of operations in the banking sector.

RATIONALE OF THE STUDY

Digitalization has been playing an important role in all sectors of the economy and banking sector is not exception to it. Evolution of fintech innovations has led to the substantial change in terms of fulfilling customer's divergent and ever-growing needs. Further, our government is giving a lot of thrust to digitalization of banking sector as it provides a great potential for a bright future of India. Indian banks can challenge global leaders by adopting new strategies that incorporate the principles of digital reinvention, also by embracing advanced technologies like artificial intelligence (AI) and cognitive computing (Parthasarathy G., Saha R., et al., 2017). There are several studies discussing digitalization of Indian banking sector but very little literature is available on showing the importance of fintech innovations in the digitalization of banking sector. Thus, it is important to understand how fintech innovations have been harnessed for digitalization of Indian banking sector. This will play an important role in unlocking the untapped potential of these innovations in the banking sector.

OBJECTIVES OF THE STUDY

1. To study the evolution of digitalization in Indian banking sector.
2. To examine the role of fintech innovations in digitalization of banking sector.
3. To analyze growth trend of fintech innovations in Indian banking sector.
4. To identify challenges in the journey of digitalization of Indian banking sector.

RESEARCH METHODOLOGY

This study is descriptive in nature and deductive as most of the findings are based on secondary data which is collected from the Journals, Govt. Publications, newspapers, magazines, and websites. Main source of data is the Website of National Payments Corporation of India (NPCI).

FINDINGS AND DISCUSSIONS

Evolution of Digitalization in Indian Banking Sector

Digitalizing the traditional methods of banking has led to performing banking transactions more smoothly. Late in the 1980s, India's banking sector felt a need to enhance customer services and computerization of data recording and accounting. In 1988, Reserve Bank of India (RBI) set up a committee which was headed by Dr. C. Rangarajan to review Computerization in the Banking Sector (Shifa Fathima, J., 2020). Establishment of ATM's has marked the beginning of digitalization within the banking sector. Further continuously new developments were seen within the banking sector like Telebanking, Electronic Funds Transfer system, MICR, RTGS (Real-Time Gross Settlement), Point of sale terminal, etc. (see Figure 1). These innovations resulted in cost reduction and enhancing customer convenience. RBI and National Payments Corporation of India (NPCI) took strong initiatives in strengthening the Payment and Settlement Systems in banks. Significant innovations in the Payment Systems domain are the launch of United Payments Interface (UPI) and Bharat Interface for Money (BHIM) by NPCI (see Table 1). Government of India is also aggressively promoting digital transactions (Bhimrajka H., 2020). Today, digitalization has become the topmost agenda for all the banks. Main aim of banks is to provide fast, accurate and quality experience to their customers. These innovations have enabled the customers to transact anywhere at any time (Bhattacharyya B., Pradhan S., 2017).

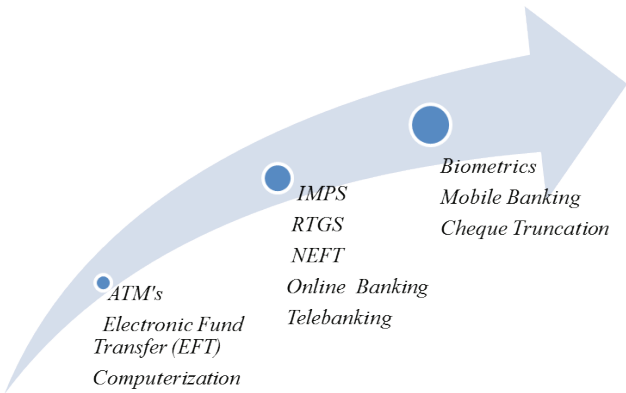

Figure 1: Journey of Digitalization of Banking Sector in India

Source: ICMAI, Jan 2017

Table 1: Significant Innovations in the Indian Banking Sector

Category	Overview
Automatic Teller Machine (ATM)	It is an electromechanical machine that includes an automated banking platform allowing clients to perform smooth transaction without the help of a teller or branch representative.
Electronic Funds Transfer (EFT)	It allows money transfer from one place to other electronically on a real-time basis, where any transaction in the form of deposit, withdrawal, payment receipts can be performed.
Net Electronic Funds Transfer (NEFT)	It enables funds transfer from one bank to others (having core banking solution enabled) through RBI server and settlement occurs on net basis.
Real Time Gross Settlement (RTGS)	It is a payment mechanism for interbank payments in which one bank electronically pays to another bank through core banking-enabled servers of RBI.
Immediate Payment Services (IMPS)	It was introduced by NPCI in 2010. It is a real time interbank electronic funds transfer through mobile phones.
Unified Payment Interface (UPI)	UPI is a mobile interface which interconnects banks to make instant funds transfer. Both sender and receiver must have a UPI identity.
Unstructured Supplementary Service Data (USSD)	It is developed by NPCI. It helps in making payment by linking mobile numbers with bank accounts.
Mobile Banking	This is a service which allows customers to conduct banking transactions through the bank application or browser of a mobile phone.
Mobile Wallets	It is a digital payment mechanism which helps users transact within the limit of Rs. 20,000 per month with minimum Know Your Customer's (KYC) norms. User links debit or credit card for transferring money into the wallet. Paytm, MobiKwik, PhonePe, ICICI Pocket are some wallets.

Note: This table presents a brief overview of significant innovations in the journey of digitalization of Indian Banking Sector.

Source: Self designed

ROLE OF FINTECH INNOVATIONS IN DIGITALIZATION OF BANKING SECTOR

It is quite difficult to consider of doing a business without making a noteworthy reference to technology because it has become an integral element in every aspect. Technology has replaced the outdated systems of the traditional mechanism, improved the transaction processes, escalated the efficiency and strengthened the financial institutions. Banking industry is at the top of the list when it comes to adopting new technologies; it is because of the growing investments in fintech sector. Technological revolution within the 21st century, government initiatives like UPI and the rising fintech industry has placed the Indian banking ecosystem at the worldwide epicenter. As per a report published in May 2019 by PwC and ASSOCHAM, the rate of fintech adoption in India is 57.9%, which is second-highest in the worldwide. Gone are the days when customer needs to visit their branch for fulfilling the banking requirements. Service delivery has become more efficient with the utilization of technology. Whether it is about money transferring, opening a fixed deposit or requesting for stop cheque payment, it can all be done anywhere at any time. For example, NEFT or UPI payments or digital wallets have replaced the cheque based payments (Agarwal Meha, 2021).

A strong foundation has been laid by the fintech sector. A plethora of innovations has been witnessed in the Indian fintech ecosystem throughout the last decade. Initially, the first wave of disruption within the financial services sector was escorted by the concept of digital payments, which was followed by digital lending and wealth management start-ups. Results of the CII-PwC Banking Tech Survey 2016, highlighted that while most of the banks have either already adopted or are in the process of following robotics process automation, eKYC for customer onboarding, the acceptance rate of which is increasing, has turned out to be as one of the latest trends for which banks are still evaluating their infrastructure and technology readiness. FinTech innovations have disrupted the financial services sector in a way that it has revolutionized the delivery of financial services. Some ways in which fintech innovations have played a significant role in digitalization of banking sector are discussed below:

- *Role of artificial intelligence:* Artificial intelligence technology is used by banks to accomplish a variety of tasks for enhancing the customer experience and reducing the operating costs. Artificial intelligence is helping banks in identifying and detecting the frauds. This helps in strengthening the digital security infrastructure of banks.

- *Alternative lending:* FinTech allows the customers to assess the creditworthiness of borrowers through alternative data. It provides affordable and easy loans to small businesses, start-ups, car loans, etc.
- *Products & services:* Today customer needs right individual experience through the right channel at the right time. FinTech innovations help in giving personalized experience which helps gain insights into the customer's preferences.
- *Real-time payments, the new game-changer:* With the support of high technologies, artificial intelligence, machine learning, Internet of things fintech has enabled flexible fast and cheap payments. A significant role has been played by fintech innovations in the digitalization of payment and settlement system.
- *Neo banking:* As technological innovations and digitalization are reaching new heights, consumers are slowly switching over to digital banking. MEDICI India FinTech Report 2020 states that neo banks have led the second wave of disruption in the Indian fintech ecosystem. Further, it also mentioned that with fintech segments like payments and digital lending getting overcrowded, there is a shift of investor's interests towards neo banking.

It is no exaggeration to mention that fintech innovations are actually transforming our lives and habits by delivering the financial services in a simple and transparent manner which is cost-effective and time saving. FinTech has forced the banks to reconsider their model of service delivery and administration. Hence, collaboration with the right fintech organization has proved to be a boon for the digitalization of the banking sector (Raj N, 2021).

TREND OF FINTECH INNOVATIONS IN INDIAN BANKING SECTOR

Figure 2 & 3 exhibits the trend of major fintech innovations in terms of volume of transactions on yearly basis. The period of observation spans between 2015-16 and 2019-20. A casual look at the figure shows an upward trend in the volume of transactions across the platform.

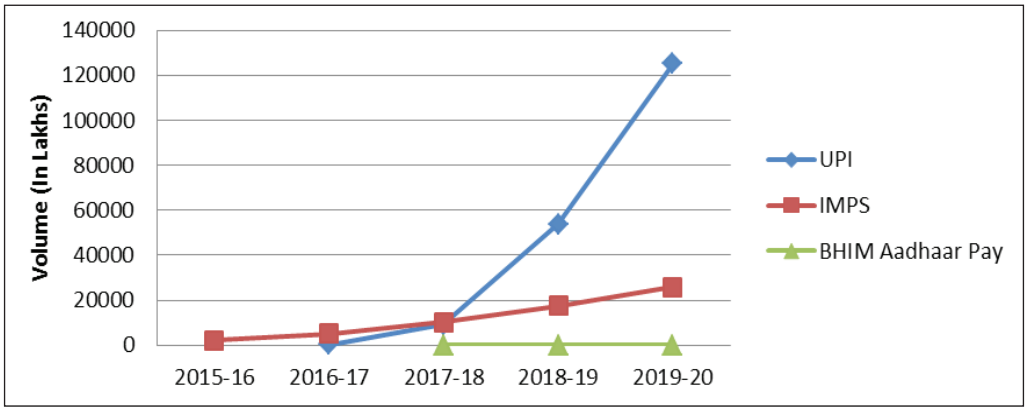

Figure 2: Trend of UPI, IMPS & BHIM transactions in India

Source: www.npci.org.in

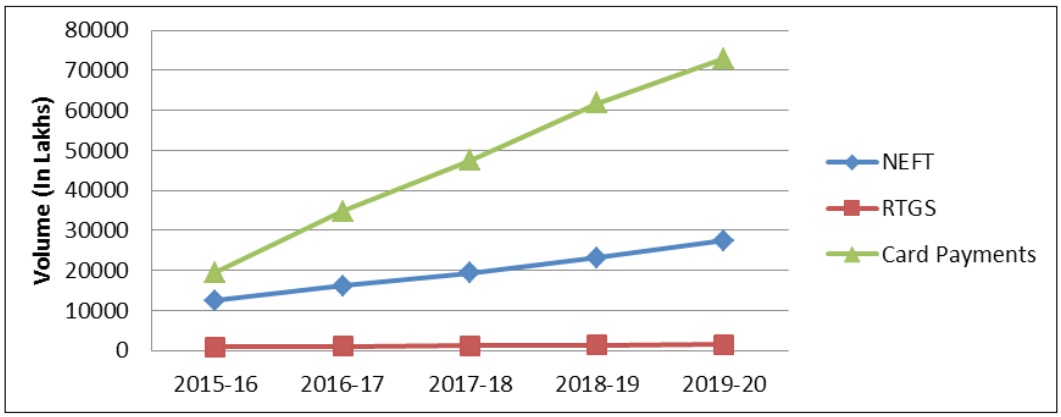

Figure 3: Trend of NEFT, RTGS & Card transactions in India

Source: www.npci.org.in

CHALLENGES IN DIGITALIZATION OF INDIAN BANKING SECTOR

Some challenges in digitalization of Indian banking sector are discussed below:

1. *Upgradation of technology:* Technology keeps on evolving, it is not constant. As the technology develops, more and more banking services are digitized to face competition in the market. Thus, it is not easy for the customers to always keep themselves updated and learn accordingly.
2. *Authentication Issues:* Banking authorities have to be cautious regarding authentication of their customers. Even there are several measures enacted by them like OTP, PIN, SMS/CALL verification relationship numbers, customer ID, etc. for securing the authentication of the consumers but still Bank and Cyber Frauds are continuously increasing and have emerged as a major challenge for the Cyber Cells and the concerned authorities.
3. *Cybercrime:* As internet is an open source of communication, security of data transferred over the network and privacy are major issues which needs to be handled. Hacking and cybercrime are big reality in India which cannot be ignored. This has led to decline of trust on digital banking among the customers of banks.
4. *Fear factor:* Fear factor of the older generation is one of the biggest challenges faced during the digitalization process. They prefer using traditional banking services instead of the modern one. They believe that it is much safer and secure to perform conventional banking transactions in comparison to online transactions. Hacking, spoofing and sniffing are the major threats because of which people fear using this system.
5. *Legal framework of e-banking:* Various laws which are applicable to traditional banking activities are also applicable to online banking. However, still there are various problems which need to be addressed. So, there is an urgent requirement for introducing more strict rules and regulations.

CONCLUSION

Digitalization is becoming one of the major changes in industry which is witnessing a profound transformation to the banking system. This has led the industry to reconsider the role of finance and banking, more as an "enabler" than a provider of products and services (Omarini, Anna, 2017). In the present scenario, people go with innovation and technology to get their work done much smarter and faster. The effect of fintech has led to the emergence of a new generation of banks that do not have physical offices to provide services. Development of fintech market has led to the digitalization of banking services (Rodin B.K., Ganiev R.G., 2019). FinTech innovations play an important role in addressing the issues in access and use of financial services without geographic constraints. Distributed ledger technology applications are explored by banks by either partnering with start-ups, or by creating innovation labs and incubators. Banks speed up its digitization initiatives and provide targeted, customized products and services through cognitive technology. Robotic Process Automation (RPA) helps reduction of IT spending in banks without compromising service provisioning efficiently. Biometric authentication tools are used to combat identity theft and fraud. It also makes transactions more secure and enhance the customer experience (Malini A, Dileep G Menon, 2017).

This study adds to the existing literature on digitalization and emerging fintech innovations in the banking sector, which will enable academics and researchers to understand the role of fintech innovations in digitalization of the banking system. We have focused on discussing the evolution of digitalization and significant innovations in the banking sector. The study reveals there is an important role of fintech innovations in the digitalization of banking sector. We have also studied the trend of major fintech innovations in the banking sector. Findings of this study are beneficial in redefining banking for the customers, which will play an important role in moving towards the dream of Digital India.

