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Changing Contours of Indian economy: Comparative assessment of inter-sectoral growth

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ABSTRACT
Economic growth is linked to the performance and dynamics of different sectors of economy. Over the years India has achieved a significant growth in all sectors; particularly service sectors by contributing the largest share in the Gross Domestic Product (GDP). Before, liberalization the economic growth was mainly dependent on Agriculture sector supported by other sectors like manufacturing and service sector. Agriculture sector was the chief constituent of the GDP followed by manufacturing and service sectors. But after the new economic policies, the inter-sectoral dynamics has reversed as agriculture sectors is lagging behind despite major source of employment. Therefore, objective of this paper is to analyse inter-sectoral analysis and assessment of Indian economy since 1951. Hence, comparative growth pattern of agriculture, industry and service sectors are analysed along with GDP growth.

Key Words – Economic growth, GDP , inter-sectoral analysis

Introduction

The evolution of Indian economy can be traced back from Indus valley civilization which thrived during 3500 BC to 1800 BC. Economy of the Indus Valley was dependent on agriculture, domesticated animals and trade with other regions which were spread up to Mesopotamia. Over the time, the trade relations extended up to Middle East and Greek which enhanced trade and agricultural productivity in Indian subcontinent by 185 BC. During 1st century to 17th century AD, India was the largest economy of the ancient and medieval world comprising more than one third economy of the world [1]. According to an estimation the Gross Domestic Product (GDP) of India was about 25% of the world economy during the Mughal period. Maddison (2007) analysed global economy and found that the GDP of India was more than the GDP of China by 1700 AD which was nearly 24% of the world GDP. The main source of economy during the period was domesticated animals, agriculture and trade. The GDP of India was started declining in the latter half of the 18th Century [2]. The Mughal were replaced by Marathas and other rulers. Subsequently, the British India Company expanded its political influence and established colonial government which affected Indian economy adversely due to emergence of British imperialism in India due to economic drain, though the infrastructure such as railways network, telecommunication and postal network was largely developed by British rulers in India. A large network of irrigation was also developed by them. The emergence of capitalism and economic growth of France, United States, and Germany was other factors in the decline of Indian economy. This phase was concentrated power with capital, technology, science and manufactures which lasted from 1800 to 1945 [3]. One of the major factors for decline of economy during British rule was diverting revenue towards wars within India and with Europe, this led shattered economy of India.

After independence in 1947, the process of rebuilding India started by focusing on growth of agriculture in the first five year plan (1951-56) along with other sectors. Hence, investments were made to promote agriculture, creation of irrigation facilities, construction of dams and expansion of infrastructure. The first five year plan was based on the Harrod–Domar model that describes India's economy growth in terms of the level of saving and productivity of capital which suggests that there is no natural reason for an economy to have balanced growth. The second five year plan (1956-61) was centered on rapid industrialization to boost industrial infrastructure to accelerate GDP growth. In the beginning policy was to make India self-sufficient. Subsequently, economy of India passed from self-sufficient economic phase to the phase of open economy in the end of 1980s. When the process of globalisation stated the new economic policies emphasis shifted from agriculture to industry to service sector that yielded annual GDP growth 9.48 percent in 2005-06. During the regime of open economy services sector became the major contributor to the economy, while agriculture and allied sector became the least contributor. Economy of India, thus, transformed from agrarian economy to service sector economy. The sectoral transformation in the economy of India, therefore, requires an analysis to assess the potential of different sectors of Indian economy; agriculture, industry and service sector. It is imperative to estimate the constituents of economy for strategic point of view because at the time of implementation of first five year plan (1951-52) the share of agriculture and allied service was 51.88 percent, industry 16.19 percent and service sector 29.54 percent in GDP while during 2013-14 the share of agriculture and allied service was 13.94 percent, industry 26.13 percent and service sector 60.05 percent. The analysis could be helpful to provide status of future potential of different sectors and trends of economy.