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CHAPTER 29

Role of Digital India Program in the Development of E-Commerce in India

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ABSTRACT

Digital India Program

With a view to promote the use of technology in the country, on 1 July 2015, Shri Narendra Modi, the Prime Minister of India, launched the Digital India Campaign as an initiative of the Government of India with the vision of "Minimum Government and Maximum Governance" and "Digital Government". The Digital India Campaign is an effort to ensure that citizens can easily get the benefits of government schemes through the Internet by improving the online infrastructure of government services. The Government of India aims to connect 2.5 lakh Gram Panchayats with Internet. For this, the government aims to create 5 lakh Wi-Fi hotspots so that rural people can get broadband facilities. Under Digital India Program, the Government of India has started Umang, Start-up India Portal and Bharat Interface for Money App. (BHIM App.) etc. to promote digitalization in India. According to a report of McKinsey Global Institute "Digital India Report - 2019", the total numbers of Internet users were 251.59 million in 2014 and 687.62 million in 2019, which is estimated to be 1198 million in 2025. Similarly, the revenue generate is expected to $ 15952 million by 2025 which was $8410 million in 2018.

E-Commerce

E-commerce in India has become a fast growing sector in the last few years due to increase in mobile and internet penetration from Digital India Campaign, convenience of online payment and other supportive environment. E-commerce is not only limited to the use of technology, but it is the way for businessmen to know the market trend, needs of consumer and customer psychology, so that the consumer can get maximum satisfaction. The e-commerce sector generated revenue of US $ 39 billion in the year 2017 is estimated around US $ 120 billion in the year 2020. The goal of the Government of India is a trillion dollar online economy by 2025 with the help of Digital India Program. Thus, the basic aim of this research work is to review the growth of e-commerce from Digital India Program. This research work is based on secondary data which was collected from newspapers, research journals, review reports, magazines and websites.

Keywords: *Digital India Program, Digital Government, Internet, E-commerce, Online Marketing etc.*

INTRODUCTION

Digital India Program

With a view to promote the use of technology in the country, on 1 July 2015, Shri Narendra Modi, the Prime Minister of India, launched the Digital India Campaign as an initiative of the Government of India with the vision of **"Minimum Government and Maximum Governance"** and **"Digital Government".** The Digital India Campaign is an effort to ensure that citizens can easily get the benefits of government schemes through the Internet by improving the online infrastructure of government services. Apart from this, it emphasizes on to establish digital ecosystem by empowering the country by digitizing, improving internet connectivity, easy access to the public, especially to connect rural areas through high speed internet so that they can adopt and use digital mediums in daily life. Digital India Program's 9 pillars are - (1) Mass Access Internet Program (2) Manufacturing of Electronics (3) e-revolution (4) Common Access to Phones (5) Broad Band Highways (6) I.T. for Employment (7) E-Governance (8) Informing for All (9) Programs of Early Harvest.

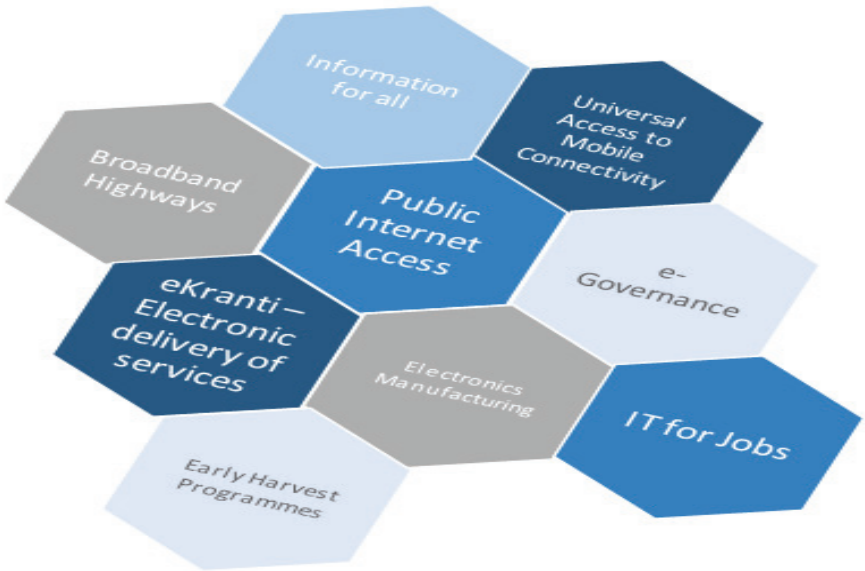

Figure No.: 1 Nine Pillars of Digital India Program

Source: digitalindia.gov.in

The basic objectives of the Digital India Campaign are –

(1) To connect 2.5 million Gram Panchayats with high speed broadband
(2) Connecting every Indian citizen with the Internet
(3) Ensuring ease of work and transparency through the e-revolution
(4) e-Governance
(5) To ensure information and benefits of government programs to everyone
(6) To encourage manufacturing of electronic
(7) To create job opportunities in the IT sector
(8) Ensuring the common man gets the direct benefits of all government programs/Schemes
(9) To make phone & Internet facilities available to all

Thus it can be concluded that with the object of making the government transparent and participatory, this program has been commenced by the Indian PM Shri Narendra Modi. Various schemes i.e. DigiLocker, MyGov, Swaccha Bharat App., BHIM, UPI, Bharat Net, e-Kranti, Make in India, Bharatmala, Dedicated Freight Corridors, Standup India, Industrial Corridors, Sagarmala, UDAN-RCS etc. have been launched under Digital India to connect 2.5 lacs rural areas and generate 18 lacs employment opportunities. To develop the environment of digital literacy, digital infrastructure and digitalization of government service are the basic aims of this scheme by creating 400000 internet points. Through which people will be able to take advantage of services like health, banking, education, scholarship, gas, water & electricity bill etc. People will get the benefits of this scheme by revolution of high speed internet, employment opportunities, facilities of phone and e-governance.

E-COMMERCE

E-commerce in India has become a fast growing sector in the last few years due to increase in mobile and internet penetration from Digital India Campaign, convenience of online payment and other supportive environment. E-commerce is the platform where both buyers and sellers come in contact with each other through the Internet and transact. In this way, E-commerce has given a new direction to marketing. Earlier sellers used to contact the consumer only through shop or retail outlet but after E-commerce, they come in direct contact with them through mobile phone, online, App. and social media. Thus, the seller does not need to have any shops or showroom but instead he informs his product and service related information to the consumer through internet. In this way, the consumer gets products & services by his choice, fashion, habits and budget by booking orders. Thus seller receives orders from many consumers. In e-commerce, the consumer can also pay for the purchased products or services by debit card, credit card, online i.e. RTGS, IMPS, ECS, NEFT, UPI, Paytm or Cash on Delivery (C.O.D). Thus, e-commerce is time saving and convenient for both the consumer and the seller.

In simple terms, e-commerce is the only way to provide products as well as services from vendor to consumer through a virtual medium. E-commerce is not only limited to the use of technology, but it is the way for businessmen to know the market trend, needs of consumer and customer psychology, so that the consumer can get maximum satisfaction. There are four mode of E-commerce- Businesses to Businesses (B2B), Businesses to Consumers (B2C), Consumers to Consumers (C2C) and Consumers to Businesses (C2B). The fastest developing industry in India is the E-commerce; this is the cause the e-commerce sector generated revenue of US $ 38 billion in the year 2016 is estimated around US $ 120 billion in the year 2020. Thus, this industry is growing at 51% growth rate compared to other sector which is much higher than other countries. According to a report of Indian Brand Equity Foundation **IBEF E-commerce Report- January 2021**, E-commerce in India to be US $ 99 billion by 2024 with a growing rate of 27% CAGR in the field of fashion and groceries. The goal of the Government of India is a trillion dollar online economy by 2025 with the help of Digital India Program.

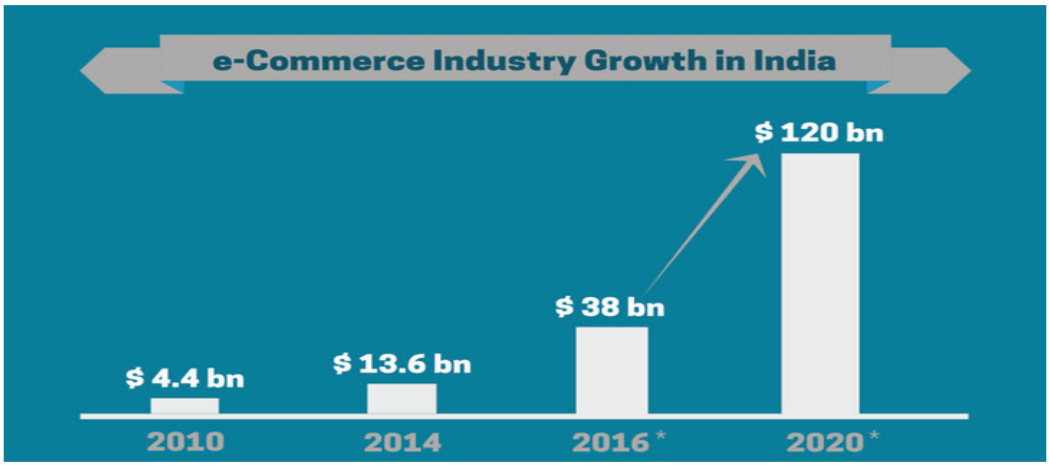

Figure No.: 2 Growth of E-Commerce Industry in India

(Source - https://in.pinterest.com/pin/654077545858677701/)

REVIEW OF LITERATURE

Suman Rani (2016). "Digital India : Unleashing Prosperity" has described that a new era of technology has emerged with the launch of Digital India Program. In this way, this campaign has given a new direction to the Indian society in which anyone can prosper by using new technology. The author has mentioned that there are

many projects running under Digital India Program, so they need to be updated from time to time to ensure the process of digitization of Indian society.

Agarwal Dr. Seema (2013). "A Study of Factors Affecting Online Shopping Behavior of Consumers in Mumbai Region" stated that convenience, time, budget, savings, variety etc. are the basic factors for e-commerce but this is not very much useful for non-internet users as well as uneducated people in India.

Gupta Neeru and Arora Kirandeep (2015). "Digital India : A Roadmap for the Development of Rural India" have concluded that the success of Digital India Campaign can be ensured only when its direct benefit goes to the people living in rural areas. Although this campaign has made a positive impact in rural areas and digital mediums i.e. internet, mobile etc. are being used there. The Government of India has started the process of digitization for developing in rural areas a proper agricultural as well as industrial environment, but more efforts are still needed.

Sharma, S.K. Lama, V. & Goyal, N. (2015). "Digital India: A Vision Towards Digitally Empowered Knowledge Economy." have concluded that after the emergence of this project the life of the common man is going to change, which we will see in a few years. The country's economy will get a new direction when various new projects are launched for the youth in the country.

Devgun Richa and Agarwal Dr. Parul (2014). "A Study of E-marketing-its Impact on Consumer Behavior in Ajmer, Rajasthan" revealed that e-buying is easier than traditional shopping and it also saves time. The author mentioned in their study that the youth have a positive inclination towards e-commerce as it always gives them the benefit of discounts and offers. Although many people still prefer to shop from the traditional market. The authors also described that there is a direct connection of youth, income and digital marketing.

Kapur. D & Ramamurti R (2001). "India's Emerging Competitive Advantage in Services" described that in this era of liberalization and globalization, the service sector in India has grown very fast and the consumer in India will be able to avail the benefits of high quality services in the coming years due to the competitive environment.

Upadhyay Dr. Payal and Kaur Jasvinder (2017). "Analysis of Online Shopping Behavior of Consumers in Kota City" stated that with th e development of internet & mobile, a positive trend has been observed in online shopping. Although today many people believe in going to the shops and buying goods, but gradually this situation has started to change. Now people have started placing orders online and can pay through online or cash on delivery. According to the author, e-commerce is mostly used by youth and educated people and they give priority to e-payment i.e. NEFT, Debit Card, IMPS, Credit Card, UPI etc.

OBJECTIVES OF THE STUDY

The basic intention of this research practice is to perceive the connection between the Digital India Program and e-commerce. After the starting of this Campaign, there has been a rapid development of facilities like online infrastructure, internet, mobile, computer, smart phone etc. Apart from this, e-commerce and online shopping have also developed rapidly in the last few years. Thus, the motive of this study is to perceive the role of Digital India Program in the development of e-commerce as well as discover practical form and innovative measures for the successfulness of the Digital India Program and e-commerce. Along with this, future possibilities have to be explored.

RESEARCH METHODOLOGY

For the success of the research work it is necessary to prepare a proper planning effectively. Secondary data have been used for this research work. Various newspapers, research journals, magazines and websites have been used to collect the required data.

NEED AND IMPORTANCE OF THE STUDY

This study has been conducted to make a framework for future research in the area for Digital India and e-commerce. Digital India Program is a high flyer program of Government of India, whose basic objective is to connect every department and record of the country with a single link, which is helpful in increasing the speed of work and making the country a digital power society, whereas e-commerce has become the need of the present time. Today, e-commerce is attracting people due to its transparency, time saving, easiness and convenience. The development of e-commerce is associated with the development of Digital India Program. Thus, this study will be beneficial to perceive the main aim of Digital India Program and e-commerce.

LIMITATIONS OF THE STUDY

Under this campaign many projects are under process where some projects are needed redesigning and reengineering for the success of this program. Thus, this study is depending upon secondary data, which are available from the news papers, magazine, journal etc. As this project has been launched in 2015 and e-commerce has also come into existence in the last few years, so much more data are not available. Time and money are other factors as limitations of the study.