Methodology

Objective of the paper is to anayse the growth pattern of different sectors of Indian economy and GDP growth. Attempt is also made to analyse the relationship between growth of GDP and Agriculture, Industry and Service sectors. The analysis is based on annual rates of growth of GDP and sectors of economy. The analysis is defined in two ways:

(i) to examine growth pattern of economy, linear growth model is applied as defined below;

$$Y = a + bX \qquad \text{(i)}$$

where Y is a dependent variable and X is an independent variable; a, b are constants

(ii) to analyse relationship between GDP growth and sectoral growth Pearson correlation techniques is applied along with descriptive statistics i.e. Mean Deviation is calculated to evaluate deviation of growth of GDP and different sectors of economy.

$$MD = \frac{1}{N}\sum_{i=1}^{N} |x_i - \bar{x}| \qquad \text{(ii)}$$

where notations have usual meaning

For analysis time series data for the period 1952-2014 [4] is used for GDP as well as sectoral growth. For parameter estimations SYSTAT package was used [5].

It was kept in mind that total GDP is a sum of different sectors (e.g. Agriculture, Industry and Services). Therefore, a policy that affects one sector will affect overall GDP growth through this sector. Some polices may affect more than one sector, with the relative effect on these sectors

varying over time. A given policy may also affect one sector positively and another negatively. In this case the effect on overall GDP growth may be either positive or negative. A set of policies in general have positive and negative effects on different sectors, with the net effect on overall GDP being an aggregation of these sectoral impacts [6]. Hence, it was assumed that the affect may be captured and scaled by using the linear model and correlation techniques.

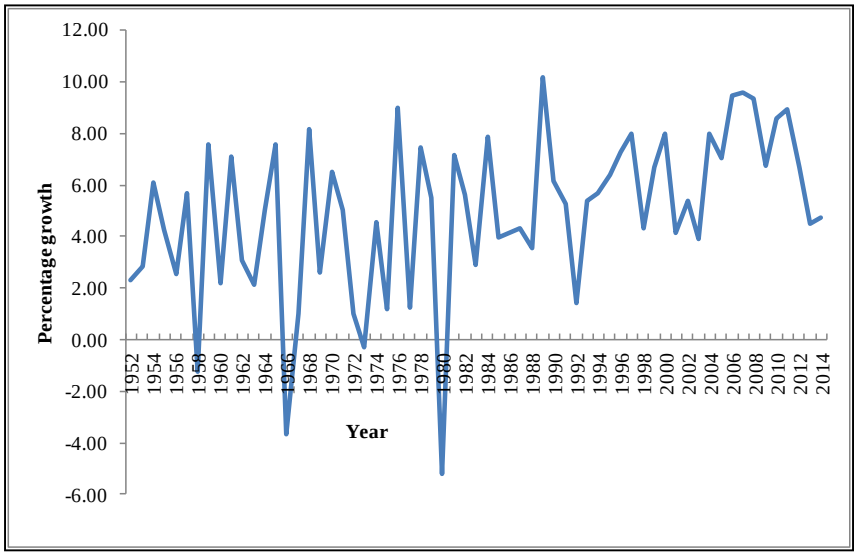
Economic growth and sectoral composition in India

India adopted socialistic strategy of economic growth focusing on self-reliance and alleviation of poverty. It was based on the philosophy of mixed economy with a co-existence of public and private sectors adopted from USSR model of five year plan. The First Five Year Plan (1951-56) was designed to raise domestic savings and expand agriculture to raise GDP while the Second Five Year Plan was articulated to develop heavy industries in the public sector. Subsequently, policies focus were on expansion of infrastructure with integrative approach and human development. The policy emphasis included as a high growth rate, national self-reliance, reduction of foreign dominance, indigenous capacity building, encouraging small scale industry, bringing about balanced regional development. However, this could not accelerate the economy, so a shift in economic policy was occurred during late 1980s by adopting policy of economic liberalization. Policy of deregulation was started consequently, (i) some industries were delicensed without any investment limit and (ii) all industries were exempted from licensing except for a specified list of industries during 1988[1]. This was the beginning of the process of liberalization in late 1980s and was resulted into the regime of liberalization process initiated by Manmohan Singh, the finance minister in the Government of Shri P. V. Narasimha Rao in 1991. As a result, economy of India was on the path of reforms which accelerated growth in industrial sector and service as well. This led growth in GDP and service sector became a main sector in the process of economic development.