ROLE OF DIGITAL INDIA PROGRAM IN THE DEVELOPMENT OF E-COMMERCE

Presently India has the highest number of youth. Therefore, being the choice of youth, there is a lot of potential for the development of Digital India and e-commerce. In the last some years, several strategic decisions have been taken to develop India digitally, by the government. E-commerce will grow very fast as the growth of e-commerce is linked with the flourish of Digital India. The role of Digital India in the development of e-commerce can be understood on the following grounds –

DEVELOPMENT OF DIGITAL INFRASTRUCTURE

After the launching of Digital India Program, Around 2.5 lacs gram panchayats have been tried to connect under Bharat Net Project with high speed connectivity on Internet. By the end of 2016, to strengthen the digital infrastructure, the O.F.C. pipeline has been laid from 2292 km. to 124797 km. Out of 52.5 lakh, 40 lakhs manpower has been given proper training in the Information technology sector. Rs. 1000 Crore was invested under the Bharat Net Project so that e-medicine, e-education and e-skills through online mode could be provided by DigiGaon Project. The government has started Umang, Start-up India Portal, Bharat Interface for Money App. (BHIM App.) as well as several big projects and schemes such as Smart Cities Project, RuPay, B.H.I.M. U.P.I., DigiLocker, Aadhaar cards, GSTIn, GeM (Government e-Marketplace) come under the aegis of the Digital India Campaign. This Program is also focused on Digital Startup ecosystem. Thus India is the third largest startup ecosystem globally with 9300 tech startups. In this way, many programs i.e. T.I.D.E. (Technology Incubation and Development of Entrepreneurs), E.S.D.M. (Electronics System Design and Manufacturing), Skills Development have been started by MeitY. Around 5,00,000 employment opportunities was generated by 2,00,000 CSCs. To set up 5 lakh Wi-Fi hotspots, the Union Budget of 2018-19 doubled to 3073 Crores so that 5 crore rural people could be availed the internet facilities.

On the other hand, to provide free Wi-Fi facilities at 100 railway stations, a tie-up between Google Inc. and Indian Railway has been made. Microsoft Inc. is working closely with the Government of India to make the "Digital Governance Tech Tour" more successful. To provide digital security "The Personal Data Protection Bill 2019" has been taken into consideration by the Government of India. For dealers, Cashless Scheme and for people, Referral Bonus Scheme was started under the BHIM App. After five year of its launching, 50 times growth can be observed of using mobile data and consumption under the Union Budget of 2019-20. Similarly, around 34 crore Jan Dhan Bank Account were opened under the DBT scheme. The government has made a provision of Rs. 8000 crore (US$ 1.24 billion) for the Bharat Net Project in the Union Budget 2020-21 so that 1.5 lakhs Gram Panchayats can get the benefit of broadband services. Thus, from this program digiLocker, MyGov, e-health, Pensions, Ration Cards, Pan Cards, e-education, Aadhaar Cards, e-insurance, scholarships services are being provided to the Indian citizens.

INCREASING NUMBERS OF INTERNET USERS

India currently has more than 700 million internet users, which makes India stand second largest in terms of internet users in the world. Now India is marching towards digital transformation at a very rapid rate as India had 445.96 million internet users in 2017 which is projected to grow to 829 million by 2021. According to a report of **McKinsey Global Institute "Digital India Report - 2019"**, the total numbers of Internet users were 251.59 million in 2014 and 687.62 million in 2019, which is estimated to be 1198 million in 2025. According to TRAI data, as of December 2013 in India, there were 238.71 million internet subscribers, with 50% using the internet every day, although, with the development of mobile banking, internet and e-commerce, it is growing at a CAGR of 20%. Internet and Mobile Association of India **IAMAI Report "Digital India: Present, 2025 & 2035"** shows that the wireless subscription in 2019 was 1165 million of which 643 million were wireless internet subscription. Similarly, wireless & wire line broadband subscribers were 71.3 crore & 2.1 crore respectively, in the year 2020. At present, the data consumption average rate is 9.8 GB per month/device which is estimated to 24 GB by 2025. Similarly, the revenue generate is expected to $ 15952 million by 2025 which was $8410 million in 2018.

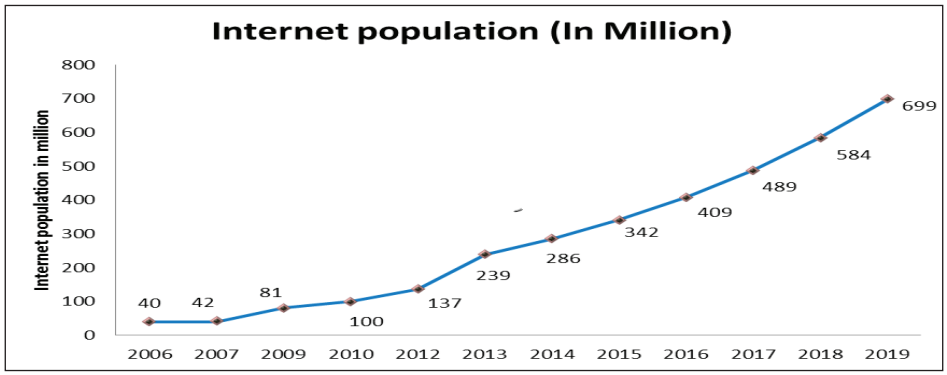

Figure No.: 3 Growth of Internet Population in India (In Millions)

(Source - https://www.dartconsulting.co.in/market-news/growth-of-internet-users-in-india-and-impact-on-countrys-economy/)

DEVELOPMENT OF MOBILE CULTURE

On 1st July, 2015, the Digital India Campaign was commenced. At the same time, in the year 2014-15, mobile manufacturing was Rs. 5.4 Crore which was increased to Rs. 11 Crore in 2015-16. Thus a positive growth was observed in Union Budget 2016-17. To give a boost to the same Rs. 1, 20,294 Crore was allocated in the budget. As a result, there has been a steady growth in terms of mobiles, smart phones and internet users in the country at a cheaper price. As per **IAMAI Report "Digital India : Present, 2025 & 2035"**, the total subscription in the country was 904.51 million in 2014, which increased to 1173.75 million in 2019 and is expected to increase to 1497 million by 2025. Similarly, there were 687.62 million internet connections in 2019 which is likely to be 1198 million by 2025. According to this report, there were 21% smart phone users in 2014, which increased to 29% in 2019 and is expected to increase 40% by 2025.

Table No.: 1 A Brief Snapshot on Digital India

Particular	2014	2019	2025
Total Wireless Subscriptions	904.51 Million	1173.75 Million	1497 Million
Total Internet Connections	251.59 Million	687.62 Million	1198 Million
Data Usage Per Month	61.66 MB	10.37 GB	24 GB
Cost of Data (per GB)	Rs. 33.00	Rs. 6.98	-
Smartphone Users	21%	29%	40%

(Source : IAMAI Report "Digital India : Present, 2025 & 2035")

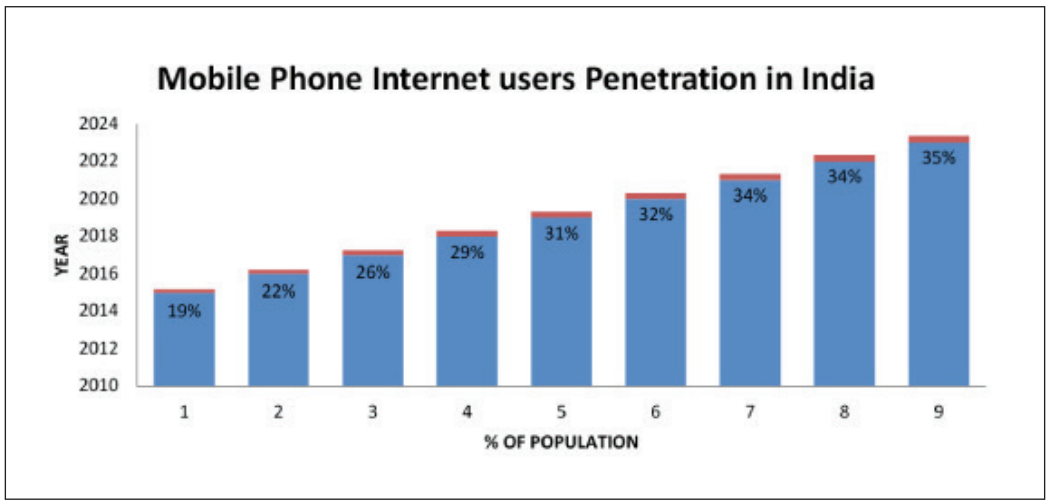

Figure No.: 4 Mobile Phone Internet Users Penetration in India

(Source - https://www.emarketeducation.in/growth-of-internet-users-in-india-stats-facts/)

BROADBAND SUBSCRIPTION RATE GOING DOWN

According to the 2018 report of Department of Telecom (DoT) in the year 2017, mobile internet ratings collapsed by 93% whereas data usage is 25 times increased. In India, the rate of data was Rs. 33.00 per G.B. in 2014, which reduced to Rs. 21.00 per G.B., whereas after taking entry in the year 2016 by Reliance Jio, it was also reduced to Rs. 4 per GB. According to report of IAMAI, its cost in the year 2019 was Rs 6.98 per GB which is likely to decrease further by the year 2021-22. As a result of the reduction in data cost, according to the 2018 report of DoT, average data usage increased from 62 MB to 1.6 GB per month from year 2014 to 2017. Similarly, broadband access India had in March 2014 to 2017, 61 million to 325 million subscribers respectively.

DEVELOPMENT OF DIGITAL SERVICE INDUSTRY

Digital service industries have been promoted, as a part of the Digital India Campaign to digitize offline services and make them available to the public in an easy and transparent manner i.e. e-driving license, PAN Card, Aadhaar Card, Caste Certificate, Income Tax return, e-education, e-hospital, e-Banking, e-passport, MyGov App., Swaccha Bharat Abhiyan App., National Scholar Portal etc. Similarly, digital transactions are also being promoted by promoting digital banking through digital medium i.e. Unified Payment Interface (UPI), Immediate Payments Services (I.M.P.S.) Aadhaar Enable Payments Systems (A.E.P.S.), Unstructured Supplementary Services Data (U.S.S.D.), Real Time Gross Settlement (R.T.G.S.), National Electronic Fund Transfer (N.E.F.T.), Mobile Phone Transactions, e-banking, ATM card, credit card, Bharat Interface for Money App. (BHIM App), Ru-pay cards, mobile banking, debit card, E-purse etc. Therefore, due to various digital services, it is estimated that digital payment to grow to US $ 1 trillion by 2023.

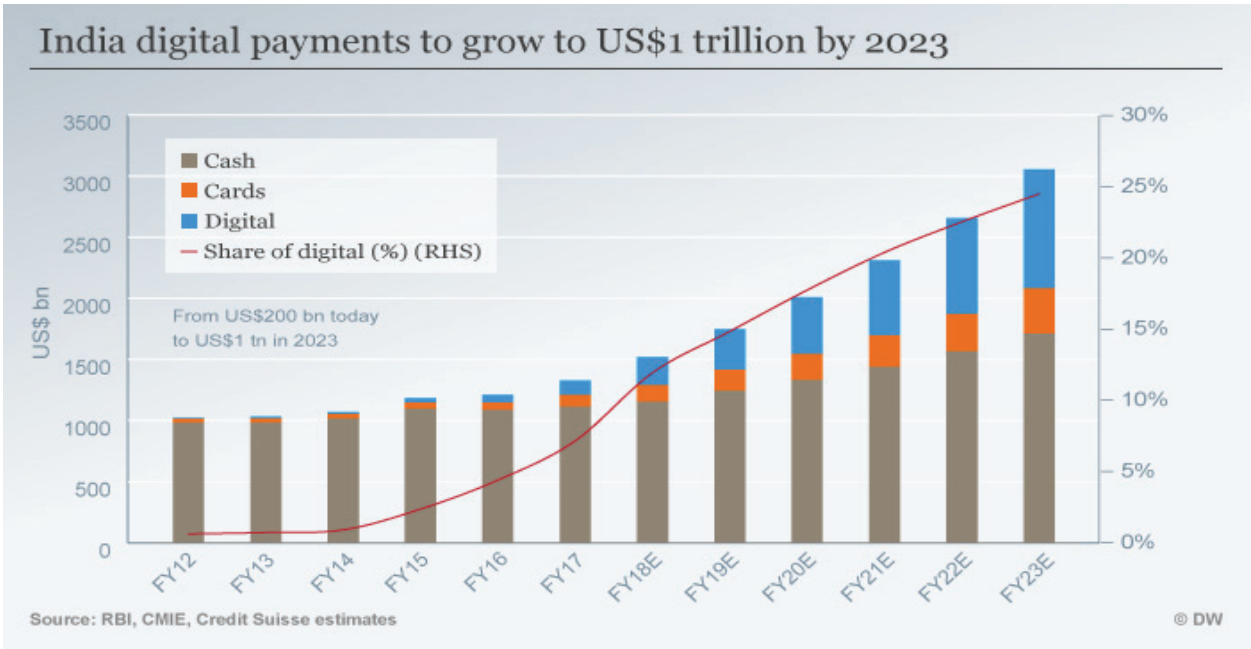

Figure No.: 5: Growth of Digital Payments in India

(Source: RBI, CMIE, Credit Suisse estimates)

RAPID DEVELOPMENT OF ONLINE PAYMENT FACILITY

After the starting of Digital India Campaign, there has been a rapid expansion in terms of mobile and internet users in the country and due to the availability of digital banking facility by the banks, the trend of digital transactions among the people has increased readily in the last few years. Now people have started taking advantage of digital banking services like UPI, IMPS, NEFT, RTGS, NACH, ECS etc as well as Paytm, Ru-Pay cards etc. The growth of digital banking has directly benefited e-commerce. According to the RBI report, where 498 crore digital transactions were done in the year 2010-11 and through them Rs. 96 lakh crore were digitally transferred. In the same year 2019-20, this increased to 1623 crore transactions and through this Rs. 3435 lakh crore were digitally transferred. Therefore, at present, people have started believing more in digital transactions instead of cash transactions, which is a sign that India is entering a new era of Cashless India.

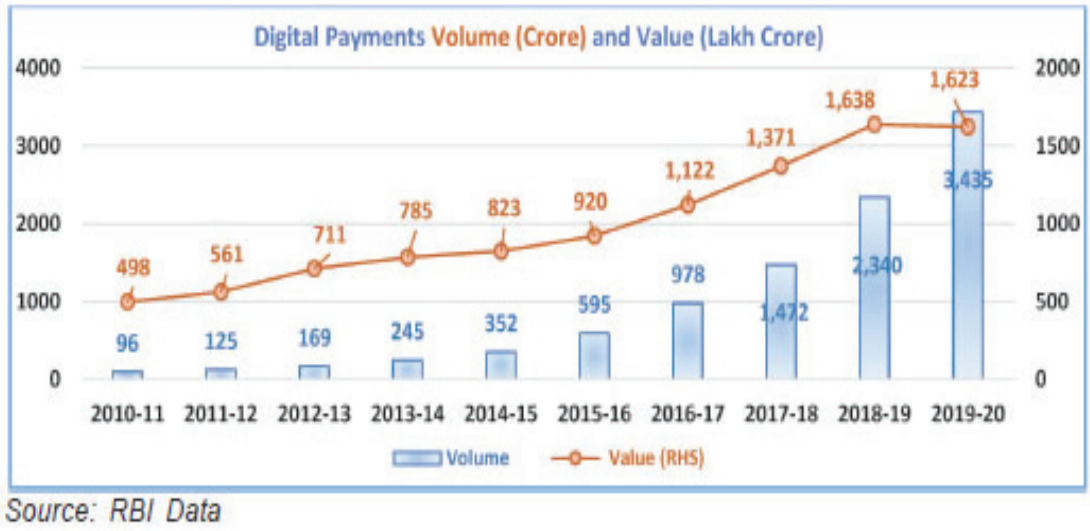

Figure No.: 6: Growth of Digital Banking in India

EXPANSION OF PAYMENT OPTIONS FACILITY

With the introduction of digital banking in India, people now prefer digital transactions instead of cash transactions. There are many payment options available through digital banking i.e. Aadhaar Enable Payment System (AEPS), Immediate Payments Services (I.M.P.S.), Unified Payments Interface (U.P.I.), Unstructured Supplementary Services Data (U.S.S.D.), Real Time Gross Settlement (R.T.G.S.), National Electronic Fund Transfer (N.E.F.T.), credit card, ATM card, e-banking, Bharat Interface for Money App. (BHIM App), debit card, mobile banking, Ru-pay cards, Reward Points, Prepaid Cards, E-purse, Mobile Wallet - Paytm, m-Pesa, Mobikwik, rupee, airtel money, speed pay, citrus pay, Free Charge, oxygen etc. Thus, due to easiness, safer and transparent people are rapidly turning to digital transactions, which is helpful in the development of digital marketing.

ADOPTION OF I.T. BY RETAIL INDUSTRY

Indian retail sector contributes more than 10% to the Indian economy and provides 8% employment opportunities. In this way, e-commerce has paved the way for development by adopting technology based digital transaction, analytics driven consumer engagement, hyper local logistics & e-advertisement. According to BCG report, Indian retail industry is projected to be US $ 1.3 trillion by 2020 as against 600 billion in 2015. The main reason for this is the hard work of vendors as well as the adoption of IT in the retail sector. This is the reason that IT expenditure has grown 26% in the last 5 years which is estimated to be around USD 10 billion by 2020.

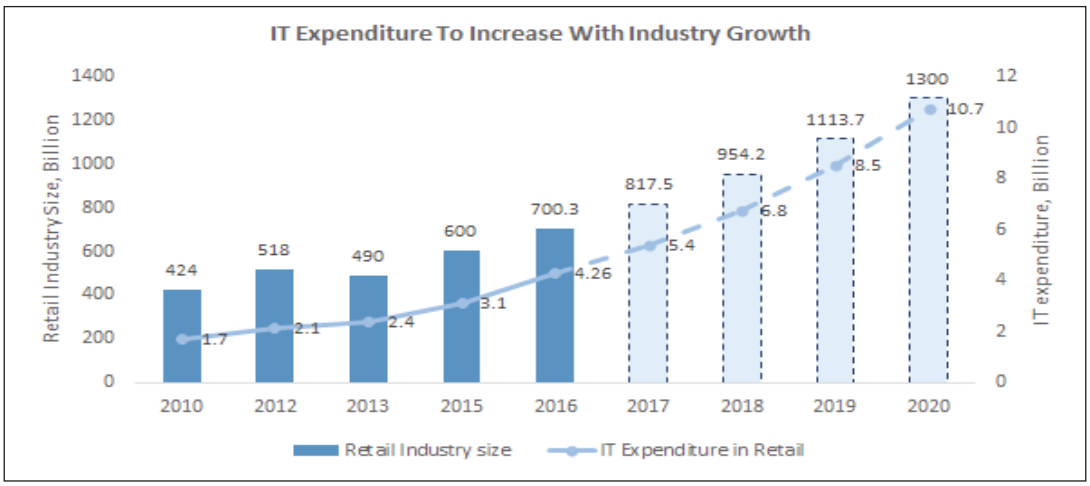

Figure No.: 7 Growth of Adoption of IT by Retail Sector

(Source: BCG Retail 2020, E&Y, Deloitte, IBEF, Gartner, compiled by Uzabase)

CONVENIENCE IN ONLINE SHOPPING

After the launch of Digital India Campaign in the year 2015, technology has developed rapidly in India. Along with this, the result of the development of digital infrastructure in the country was that there was a fast expansion in terms of mobile, smart phones and internet users. Banks also adopted digital banking so that people started doing digital transactions through IMPS, UPI, NEFT, ECS, Debit & Credit Cards etc. This had a direct positive effect on e-commerce, which is e-commerce has grown quickly in the last few years. According to a report, more than 69 million people used to buy various items through e-commerce in 2014 which would be 175 million by 2020. In addition, the market size of e-commerce was US $ 39 billion in 2017, which is estimated to be US $ 200 billion by 2027.

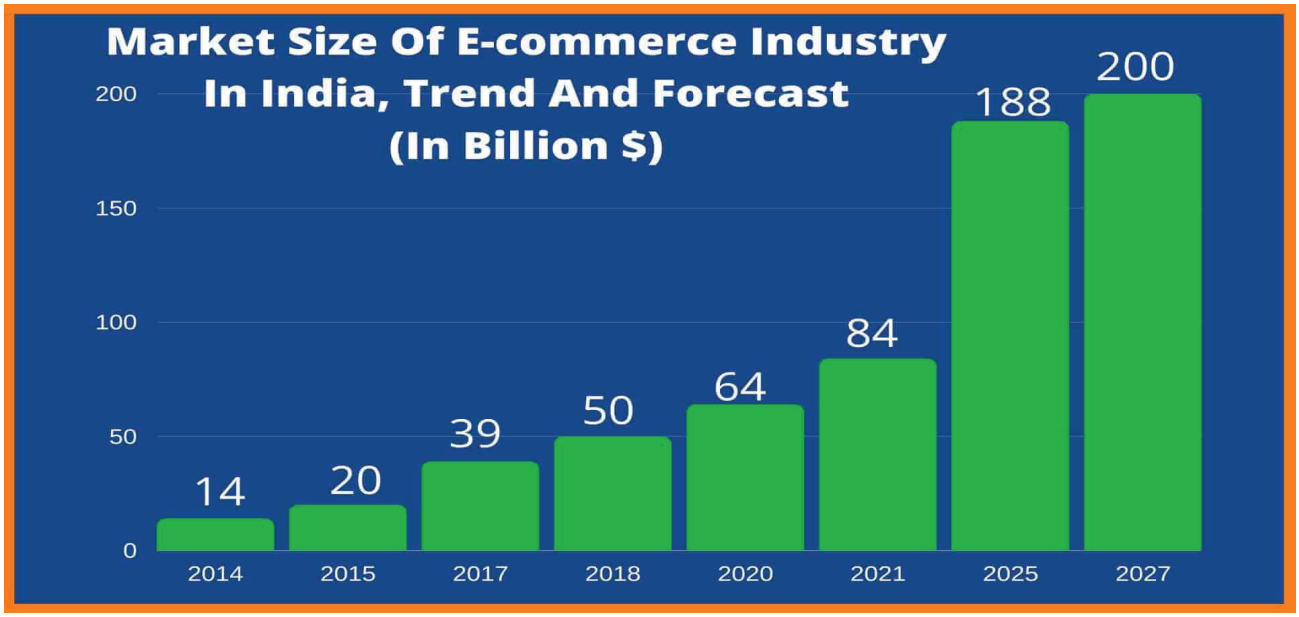

Figure No.: 8 Market Size of E-commerce Industry in India

(Source - https://startuptalky.com/ecommerce-industry-in-india/)

E-GOVERNANCE

The aim of the National e-Governance Scheme is to promote digital infrastructure in the country and ensure the reach of government service and schemes to the common man. Through the e-Governance paperless services are being provided i.e. e-Sign, Aadhaar e-KYC, Central KYC Registry. Apart from this, people have been connected to banking service through Jan Dhan Aadhaar Mobile (JAM Trinity) & D.B.T. Bharat, due to which 19.72 crore new bank accounts have been opened and subsidies have been directly transferred to their account. Under the Digital India Campaign, the facility of Digi Locker has also been provided to the people, so that they can keep their documents in digital mode i.e. Aadhar Card, PAN Card, etc. Various transactions such as Salary, Pension, Mutual Fund, Subsidy, Water, Electricity and Mobile & Telephone Bills can be done in digital mode. Along with this, services like e-Post, e-book, e-Projects, Income Tax, e-Courts, e-Bids, e-Taal, e-Office, GEM, EPFO (UAN), e-Procurements, e-Tenders, e-Bhasha, e-PAN, GST, e-NAM, e-Kranti etc. are also provided through the National e-Governance Plan.

STARTUPS

Along with the Digital India Campaign, programs like Skill India and Start Ups India have made significant strides towards digitization in the country. Some startups were started in the year 2009 i.e. Myntra, Lenskart, Paytm, Ola cabs, Byjus, Redbus, Flipkart, Zerodha, Snapdeal, Practro, Policy Bazaar, Bank Bazaar, Dailyhunt, Book my show, Saavn etc. Apart from this in the year 2014, Razorpay, Lybrate, Shuttl, 1mg, Swiggy, Coverfox, Oyo Rooms, Urban Clap, and in the year 2019 Druva, Delhivery, Bigbasket, Rivigo, Dream11 etc. have been started. In this way, startups established through digital mediums have not only created employment opportunities in the country but have also contributed significantly to the e-commerce & economy.

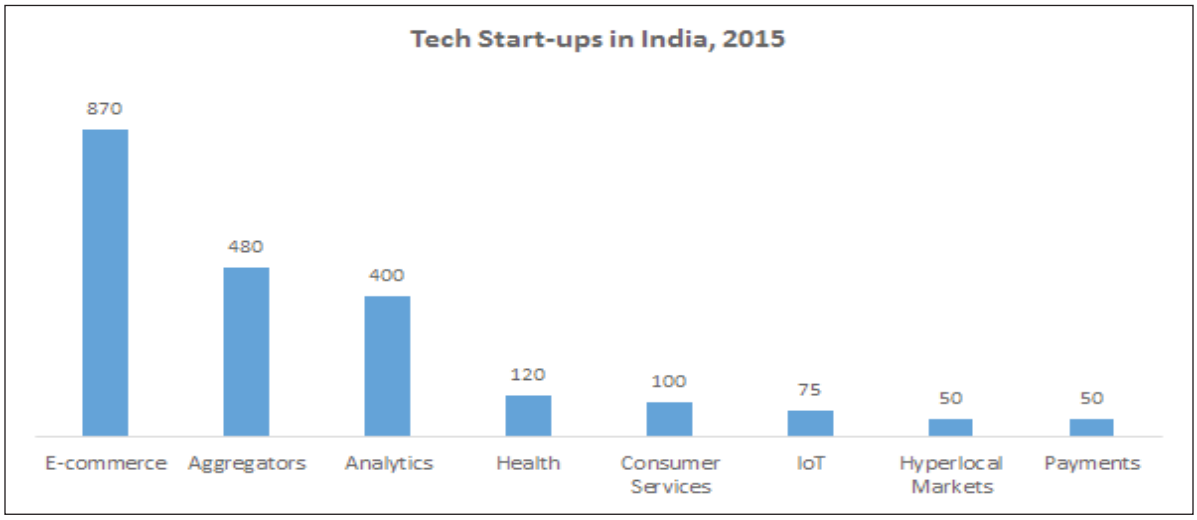

Figure No.: 9 Start-ups in Various Sectors in India

(Source: Nasscom & Zinnov)

OTHER GOVERNMENT INITIATIVES

To promote e-commerce, the Government of India has taken several initiatives under the Digital India Campaign like Digital India, Skill India, Start-up India and Make in India etc. The Government of India has also changed the FDI policy to promote the retail sector. For this, the government has allowed FDI, 51% for multi brand, 100% for single brand and 100% for B2B model of e-commerce. In this way, Ministry of Consumer Affairs has advised e-commerce companies to disclose country of origin and other parameters related to product listing under Consumer Protection (e-commerce) Rules 2020. It has also been made mandatory for foreign companies operating on e-commerce platform to obtain PAN number. To develop e-commerce, the government has made a big investment in laying 5G fiber network. For the purpose of easy access of ICT, under the direction of National e-Governance Project, a Common Service Center (CSC) has been started. Other than that, the government has set up 'TRIFED' as E-Commerce Portal and 'Tribes India' as M-Commerce Portal. Apart from this, the Government of India distributed Rs. 153.5 crore (US $ 23.8 million) as a gift under Digi Dhan Vyapar Yojana and Lucky Grahak Yojana to one million people to encourage digital transactions.

FINDINGS

During the research work it was observed that Digital Illiteracy is a very big problem in the way of accomplishment of Digital India Project as well as e-commerce. Even today, many people in the cities other than the villages do not know about the benefits of Internet. In this way, Low internet speed and power supply remains also a big problem in rural areas as well as urban areas. Apart from this most of the people hesitate to use internet and digital transactions due to lack of cyber security. Digital India Project is an determined project of Government of India, which needed a proper infrastructure for the successful implementation. Lack of basic education and less awareness are another threat for the success of Digital India Program and E-commerce.

CONCLUSION

As India is a young country, mostly youth and educated people in India use the internet and take the services of e-commerce and digital transactions. Although the prevalence of internet and e-commerce is very less in India as compared to other countries, it has attained momentum with the commencement of Digital India Program. For this, a proper digital infrastructure is needed for accomplishment of Digital India campaign as well as E-commerce. Digital infrastructure will make easy access to any online services such as financial management, education, e-commerce, e-heath, e-banking, distance education and more through safe and secure cyberspace. The government should also focus on developing basic infrastructure and capacity building; this will generate new employment opportunities for the youth in the country. The success of this program needs to be tried not only at the government level but also at the private level. There are many obstacles before the program but this program will prove to be effective in changing the condition and direction of the country. Apart from this, the effectual plan of digitization and its implementation will help in advancing the economy of the country.

SUGGESTIONS

For the success of this program, an awareness program is needed in rural and remote areas. To improve internet speed a proper infrastructure is required which will helpful to connect the every citizen. It is also required to promote indigenous cyber security tools from the fear of cyber crime. In this way, consumer should also be careful and shop only from trusted e-commerce sites. E-commerce companies should emphasize on Consumer satisfaction and their problems should be resolved immediately. Along with this, the government should make proper laws regarding e-commerce and expediting the process of digitization, the availability of trained manpower should be ensured to e-commerce companies. To eliminate the problem of electricity, Government has to take initiative to prepare a roadmap for proper power supply. Digital Illiteracy is also a big threat so government has to launch literacy program in rural areas and give them proper knowledge of benefits of internet. Thus urban as well as rural people can avail the benefits of the government schemes and e-commerce.