To understand Indian economy the economic growth can be divided into three phases (i) socialist phase of economy (1950-51 to 1979-80) (ii) Pre-liberalisation phase (1980-81 to 1993-94) and (iii) post liberalization or market reforms phase (1991 onwards). The early phase or the socialist phase of economic growth was very slow with average GDP growth rate of 3.5 percent per annum (Figure-1). This phase remains until 1980 and the growth in this period was volatile [6]. Then economic policies were guided by the process of globalization and reforms in economic policy began as a result boost in Indian economy was registered and trends were sustained.

[1]Three important committees were set up in the early 1980s. Narsimhan Committee on the shift from physical controls to fiscal controls, Sengupta Committee on the public sector and the Hussain Committee on trade policy.

Figure-1: Percentage Growth of GDP at factor cost (1952-2014)



It could be observed that growth of Indian economy was not stable and had been fluctuating. The growth of Indian economy is ascribed to different sectors of economy mainly; primary, secondary and tertiary sectors and therefore, the GDP growth may not be mere dependent on a single sector. However, in India before the process of liberal policies the economy was more dependent on primary sector particularly on agriculture and allied services and was termed as agrarian economy. But in the new economic regime the economy of any country or region is a product of dynamical interaction between primary, secondary and tertiary sector. The share of Agriculture in GDP during 50s was over 50 percent which gradually declined to about 15 percent while service sector was the least contributors. The growth of different sectors and their contribution to total GDP is given in Figure-2 &3.

Figure-2a: Annual growth of different sectors (1952-14)

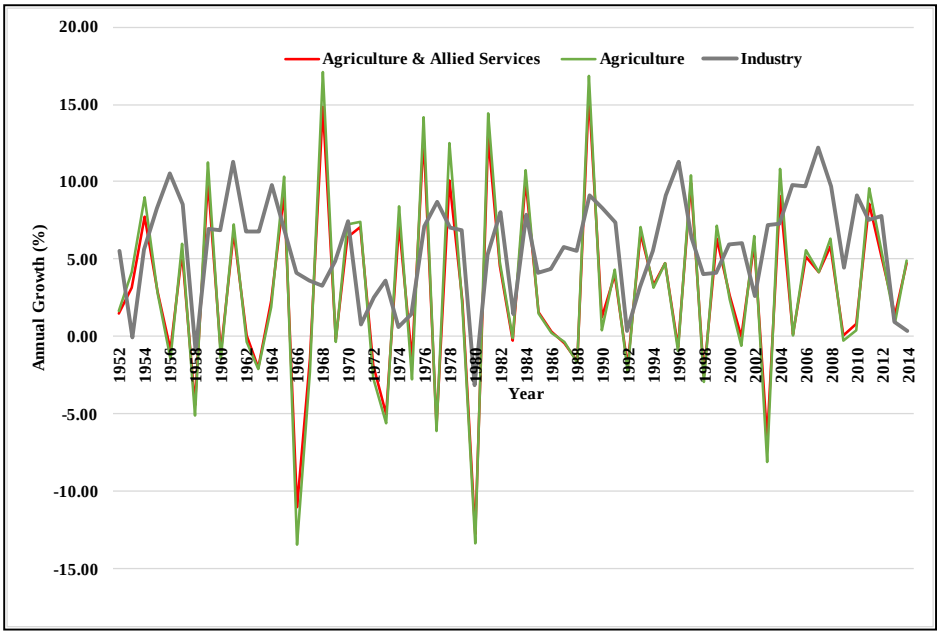


Figure-2b: Annual growth of different sectors (1952-14)