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CHAPTER 30

Emerging Trends, Issues, and Challenges of Indian Banking Industry (with Special Reference to Digitalization)

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ABSTRACT

The Indian banking industry plays a vital role in the economic development of the country. In the banking and financial industries, information technology has led to product design and delivery advancements. This paper aims to identify emerging trends and investigate various issues and challenges in the banking industry, with a focus on digitalization. One of the most critical areas where digitalization lowers human error and consequently increases customer loyalty is in the field of healthcare. Even the management of enormous sums of money has become more accessible. Customers have benefited from digitalization, with cashless transactions, an encouraging regulatory environment, and transformation technologies that are more readily available, powerful, and cost-effective than ever before. Payments transfer within time frames that would have seemed unbelievable just a few years ago has become a reality thanks to the introduction of electronic banking, electronic funds transfer, and other related goods. New security, privacy, and transaction secrecy have arisen as a result of networking and internet connections. The paper attempts to discuss the recent trends, issues, and challenges in the banking sector. Banking and insurance people, professionals, financial advisors, academicians, students, and researchers will find it helpful and informative. This work paves the way for more research on new trends, issues, and challenges in the banking industry from a unique perspective.

Keywords: *Banking sector, Digitization, Indian economy, Innovative banking.*

1. INTRODUCTION

Many people in developing countries like India still lack banking services due to dispersed and fragmented locations. However, consumers who use banking services have higher expectations as the quality of services improves due to the rise of information technology and competition. Since international banks have entered the Indian market, the number of services has grown, and banks have placed a greater emphasis on matching customer expectations. For the Indian banking business, the current situation has created many challenges, issues, and developing trends.

Digitization is a technology that converts data into a digital format. Banks that embrace digitalization deliver better customer service, convenience, and time savings to their consumers. Furthermore, digitalization continues to reduce human error, resulting in increased consumer loyalty.

In the banking industry, digitization implies making banking more accessible and more unified for customers. Most commercial and public sector banks concentrate on providing new technology-based services to their consumers, such as mobile banking apps and e-wallets.

Today, information technology (IT) has emerged as a critical element for a successful banking system, and Indian banks have put in place a pretty solid infrastructure to use its advantages. In this era of digitization, India, as well as Indians, are preparing to go cashless. Despite the numerous concerns, banking services have steadily progressed with Digitization to provide customers with services at their fingertips and on their laptop screens. Mr. Narendra Modi's "Digital India" program has the potential to transform the Indian banking industry. More than 12,000 rural post office outlets are linked to payment banking, reflecting the growth of 'Digital India.' Apart from granting new payment bank licenses, numerous additional policies and regulations are projected to be implemented in the future, resulting in a paradigm shift in the Indian banking sector. The Digital India vision intends to transform our country into a digital economy with citizen and business participation. Under the Pradhan Mantri Jan Dhan Yojana, approximately 192.1 million accounts have been opened (PMJDY). Around 165.1 million debit cards, a Rs 30,000 life insurance policy, and a Rs 1 lakh accidental insurance policy accompanied the zero-balance bank accounts. Its goal is to provide maximum value to consumers and maximal technological penetration among the masses. With a financial inclusion strategy and a "Digital India" effort to prevent the flow of black money, India, which is still powered by cash, is heading toward a cashless economy.

OMNICHANNEL APPROACH: - Researching new services to opening an account, checking balances, conducting transactions, loans, credits, wealth management, and customer support. It must be compatible with their mobile and digital habits. The Omni-Channel approach is the most effective way to understand and transition a business from traditional banking to digital banking. It is a multichannel customer service method in which all channels are strongly connected, with the customer at the core of the integration. Banks and credit firms specialize in providing a consistent customer experience across several touchpoints when consumers' channel usage patterns change. Omni-channel banking is more than a catchphrase; it's an opportunity to boost the bottom line by obtaining insights from consumers' channels, behavior, and preferences. Customers today are more tech-savvy, and to adapt to their demands, each consumer requires a single banking experience. They expect firms to be aware of their unspoken needs as well as their preferences. As a result, it should be no surprise that these customers expect similar responses and services from banks.

2. BACKGROUND OF STUDY

The ancient Hindu texts in India refer to the Vedic period's money-lending practices. They performed the majority of the functions that modern banks do. Banking had also evolved as a full-fledged corporate operation during the Ramayana and Mahabharata periods. To put it another way, the evolution of commercial banking in the past was inextricably linked to the movement of money. Banking's conventional activities are restricted to accepting deposits and disbursing loans and advances. However, today's banking is referred to as "innovative banking."

Banks encourage people to save, and as a result, they amass enormous deposits, which aid in effectively managing money demand and supply, influencing the economy, controlling prices, wages, and other aspects of economic development. In the banking and financial industries, information technology has led to product design and delivery advancements. Their excellent work is in customer service and customer happiness. The present banking sector has launched a multitude initiative to improve customer service through cutting-edge technology.

Prior literature has highlighted many concerns and challenges in their previous investigations. According to **Garg (1994)**, Indian scheduled commercial banks have made significant progress in the two decades under review, particularly branch growth in rural areas, deposit mobilization, and loan deployment to priority sectors and small borrowers. Reforms in the banking industry are a critical component of the economic reform package. Interest rate liberalization, promotion of a market-based credit allocation system, increased competition, and improved regulatory and supervisory framework efficiency were all part of the reform **(Jegede et al., 2004).**

Kamesam (2001) investigated developments in the Indian banking industry, focusing on technical advancements and bank profitability. Technology has aided in combining centralized data storage with dispersed processing, lowering costs, and reducing NPAs. Furthermore, introducing services such as electronic data interchange (EDI), smart cards, real-time gross settlement (RTGS), and e-commerce increased bank profitability and productivity. The author determined that security audits should be conducted to prevent crime. These audits can help enhance customer service, system efficiency, and hence productivity and profitability.

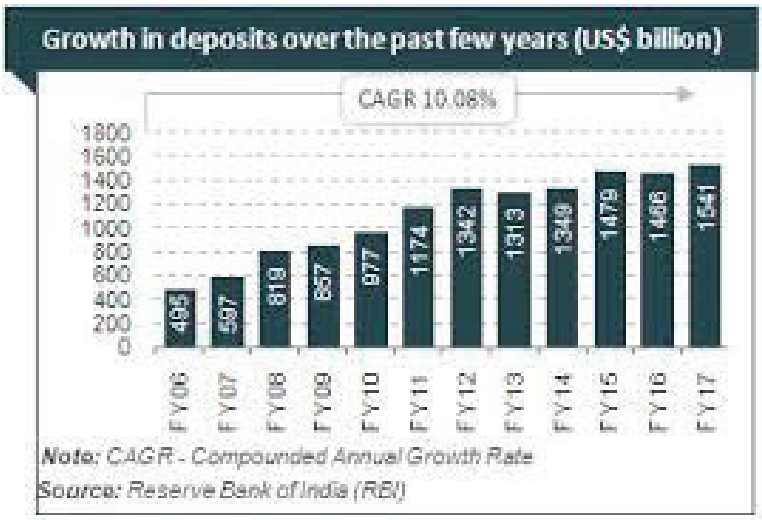
2.1 Objectives of the Study

1) To study the emerging trends and various issues in the Banking Industry
2) To determine the challenges of digital innovation in banking.

We mainly used secondary data to achieve the above-stated objectives, such as various Government published reports.

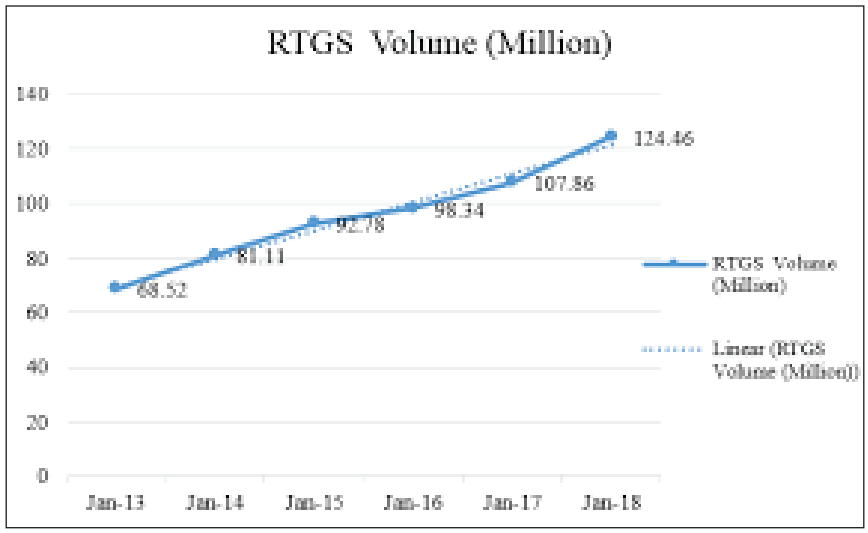
3. EMERGING TRENDS OF THE INDIAN BANKING INDUSTRY

- **Number of Banks: -**In addition to cooperative credit institutions, the Indian banking system includes 12 public sector banks, 22 private sector banks, 46 foreign banks, 56 regional rural banks, 1485 urban cooperative banks, and 96,000 rural cooperative banks. The total number of ATMs in India has climbed to 209,282 as of November 2020 (Statista 2021).
- **Branch expansion**: Since 1969, when there were 8262 branches, branches have steadily increased. According to the Reserve Bank of India's compendium of statistics on the Indian economy, banks extended their branch network by 1804 in FY 2018 and 2958 in FY 2019. (2018-2019).
- **Deposit mobilization:** As the given chart shows, there was significant growth in deposits due to the extension of banking facilities. The average deposits mobilized by a rural branch have also improved, indicating the development of people's saving habits and the extension of banking in the country.



- **Bank lending:** Since 1991, bank credit has expanded significantly. Since nationalization, bank lending has changed substantially, with merchant banking divisions, country-wide lending facilities, special cells to service the needs of industrial, agricultural, and other small borrowers, consumer credit, retail banking, and so on.
- **Advances to priority sectors: -** The fundamental goal of nationalization was to divert a growing share of bank credit to priority and neglected sectors like agriculture, small-scale enterprises, road and water transportation, self-employed people, retail commerce, and small businesses.
- **Local area banks: -** Local area banks (LABs) are a small but essential part of India's banking system.
- **Payment banks**: -The RBI has issued licenses to 11 payment banks to increase financial inclusion. They offer migrant laborers, low-income households, small companies, and other unorganized sector entities small savings accounts and payment/remittance services.
- **Overseas operations of Indian banks**: - Indian banks' foreign operations have continued to grow. In 2018, fifteen Indian banks used a network of 185 abroad offices to conduct business.
- **Financial inclusion**: - The primary goal of financial inclusion is to promote the core goal of the planning process, which is growing with equality.
- **Automatic Teller Machine (ATM): -** The ATM is India's most widely used technology, allowing customers to withdraw money 24 hours a day, seven days a week. Cash withdrawals and ATMs are also commonly used to pay utility bills, move funds between accounts, deposit checks and cash into accounts, check balances, and so on.

- **Tele Banking: -** Tele Banking allows customers to conduct all non-cash banking transactions over the phone. Automatic Voice Recorder is utilized for less sophisticated queries and transactions under this device. Managed phone terminals are used for complex questions and transactions.
- **Electronic Clearing Service**: - ECS is a retail payment system used to make mass payments/receipts of a similar nature, particularly where each payment is repeated and relatively small. This facility is designed for enterprises and government departments to send and receive significant quantities of money, not for individual financial transfers.
- **Electronic Funds Transfer (EFT): -** EFT is a method in which anyone who wants to make a payment to another person/company/etc. can go to his bank and make a cash payment or give instructions/authorization to transfer funds straight from his account to the receiver/bank beneficiary's account. At the time of requesting such transfers, complete information such as the receiver's name, bank account number, account type (savings or current account), bank name, city, branch name, and so on should be provided to the bank so that the amount reaches the beneficiaries' account correctly and quickly.
- **Real-Time Gross Settlement (RTGS):** The Real-Time Gross Settlement system, established in India in March 2004, allows banks to send electronic instructions to transfer funds from one bank to another. The RBI maintains and operates the RTGS system, enabling banks to move funds more efficiently and quickly, easing their financial operations, as shown below.



- **Point of Sale Terminal**: - A computer terminal linked online to a bank's electronic customer information files and a magnetically encoded plastic transaction card that identifies the customer to the computer is known as a point-of-sale terminal. The customer's account is debited during a transaction, and the computer credits the retailer's account for the purchase.

4. EMERGING ISSUES OF THE INDIAN BANKING INDUSTRY

The banking system in India is facing several issues and problems that have impeded its ability to perform effectively. -

- **Asset quality**: - Stressed loans and nonperforming assets (NPAs) impact asset quality in the banking system.
- **Bad loan**: -A poor loan has not been paid back for three months and has accrued interest.
- **Stressed loan**: A stressed loan is uncertain of being repaid even after 30 days from the due date.
- **NPA**: Nonperforming assets (NPAs) are assets that no longer generate income.
- **Capital adequacy**: - To protect banks, particularly depositors, money must be placed aside as a reserve against bad loans. Banks are required to maintain a minimum capital-to-risk-assets ratio for this purpose.
- **Bank fraud: -** Raghuram Govind Rajan, the former Governor of the Reserve Bank of India, expressed worry about the rising number of fraudulent transactions. Banks are hesitant to report such incidents. Almost all corporate loans related to fraud cases, according to the RBI, are seasoned for two to three years as nonperforming assets (NPAs) before being identified as fraud.
- **Declining profit**: - Due to the reasons stated above, banks, particularly public sector banks, are seeing a decline in profit.

- **Political pressure**: - Business people and industrialists secure loans through political sway, spend the money for causes other than those for which the loan was approved, report their companies as ill units, and take advantage of the concessions available for such bad loans.
- **Cyber threats**: As McKinsey's report (2020) shows, about 89 percent of all transactions in India are paid cash-based. Cybercrime is becoming a more severe menace because of the internet's digital transactions and other technological means.
- **Corruption**: There has never been a transparent or clean procedure to obtain bank loans, particularly from the public sector. Bribing employees from the bottom up has become commonplace, as seen by current schemes.
- **Poor service**: -PSB's services are insufficient, resulting in customer harassment. Employees have permanent and secure positions, which gives them a sense of comfort and complacency in their attitude and approach.
- **Priority sector lending:** - The target for priority sector lending has not yet been met by banks. Agriculture, which is a priority sector, continues to be overlooked by small and marginal farmers.

5. THE INDIAN BANKING INDUSTRY IS FACING SEVERAL CHALLENGES

- **Availability of accurate data**: Availability of correct data is a significant difficulty. Artificial intelligence (AI) thrives on data. Thus, any vulnerability resulting from unverified data could be a substantial concern for corporations. They are considering the dangers that KYC compliance AI systems could pose if the data sources are inaccurate. They are assessing the effectiveness of a fraud detection AI system that lacks the proper data. Collecting, validating, standardizing, correlating, archiving, and sharing AI-relevant data requires well-structured systems.
- **Language Barrier**: India has over 150 languages spoken by a large population. Natural language processing (NLP) libraries and techniques are used in applications that convert voice to text or text to address. Some main Indian languages can be supported by banks using current technologies. Still, much more development is needed on the NLP front to reach out to a larger population in India effectively.
- **Data privacy:** Data security and privacy are critical components of any AI work bank. With the implementation of rules such as GDPR in Europe, these considerations will become much more critical (General Data Protection Regulation). The GDPR only applies to European individuals at the moment, although India and other countries have their data privacy laws.
- **Scarcity of trained human resources**: The most significant difficulty is a lack of skilled human resources; the present workforce is inexperienced with the most up-to-date technologies and applications. Second, AI technology poses a massive threat to employees who are no longer needed. The widespread deployment of AI could result in a severe labour shortage in the business.
- **Unavailability of skilled personnel**: The scarcity of employees with the necessary data science capabilities is one of the most pressing issues facing the industry in India, not just banks. With only a few strong data scientists available to try their hand at AI, the industry must collaborate with Indian institutions to cultivate professional data scientists and create in-house training programs to teach staff data science skills. Additionally, using domain experts and data scientists to find appropriate use cases for AI implementation might assist banks in successfully using AI technology for banking services.
- **Loyalty / Customer Satisfaction:** - Today's customers are more value-oriented in their services since they have more options. As a result, every bank must ensure that customer satisfaction is met.
- **To provide a variety of personnel services**: -In today's world, banks are expected to provide a variety of services, including social banking with financial options, selective up-grading, computerization, and innovative mechanization, improved customer service, influential managerial culture, internal supervision and control, adequate profitability, and a robust organizational structure. As a result, banks must be prepared to deliver comprehensive personal service to high expectations consumers.
- **Competition**: Foreign and new private sector banks compete with nationalized and commercial banks. In the banking industry, banks face various difficulties, including product positioning, creative ideas, channels, recent market trends, cross-selling, etc. Banks are limiting their administrative portfolio by converting their personnel to machine power, i.e., banks are reducing manual abilities and maximizing work output through machine power. A competent and specialized workforce will be used, as well as result-oriented, targeted personnel.

- **Managing Technology**: Developing or acquiring the right technology, deploying it optimally, and then leveraging it to the fullest extent possible is critical to achieving and maintaining high service and efficiency standards while remaining cost-effective and delivering a long-term return to shareholders. Technology early adopters have significant competitive advantages. As a result, managing technology is a substantial concern for the Indian banking industry**.**
- **Deteriorating asset quality of PSU banks**: - The biggest concern for PSU banks is worsening asset quality, as evidenced by rising nonperforming assets (NPAs) and restructured advances. Employee expenses, one of the most significant cost components, have also been increased due to regular salary negotiations and higher retirement benefits.
- **Government Ownership**: The Government currently owns almost three-quarters of all assets in the banking system. On government ownership, proponents of private sector banks argue that the Government should minimize its holdings.
- **Gaps in the Credit Flow**: Because more than 60% of India's population lives in rural areas, a large proportion of the country's socially and economically disadvantaged people are engaged in informal economic activities. This sector is essential because of the developing interconnections between informal and formal economic activity (**RBI Discussion Paper 2013**).
- **Other challenges include** a) Managing regulatory reforms; b) Developing bank personnel's skills; c) Customer awareness and satisfaction; d) Corporate governance; e) Changing customer needs; f) Keeping up with technological advancements; g) Lack of common technology standards for mobile banking; h) Maintaining healthy bottom lines and increasing shareholder value, and i) Manpower planning.

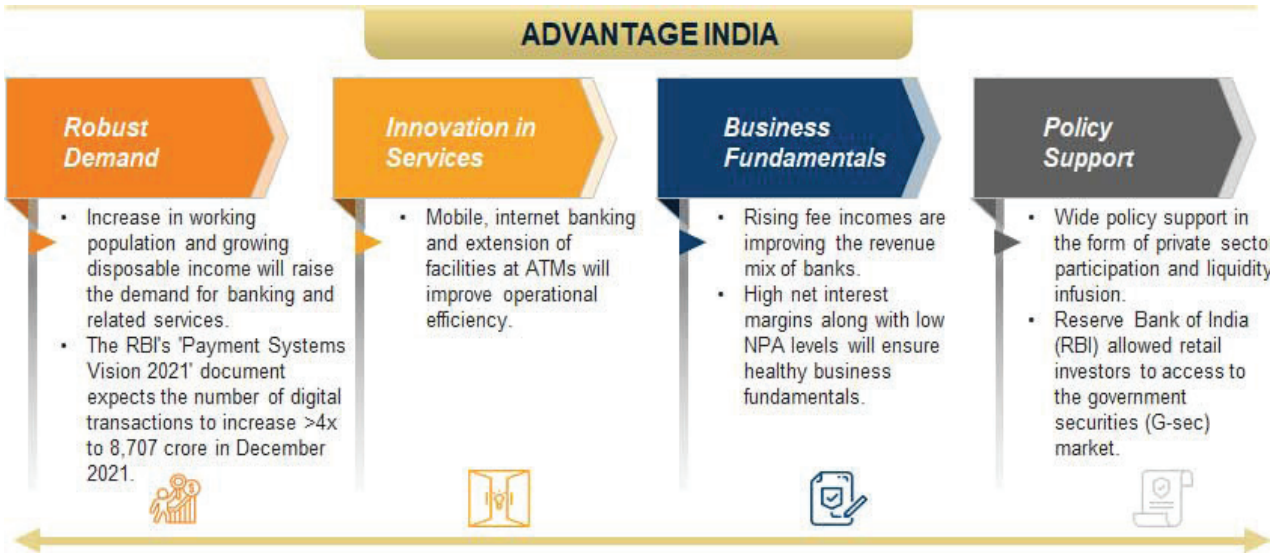
6. RESULT & DISCUSSIONS

Market Size

In FY20, public sector banks' assets totaled Rs. 107.83 lakh crore (US$ 1.52 trillion). Bank credit increased at a CAGR of 3.57 percent from FY16 to FY20. Total credit extended in FY20 reached $1,698.97 billion. Deposits expanded at a CAGR of 13.93 percent from FY16 to FY20, reaching US$ 1.93 trillion in FY20.

As of March 12, 2021, bank credit and deposits totaled Rs. One hundred eight trillion and Rs. 149.6 trillion respectively, according to the RBI.

Indian Banking Industry Report (April, 2021)



Initiatives

The Government of India suggested a completely automated GST refund module and an electronic invoicing system in the Union Budget 2019-20, eliminating the requirement for a separate e-way bill. The Government completed consolidation, resulting in an eight-fold reduction in the number of public sector banks. The Government of India declared the Pradhan Mantri Jan Dhan Yojana (PMJDY) an open-ended scheme in September 2018 and introduced further incentives.

Investments/Developments

Significant investments and advancements in India's banking industry include:

The Digital Lenders' Association established an updated code of conduct for digital lending in December 2020 in response to the RBI's cautionary message.

On February 27, 2021, the Pradhan Mantri Jan Dhan Yojana (PMJDY), the Government's flagship financial inclusion initiative, reached 41.93 crore bank accounts, with deposits in Jan Dhan bank accounts totaling over Rs. 1.70 lakh crore (US$ 23.07 billion).

After receiving permission from the National Payments Corporation of India (NPCI) to 'Go Live' on UPI in a tiered way, WhatsApp began accepting UPI payments in India on November 6, 2020.

In March 2020, the country's largest lender, the State Bank of India (SBI), raised $100 million in green bonds through a private sale.

In February 2020, the Cabinet Committee on Economic Affairs approved the continuation of the recapitalization process for Regional Rural Banks (RRBs) by providing minimum regulatory capital to RRBs for another year beyond 2019-20 until 2020-21 to those RRBs that are unable to maintain a minimum Capital to Risk-weighted Assets Ratio (CRAR) of 9% as per regulatory norms.

Commercial banks' nonperforming assets (NPAs) have been recovered to the tune of Rs. 400,000 crore (US$ 57.23 billion) in the last four years, with a peak of Rs. 156,746 crore (US$ 22.42 billion) in FY19.

The number of transactions processed through the rapid payment service (IMPS) increased to 346.55 million in January 2021, with a total value of Rs. 2.88 trillion (US$ 39.57 billion).

Achievements

The following are the Government's accomplishments: -

The Unified Payments Interface (UPI) recorded 2.73 billion transactions in March 2021, totaling Rs. 5 lakh crore (US$ 68.88 billion).

According to the Reserve Bank of India, as of November 27, 2020, India's foreign exchange reserve stood at $574.82 billion.

The National Bank for Agriculture and Rural Development has approved 204,000 points of sale (POS) terminals from the Financial Inclusion Fund to boost community infrastructure (NABARD).

7. CONCLUSION

Various environmental changes have occurred during the pre-and post-liberalization eras, directly impacting the events outlined above. It is undeniable that the post-liberalization age has brought new growth colors to India, but it has also brought new concerns and challenges. Banks are working hard to stay ahead of the competition. Institutions have been forced to review their policies and tactics due to competition from global banks and technological innovation.

Keeping these all things, it can be stated that technology has significantly impacted bank customers, pushing them to engage in creative banking practices. Finally, in January 2021, the volume and value of transactions via the immediate payment service (IMPS) and UPI rose. They are well-informed about ATMs and credit cards, but not so much about the internet and mobile banking. Furthermore, bank customers' awareness of ATMs is less variable. However, for all other e-banking delivery channels, there is a wide range of awareness among diverse age, education, and income groups. Furthermore, it is found that bank consumers are quick to adopt e-banking products, with new generation bank customers outpacing scheduled bank and nationalized bank customers.

8. SUGGESTIONS

Increased infrastructure spending, rapid project implementation, and the continuation of reforms are all projected to help the banking sector develop even faster. These elements point to a strong future for India's banking sector, as rapidly expanding enterprises turn to banks for financing. Banks should make significant efforts to provide better services to their customers.

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CHAPTER 31

E-Pharmacy: Its Opportunity & Effects on Bricks and Mortar Store in India

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ABSTRACT

The world has now depended on technology, and the dependencies on technology are increasing day by day for their needs, even for their daily needs, so there is the transformation of various classical industries towards technology or depend on technology, and this situation has also created various new opportunities. E-commerce is one of that, as per the report of the Global E-commerce Market, it is 4.2 trillion USD. E-commerce is the selling of goods & services by the internet enabled Electronic Device (Cell Phone, Tablet, and Computer ETC). E-commerce is of three types, Business to Business, Business to Consumer, Consumer to Consumer. As per the source of Statista.com, the Indian e-commerce market is approx 64 billion USD in 2020-21, and it grows by 24% Every Year. After showing the potential and success of E-commerce in India, the pharmacy business started using this technology in 2014. As the Indian Pharmaceuticals industry is the third largest and one of the fastest-growing industries in India. The Indian E-Pharmacy market is about 1.4 Billion USD, but it is expected to grow by 2.8 Billion in 2023. This is expected because the e-pharmacy is still limited to the cities, but its biggest market is in Rural India because many medicines are not available in rural parts and the maximum population resides in rural India. This paper studies the opportunity for E-Pharmacy and its Effect on Bricks & Mortar Store of Pharmacy in India.

Keyword: *E-pharmacy, Bricks & Mortor store, Rural,*

INTRODUCTION

The Growth of E-commerce industries in the world has reached to the peak and this is happen just because of the growth of technology like Smartphone fast internet connection, it's accessibility and also the fastest adaptation of it by the people. this make the people life easy and became the part of their life. Due to of this every industries are trying to adopt more technology for making their goods & services much attractive and useful so that they can attract more customers. Due to of this technology advancement and it adaptation a new industries has been came in to existence which is called E-commerce. E-commerce according to nature are of two types Business to Business and Business to Customers, this E-commerce industries is easily adopted and fastest growing industries in the world. With growth rate of 35 percentage in financial year 2019-2020 by the Source of IBEF. As

this industries is an open market arena, It serves with the interest or benefit to consumer efficiency. Due to of this the many industries has moves towards and adopted E-commerce like consumer durables, Hotels, Travels, fashion etc and almost all of them has became successful so many other industries are trying to adopt it. The pharmacy sector is one of them and newly to this industries which is in nascent stage. Like other E-commerce sector E-pharmacy has led to a situation on which the medicines are reached to the door Steps of the customers. E-pharmacy also makes easy to access the medicine shortage or the medicine which is not easily available even to the extreme backward & Rural region. we know that the 65% of Indian population still resides in village and many medicines are not available their so the E-pharmacies made it easy to get it on their door steps. as the business of E-pharmacy is win-win situation for customers and the sellers it has also a kind of challenge for them as miss use of it by both party like, Miss use of drugs by consumer and wrong medicine delivery. Yet it is a challenge by regularity issue in India. The selling of drugs in India is regulated by the Drugs and Cosmetics Act, 1940 and the Drugs and Cosmetics Rules, 1945.The Drugs and Cosmetics Act makes no difference between the selling of goods online and through brick-and-mortar retail stores. The Pharmacy Practice Regulations, 2015, also does not define "e-pharmacy". A number of complaints has been filed by the Food and Drugs Administrations (FDA's) of various states against the online pharmacies for selling prescribed drug, which is dealt in detail in this paper. Realizing the need for constituting guidelines for online pharmacies, the Drug Controller General (I) has appointed Federation of Indian Chambers of Commerce and Industry (FICCI) as the nodal agency to consolidate the laws relating to e-pharmacy in India.

On 25th of July 2016 the FICCI has come up with some guidelines for the sale of pharmacy online. It is adopt by the industries association to safe guard of the health of customers as well as the industries with having no compromised. But on 23rd of November 2019 the druggist and the chemist association make a nationwide strike demanding from central government to take action against the illegal sale of drugs online. This paper studies the various issue challenge and affect of E-pharmacy over Bricks and mortar store

E-PHARMACY

The hand written prescription of medicine distribution was easy and favourable but with the improvement of technology the method of distribution has replaced Because of the E-commerce soothe medicine has been started distribution only through Digital prescription which is commonly known as the E-pharmacy. It is expected that the traditional sales of pharmacy industries in India may be affected by the 10 to 12 percent, if it will start service to the rural areas. This will happen just because the convenient assess of medicine by customer or consumer. It especially help to the patient with chronic disease and residing in rural areas and have difficulty in finding drugs

E-pharmacy is the process in which the customer placed order electronically by using internet on the Website and the Medicine Deliver through the Courier Mail ETC to the Door Step. According to CAGR the Global E-Pharmacy Market was valued at US$ 49,727.7 Million in 2018. And it is expected to grow by US$ 177,794.9 Million in 2026 with the growth rate of 17.3 percent. Where as the report of IBEF the Indian E-pharmacy market will grow 7 times between 2019 to 2023.

DIFFERENT TYPES OF E-PHARMACY IN

Basically the E-pharmacy are of Two types

- Digital-only stores. This type of e-pharmacy does not have any physical pharmacy store for a customer to visit. They do not provide a pick-up facility to the customers.
- Digital Twin of Brick-and-Mortar pharmacy. This type of e-pharmacy is most popular. It serves as an extension of a brick-and-mortar store. It is also termed as "Digital Twin" or their offline store.

How the E-Pharmacy Works

1. First the customer visit the Website check the available drugs price all the information required by him then the customer add it in to Cart/Bag.
2. Second the Customer Fill all the required information of patient and the Buyers.
3. Customer Upload the Prescription on the Website in his/her account.
4. E-pharmacy Website check the prescription and the Doctor or the Pharmacist contact Telephonically to customer and then approved or disapproved the order.
5. After getting Confirmation from doctor the Medicine are deliver to door step.

ADVANTAGES

1. Money saving
2. Convenience for customers
3. Medicines are available Easily
4. 24/7 access possible
5. Easy for Return Refund
6. Drugs price is easily comparable
7. Privacy
8. Fast distribution
9. Increased choice as wider variety of medicines available
10. Convenient for some patients and old age people who can't leave their home

DISADVANTAGES

1. Chances of drug resistance and interaction
2. Promote self-medication
3. Chances of drug abuse
4. Financial privacy issues
5. Chances of misdiagnosis
6. Chances of drug misuse
7. Purity and quality of drugs not assured
8. Medical privacy is a major concern
9. Easy availability of illegal substances
10. Sale of drugs without prescription by some epharmacies which lead to harmful consequences
11. Online prescription without consulting a doctor
12. Doctor's prescription may not be honoured
13. Doctor- Pharmacist- Patient: This trio trust evaporates
14. Affect business of offline pharmacists

CHALLENGES

1. For governing e-pharmacies in India a tactile laws in need
2. Drug importation and re-importation issue
3. To sell of drugs to the minors
4. Regulatory control over e-pharmacies operating outside the jurisdiction of India
5. Speed of internet
6. Identity and reliability of legal e-pharmacy
7. Protection of consumer rights
8. Security and confidentiality of information exchanged
9. Legality of electronic signature
10. Reach of technology driven model to illiterate people due to lack of knowledge about internet.

FACTORS AFFECTING THE PURCHASE OF MEDICINE ONLINE

A paper from early 1999 has indicated that 'the prototypical web consumer were leads a wired lifestyle & is time starved', and that this was the more likely to predict online purchasing behaviour than the demographic factors 2. The authors also asserted that looking for the products information on the Internet was one of the most important predictor of the online buying behaviour. A study based on the 300 UK consumers in 2004 resulted in a more sophisticated consumer typology which describes different types of motivations for buying medicines or healthcare products online.

Market segmentation of online medicine consumers (Gurău 2005)	
Consumer A	old-aged, with low or medium purchasing power, attracted by the convenience of online shopping and home delivery, but highly concerned about online transaction risks.
Consumer B	middle-aged, high-revenue customer that requires a high service quality, anonymity, rich online information and choice.
Consumer C	middle-aged, with good purchasing power, requiring privacy and discreetness of delivery.
Consumer D	young, with low revenues, less interested in online service quality and less sensitive to online risks, but concerned about price and online payment security.

OBJECTIVE OF STUDY

The major Objective of this study is to understand that what are the factor that influence customer to Adopt E-Pharmacy and the adaptation of E-pharmacy have any Effect on Bricks & Motor Store (Traditional Store) and also the opportunity for E-pharmacy in Indian Market.

REVIEW OF LITERATURE

Anand Navin Baid, Arijit Ghosh 2021 in their paper factors affecting the shift of consumers towards e-pharmacies Stated that the E-pharmacy has target only the customers who are Friendly with online shopping

.In a review article titled "E-pharmacy vsconventional pharmacy", By , Chordiya and Garge 2019 have elaborately & explained that the e-pharmacy model of business and have listed out of the boons and the banes of the E-pharmacy industry.

A research paper Authored by Singh 2019, has discussed the recent proposition to make the e-pharmacies illegal in India. The paper also recommends some ways to regulate and monitor the e-pharmacy industry in India.

In the publication of the "Journal of Medical Internet Research", Fittleret al. 2018 studied the psychological factors affecting the Hungarian population to gradually moving towards the E-pharmacies. They have also explored the possible threats due to of e-pharmacies as respondents reported of the drug abuse due to poor regulation & controls of e-pharmacies.

The article titled "A Review on Online Pharmacy: Views and Counterviews" by Thalkariet al. 2018, had highlighted the loopholes of the Indian pharmaceutical industry on online sales and the various acts pertaining to sale of drugs in India

Desai 2016, in her article titled, "Online pharmacies: A boon or bane?" has pointed out on the role of consumers in order to curb the fraudulent practices in the online pharmaceutical industry in India

A Research Paper authored by Wiedmann, et al. 2010 the Wiedmann investigated the relation of consumer-perceived values and their risks, online shopping attitudes & behaviour in the context of online pharmacy .

The research paper titled "E-Commerce in the Pharmaceutical Industry: Threshold of Innovation", Kanungo 2004 has highlighted the impact of technology on the pharmaceutical industry.

Bates et al. 2002 has pointed towards the increasing use of the information technology in the field of healthcare. This study also suggested that although consumers are increasingly using the Internet for the health-related purposes, they need to be take care of cautious when making the important decisions using the web-based interactions

Whyte et al. 2002 also adds that the reducing health to a daily article of trade reduces the physiological, pharmacological, social and material power of the medicines and completes blanches out its importance.

THEORETICAL FRAMEWORK

Know a days the internet which was the primary source of information, communication and entertainment in last decade has now changed as a medium of the commercial transactions. In fact, the online retail is attracting an increasing the number's of consumers as well as the companies. Firms are started using the internet to promote & enhance the image of their products. The internet has affected the consumer's buying behaviour of choice what, when and how to buy.

The structural changes are leading to the growth of the Indian pharmaceutical industry which include: - Changing demographic structures- The demographic changes in the consumer lifestyle have resulting in increasing of online orders. Besides that, consumer purchasing behaviour are growing in the tier two and tier three cities. The luxury of sitting anywhere, and comparing prices & products features has become the immensely popular among the Indian users and thereby improving their buying experience

Growth in India is driven by the rapid proliferation of the technology. An increase in creative devices and applications like smart phones & tablets along with the access to smooth internet connection is also responsible for increasing of the online shopping. India is the one of fastest growing smart phone market in the world, mainly due to smart phones cheaper prices and the increasing utility of smart phones.

Internet penetration in India is on a high rise as the total Internet subscribers has reached at an annual rate of 15-16 percentage in the last 5 years. With the increasing popularity of mobile phone based internet services, it is likely possible that the culture of online shopping is here to stay. Increasing number of the people on internet base means that more of people are exposed to the "online supermarket".

'Digital India' will transform the lives of the Indian citizens & will also help in making Indian people familiar with the digital platforms for carrying out day-to day activities. With the digitization of the Indian economy, the online pharmacies will also grow its roots within the society.

The Government of India has been taking few initiatives by using various technological tools to improve the standards of the public healthcare system, like National Health Portal, SUGAM and e-hospital @ NIC have been taken up by the Indian government. These initiatives will help the people to familiarize with the online healthcares facilities. The "Ayushman Bharat" scheme has catalyzed this process.

India has witnessed gradual a transition in the last few years in the medical health of people across the globe. Diseases like diabetes & Blood Pressure issues will become extremely common for Indian people. There has been a gradual increasing number of patients with the chronic diseases. This has led to increased in demand of the daily medicines to be taken over a long term; thus this making online pharmacies popular with the medicines being purchased on a regular basis & purchased earlier.

People are now more aware and informed about health issues. Along with the other factors such as increasing consumer spending, the rapid urbanization, and the better health consciousness, this has led to an increase in the demand and in people spending more money on medicines.

RESEARCH METHODOLOGY

This study examine that the what are the factor that affect the respondent to adopt E-Pharmacy. The Primary data has been Collected from 100 respondent of Madhubani district through Structure Questionnaire and the secondary data has been collected from Different Studies. The studies is based on the Madhubani District in the State of Bihar which has 40 percent of Urban Population and 60 Percentage of Rural Population as per the new amendment of Bihar Government. The data has been analysed by Statistical Tools.

DATA ANALYSIS

The respondent has asked about the knowledge about e-pharmacy and their frequency of use for the purchase of medicine online in the scale point.

Frequency	Number	Percentage
Never	23	22.75
Occasionally	31	31.25
Some Time	26	25.75
Often	12	12
Always	8	8.25

RELIABILITY ANALYSIS

Cronbach's alpha is a measure of internal consistency, that is how closely related a set of items are as a group. Cronbach alpha is a Measure of scale reliability. A set of 15 statement has been asked to the respondent regarding the purchase of medicine and asked to them kindly rate all the statement in 5 point scale. The statements are associated with their experience of Shopping on E-pharmacy Website. The reliability analysis has done on the responses to check consistency of data. The result come 0.933 Alfa coefficient of the all fifteen question. This shows they are internally coefficient.

HYPOTHESIS

A. Did the gender have impact on buying medicine Online
   Ho: Gender dose not affect the buying of medicine online
   H1: Gender have affect on buying medicine online
   Result: the result shows that there is no impact of gender on buying medicine online
B. Did the age have impact on buying medicine online
   Ho: Age have no impact on buying medicine online
   H1: Age have impact on buying medicine online
   Result: Result shows that the age have impact on buying medicine online
C. Did Educational qualification have impact on Buying medicine online
   Ho: Educational qualifications have impact on online buying
   H1: Educational qualifications have no Impact on online buying
   Result: There is no impact of educational qualification on buying medicine online
D. Dose income has affect on buying of Medicine online
   Ho: Income dose not have impact on online buying of medicine
   H1: Income have impact on Buying Medicine online
   Result: Result shows that the income have affect on Buying medicine online.

CONCLUSION

This study found that the E-pharmacy has the good future in India because the study was done into one of the backward region of the backward state and found that people participated in the survey were well aware about e-pharmacy and are buying medicine online. But they buy the medicine online Due to following reason if it is cheaper than the local store, medicine which is not required suddenly, Medicine for regular use and the medicine which is not available in the market. that means the tradition medical store (Bricks & Mortar Store) has no affect or very little Affect of E-pharmacy. Where as the other hand the E-pharmacy have a good opportunity for them throughout the nation because of internet network 4/5 G Network and the result also shows that the educational qualification and sex dose not affect the buying of Medicine online

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CHAPTER 32

The Exit Interview: A Formality or Improvement?

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ABSTRACT

In today era of knowledge based economy, skilled employees are treated as assets of the organisations. They pertain their significant role for the accomplishment and attainment of organizational goal and objectives. Thus it is imperative for the organisation to learn from them "why they will stay in the organisation"?, "what will be the reason of their off-boarding from the organisation?", and "how the organization needs to bring the change in their operational and functional strategy" and "how they accustom themselves" with the changing landscape pace and pattern of world eco-scenario. An exit interview might be conducted in face-to-face conversation form, a questionnaire technique form, a survey method form, or in a mix method form of two or more than two kinds of exit interview methods. And providing the important feedback information to management bodies on some pertinent issues of organisation like: what does or doesn't work inside the organization, what will be their opportunity and challenges, and how to build the essential competitive intelligence and advantage. It also focuses on employee engagement and employee retention policy of the organisation. As well as an exit interview also providing insight about to how a departing employees become the corporate ambassadors of the organisation in coming years. This research is to search about the real role of exit interview in organisation and to check its role on the organisational performance that will justify that an exit interview is matter of improvement or just a formality.

Keywords: *Exit interview, Organisational goal, Face to face conservation, Questionnaire, Survey. Competitive advantage.*

INTRODUCTION

An exit interview is a process of conversion of employee experiences to interviewer of an organisation, who has the willingness to leaves the organisation either voluntarily or involuntarily manner (Zima 1983; Goodale, 1982). It is the last chance of the employer to obtain the valuable information from the off-boarding employee in a non-litigation manner (Harms 2001). This interview is possible only when an employee is willing to voluntarily quit from their job, fired or laid off employees are not participated in exit interview process (Meyer & Krug, 2007). An exit interview reveals the real reasons of the employee off-boarding and reflect the information on how an organisation might correct the causes of discontent and how to reduce the employee turnover (Lefkowitz and Katz 1969). It can also help to identify the reasons of happening of voluntary employee turnover. And to gather information from an interview, which might become helpful to identify the ways of improvement of firm performance (Brotherton, 1996; Giacalone and Knouse, 1989; Grensing-Pophal, 1993; Johns and Johnson, 2005; Zima 1983). An exit interview is an excellent retention policy for the preparation of employee forecasting (Simone 2010). And it is implemented as integral part of the overall human resources management process (Shlosberg2010). While the information obtained from an exit interview become helpful for the human resources manager to identify the trends of employees forecasting, performance appraisal, compensation management and so on (Weber 2013). An exit interviews also acts as a strategic management tool to assist the human resource practitioners in the determination of causes of employee dissatisfaction. So that changes can be going to adopt and employee turnover can be reduced (Giacalone, Knouse and Montagliani, 1997; Johns and Johnson, 2005).

1.2 CAUSES OF EXIT INTERVIEW

According to Mitchell, Brooks & Lee (2001) there are several causes behind the occurrence of voluntary termination of employee in an organisation due to which they leave the organizations or they resign from their job. Specifically in case of employee's decision to resign from their job, or to take voluntary termination, Mitchell, Brooks & Lee (2001) stated that job satisfaction and job alternatives are two major factors identified as its main causes of voluntary termination. And Job dissatisfaction is the prime reason for the occurrence of exit interview. Which establish the relationship between job dissatisfaction and employee turnover. Which is one of the most frequently studied psychological variables (Mobley, Griffeth, Hand and Meglino, 1979; Mobley, Horner and Hollingsworth, 1978; Muchinsky and Tuttle, 1979). According to HR Focus Magazine, Which is published on July 2008, stated that it is often believed that employees leaves the organisation because of better offers they get from the other organisation, but the reality is that they leave the organisation due to poor communication between senior and subordinate.

1.3 Functions of Exit interview

During the time of exit interview, an organisation may accustom with the different kinds of organisational functions which are as follows:

(1) An organisation identify the reasons for the happening of voluntary terminations of an employee from an organisation like – push and pull factors of the organisation due to which employees get terminated from their job.

(2) An organisation also making the provision of rehiring the employee to stay in the organisation if they have desires, or to create the environment of outplacement counselling which support the exited employee to get new opportunity in another organisation.

(3) During the period of exit interview, charges or complaints against employees are also being considered for the clarification due to which employee separated involuntarily from the organisation.

(4) The exit interview also proven beneficial to retain the goodwill of organisation, when they becomes an ex-employee (Goodale, 1982; Johns and Johnson, 2005; Zima 1983).

1.4 Significance and Need of Research

An exit interview is one of the most critical and crucial widely used method for the gathering employee feedback information during the time of leaving from an organisation. And to make the rational decision for the fulfilment of demand forecasting and accomplishment and attainment of organisational goals and objectives. As well as fundamental restructuring of organisation policies and procedures for the overall growth and development of employee and organisation at large. An Organisation's objectives behind conducting the exit interview might be: (1) Problem diagnosis of an organisation that might become potential reason to the occurrence of situation of exit interview. And formulation of strategy to find out the reasons of occurrence of exit interview and not to iterate the situation of exit interview again and again. (2) To maintain the cordiality among employee and management bodies. (3) Exit interview also play their role to redress the employees grievances. (Giacalone, Knouse & Pollard

(1999). The organisational objectives behind conducting exit interview are not only to obtain the employees feedback from the departing employee but also to make the organization more effective and giving the value of employees opinions (Lilienthal 2000). Which is rarely seen as a means of attempting to rehire the departing employee (Lefkowitz and Katz 1969).

2 REVIEW OF LITERATURE

Gioia & Catalano in 2011 found that exit interview is helpful for the reduction of turnover of a bank and implementation of recruitment and retaining strategy in the organisation. Whereas DiFlorio in 2012 stated that ignoring exiting employee feedback information from the exit interview disabling the organisation to indentify the real causes of occurrence of turnover as well not making proper planning to employee retention and loses of opportunity to avert the litigation. While Hussain and Ravindra, in 2013 revealed that an exit interview entails all kind of organisational information that relates to working style of management bodies, minimizing the legal issues of organisation, and saving the time and money. In 2014 Cochrane review (Webster & Flint, 2014) concluded that an exit interview not having clear evidence about to reduction of turnover but provides information of intervention to reduce turnover. Bharthvajan in 2014 concluded that exit interview is the best method of retention of talented employees in the organisation. It is also a process of reducing the employee turnover.

In 2014 Nigam & Mishra stated that there are many numbers of personal and professional reasons due to which an employee exiting from an organization such as health, stress, safety, self-employment, lower growth opportunities etc. It is also concluded that exit interview is helpful in reduction of employee turnover. In 2015 Potton advised that exit interview always conduct in the form of discussion not in the form of an interrogation. And the best possible way to obtain feedback is to ask direct question to exiting employee. While in 2016 Turner, Lee-Shrewsbury, & Hill in his semi-structured exit interview of junior doctors, they found that an exit interview is 'useful,' or 'very useful for them. Whereas Hossian et.al. in 2017 concluded that an exit interview helps the organizations to retain the employees for long run period.

3 PURPOSE OF CONDUCTING EMPLOYEE EXIT INTERVIEWS

An organisation having some purpose behind conducting an exit interview to leaving employee. Keeping in mind for that purpose an organisation making the plan to conduct the interview of exiting employees, some of them are as follows:

(1) To accustom with employee perception towards their job: - i.e. how an employee perceiving their jobs in relation to organisation statutory and non-statutory facility provides to them.

(2) To know the reasons of off-boarding of employees from the organisation: - an employee takes the decision of off-boarding only when they are not satisfied to their job due to any reason. And in some cases it has been seen that the prime reasons of an employee off-boarding is payment and salary related issues, issues of working hour and working condition, and other welfare related issue playing their very significant role in the occurrence of employees dissatisfaction which leads to employees off-boarding.

(3) To obtain new innovative insights through exit interview:- that will proves beneficial for the taking right kind of decisions and preparing employee forecasting in right manner to recruit and retain the best employee from the job market, which remain beneficial for the organisational development.

(4) The exit interview uncovers the organizational hidden issues: - in the process of exit interview, an employee may reveal the issues which will be indigestible to organisation management bodies. Because an employees may disclose all the matters whatever they experienced in the organisational work life. That might be related with organisation communication, interpersonal relationship, working hours and working condition issues.

(5) To obtain the managerial abilities and experiences:-An exit interview also provide a way to identify that, are the managers of organisation having enough skill, knowledge, aptitude to retain out exiting employees in right manner or not, and are they collecting the feedback data and information from the exit interview in optimum manner or not. So we say that an exit interview is also a way to indentify the managerial skills and abilities.

(6) An exit interview also focuses on line manager's leadership styles: - in the process of conducting an exit interview, the kind of feedback data collected by the interviewer pertaining to working behaviour and style of employee to the members of line department like – behavioural approach of line manager and other staff were going to disclosed by them in that exit interview. Which reflect the real figure of line managers and other staffs in right manner. The information collected by the interviewer also proven beneficial for the taking pertinent and optimal strategic decision and their implementation in the working function of organisation life. Which provide new way to line managers to accustom themselves with policy and norms.

(7) An exit interview makes employee as an employer brand:-An exited employee may create the negative or positive image of an organisation wherever they go and whatever be they experienced about to their previous organisation. So we may say that words of mouth of exiting employees may be reflected as employer's brand.

4. METHODS OF CONDUCTING EXIT INTERVIEW IN AN ORGANISATION

In an organisation exit interview may be conducted in many different form like face to face interview, questionnaire method of interview, telephonic interview and online survey method of interview:

(1) Face to Face exit interview

Face to face interview is such type of interview in which exiting employees and representatives of human resource department sit together and make conversion to each other to find out the real reasons of employee leaving from the organisation and collecting vital information and feedback to make the rational decision for the development of employees and organisation at large. While conducting such interviews employees may not feel comfortable to share all the matter whatever they experienced during the time of rendering their job at the work place.

(2) Questionnaire method of exit interview

Questionnaire method of exit interview is process of collecting all the vital information to the exiting employees in the form of questionnaire form after filled by the exiting employees. It is the primary method of exit interview which is treated as less time consuming as compared to others exit interview methods. Such type of interview is commonly conducted in small enterprises and call centres where questionnaires are sent to them and returned in generally one to two months after the departure of the employee. (HR Focus, 2008).

(3) Telephonic method of exit interview

Such type of interviews is either conducted by the representative of the human resource department of the organisation or by the intervention of third party over telephone .Which is one of the easiest methods of interview. Such type of interview is generally short and crisp in nature. Whereas it becomes expensive, if it is conducted by the third party intervention because their payment is required to pay to them, by the organisation. And such kind of interview very hardly achieve high participation rate in the interviewing process. Because employees are usually reluctant to share sensitive or negative information over the phone. So in these circumstances an interviewer may not obtain the all real reason of employee exiting from the organisation. Such interview process may not yield the desired outcome in the form of employee's feedback because due to nondisclosure of all the matter of fact. So in context we may say that such interview might not become fruitful for the organisation.

(4) Online Exit interview

An interview conducted with the help of internet is called an online exit interview. This is flexible and highly reliable in nature for the purpose of conducting an interview, recording, storing and retrieving of data during the time of interview and after the interview as per need basis. Such interview always maintain the secrecy of privacy of employee feedback data whatever they shared in the interview process. By this method, departing employees always feel very comfortable to sharing their organisational knowledge and experience information by using computer. Participation rate of departing employees will be double than other methods of interview in such interview process.

5 PROCESS TO CONDUCTING EXIT INTERVIEW PROCESS

An exit interview is conducted by the representatives of Human Resource Department of the organisation and in some cases it is also conducted by the subject matter experts. These are some steps which applying in the process of conducting exit interview is as follows:

(1) At first representatives of Human Resource Department or immediate superior of the employee sent notice to exiting employee to participate in the interview process.

(2) After receiving such notice exiting employees may participate in face to face interview or online survey method of interview.

(3) If employee is not being presented himself/herself then they participate in online exit interview.

(4) After conducting and completing exit interview the results were generated for the analysis and interpretation for the making rational decision in context to organisational development.

6 RESEARCH METHODOLOGY

This research is conceptual in nature, and the present research study illustrated in this paper is primarily based upon secondary data collected from various sources such as national and international journals, internet, newspapers, books, websites and business magazines.

6.1 Research objectives

(1) To understand that whether the exit interview is matter of just a formality or improvement.

(2) To understand the role of exit interview in context to organisational performance.

7 ADVANTAGES TO CONDUCTING EXIT INTERVIEW

There are several numbers of advantages of exit interview an organisation may experience when they conducting them, some of them are as follow:

Reduction of costs of recruitment and retraining of newly inducted employees: –The exit interview is process of conversion of knowledge and information between the interviewer and interviewee to yield the insightful knowledge from the off-boarding employees. Such information and knowledge proven very beneficial to makes the rational decision on pertinent issues to not to reiterate the mistake in the organisation again and again which create the situation of employee off-boarding. If organisation takes it in positive form, then they may make the strategic decision in employees forecasting and training cost as well as retraining cost of previous employees. An exit interview also become helpful to enhance the understanding and experience that managers were require in managing people and organisation at large.

Saving time and money on potential productivity losses: –An organisation may experience lose of time, money, order and customers when a key official leaves the organisation. In such circumstances exit interview remain beneficial and play very crucial role to shorten the learning curve and fulfilment of lose gap due to off-boarding of key official. And save the time and money on the basis of knowledge and experiences, they obtain from the exit interview.

Disclosure of real reasons of the employee off-boarding :– An exit interview play their crucial role like a diagnostic tool to uncover the hidden agenda of the organisation, due to which employees off-boarding like situations yields before an employees. An exit interview also discloses the matter of rehiring of employees if they deemed good and think fit.

Minimization of litigation risk: - An exit interview also reduces the risk of litigation because all possible activities of employee's off-boarding were seems to be complete.

Collecting key information for the job description – An exit interview also reduce the future employees turnover because in the process of interview interviewee might disclose the important information related to job description, that will be essential for newly inducted employees and to reducing the retraining cost of employees. According to obtain data for the job description, a hands on experiences person might become essential for the preparation of employees job description, which also provide the insight to succession planning.

Focus on future business – An exit interview also provide insight to management body to saves time and money and to focus on their current and future business prospects, rather than spending time and money to recruiting and retraining them.

Identifying and managing trends and underlying organizational issues- An exit interview is an excellent source of identification of organizational issues, which may be the cause of high employee turnover.

Review of overall recruitment and selection process of organisation –An exit interview might identify that, the departing employee might not be the right person for the job in the organisation or the manager might not have right kind of managerial skills to manage the all affairs to not to yield the situation of employees off-boarding and might they need more training for their experience work life.

Increased employee retention- An exit interview also entails about to negative trends and aspects of a company, if that are corrected then organizations might becomes capable to increase the employee retention ratio and satisfaction of the employees**.**

Quantifying performance management system – An exit interview also focus on organisation performance management and feedback system to identify that where improvement is requiring for the better organisation development.

Enhance morale and staff satisfaction - The exit interview reveals that an employee off-boarding is on good terms and they will be proven favourable for the organisation with their right attitude in future course of action.

9. DISADVANTAGE TO CONDUCTING EXIT INTERVIEW

Expensiveness: An exit interview is a process of conversion between interviewer and interviewee. If is conduct by the intervention of external expert, then their salary will be the matter of payment to them, which make the interview process costlier. It also includes the time and money for the preparation of interview and conducting to interview. Codification of results and analysis of their result is also very expensive, because it requires money to complete the process.

Biasness due to personal reasons: In many times an exit interview is conducted by the employees of an organization. In that condition it is possible that due to some personal reasons to departing employee, that interviewer may present a bias report to interview before the management bodies.

Large data may create difficulty for their analysis: If at a given time period exit interview were conducted at different locations between the many number of interviewer and interviewee, in that case it become very cumbersome for the recorder and interpretrator to handle all the interview as well as to record and interpretate to them lucidly and precisely. So if large data is recorded or interpreted mistakenly the ample confusion and difficulty may be yielded to obtain the desired result.

REAL FACTS MAY NOT COME OUT AT THE TIME OF INTERVIEW

It is not essential that an off- boarding employees reveals the all reality whatever they face and experiences at the workplace in the organisation during their work life tenure. They might not disclose all the truth and reality about to all aspects of job due to issue of morality and they may remain silent in that context.

FINDINGS

The key finding of this research is based on the study of literature survey on exit interview. This is based upon the employee feedback responses. That is collected by the organisation from the exiting employees in the process of exit interview. An employee leaves the organisation in the voluntary manner due to dissatisfaction yielded by the occurrences of grievances in their work life. Grievances originated due to dissatisfaction of their job and allied issues like working hours and working condition, payment and salary issues, interpersonal relationship and so on and so forth. Literature survey very explicitly and clearly expressing that exit interview will prove helpful in the reduction of employee turnover while in many cases it may exhibit biases responses due to biasness of interviewer. And in some cases it is not revealing real truthful response due to fear of employee morality. So we may say that exit interview revealing divergent kind of responses at the time of interviewing.

CONCLUSION

After through study of several numbers of researcher contributions in this area of research it has been concluded that an exit interview is not a just a matter of formality only. It is playing very significant and critical role for the reduction of employee turnover and enhancement of employee retention. Which play their role significantly as a motivational factor for the organisational improvement. Some researcher literature survey revealing that exit interview proven helpful for the overall development of an organisation like: employees forecasting, training and development, performance and compensation management, and other welfare measures. So in this context research contribution may prove that exit interview is matter of improvement not mere a formality.

LIMITATIONS

This research study is conceptual in nature. And the data, information, and Knowledge presented in this paper may not sufficient to reveal the actual result. So in this context further more extensive empirical based study is requiring to find out the actual result. Hence other research area is open for the better experiences and finding.

Future Implication

Future implication of this research may prove helpful for the corporate companies as well as the public sector companies to make such provision that create the rational decision about to rehiring of exiting employees. Rehiring of exit employee might reduce the recruitment and selection cost of the company. Because they already fulfilled the eligibility criteria of the company. Exit employees also not incurring any training and development cost for their own development to become familiar with their assigned work. So we may say that exit interview may prove beneficial for the organisation if they take it positively oriented mindset.

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