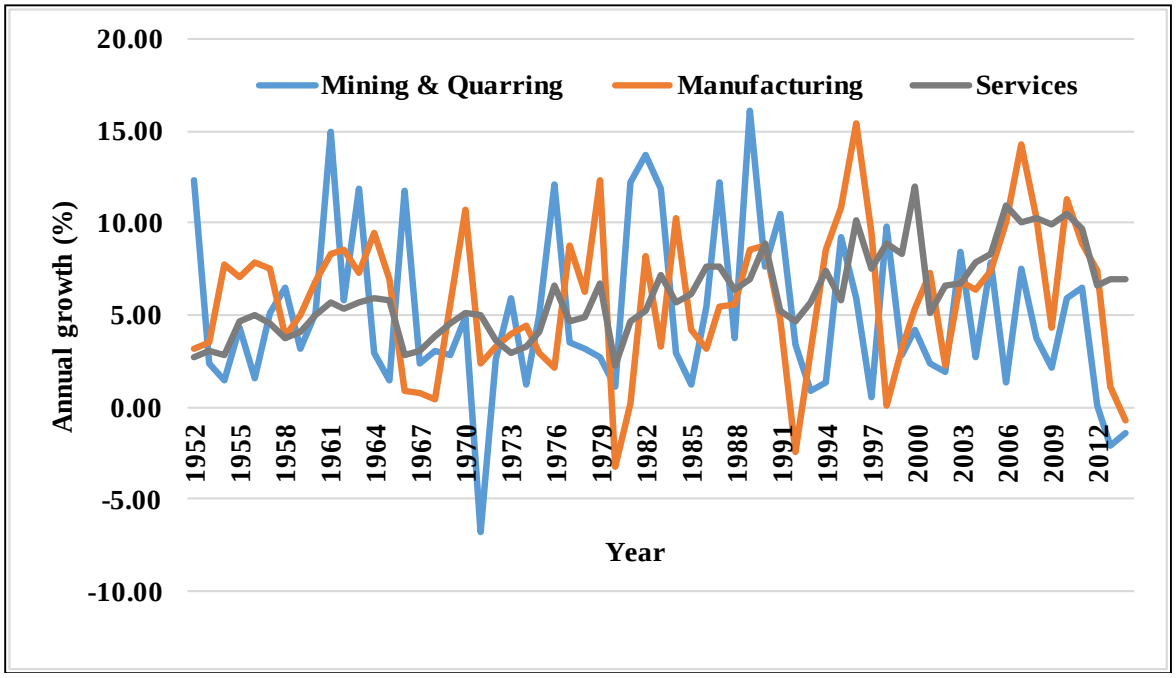


Figure-3a: Share of different sectors to GDP (1952-14)

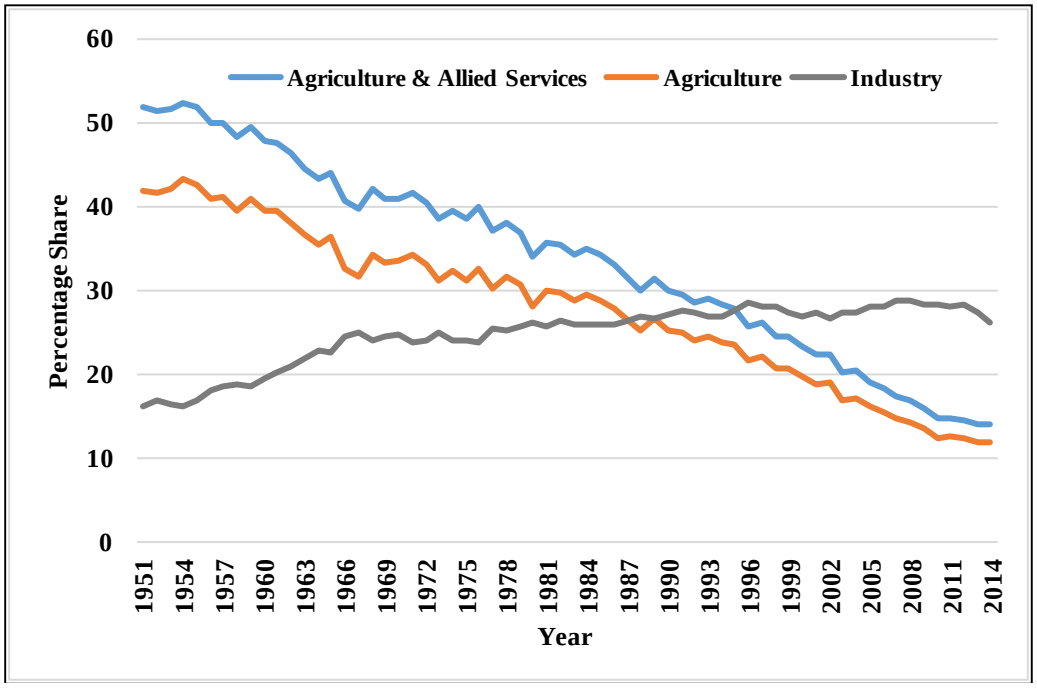
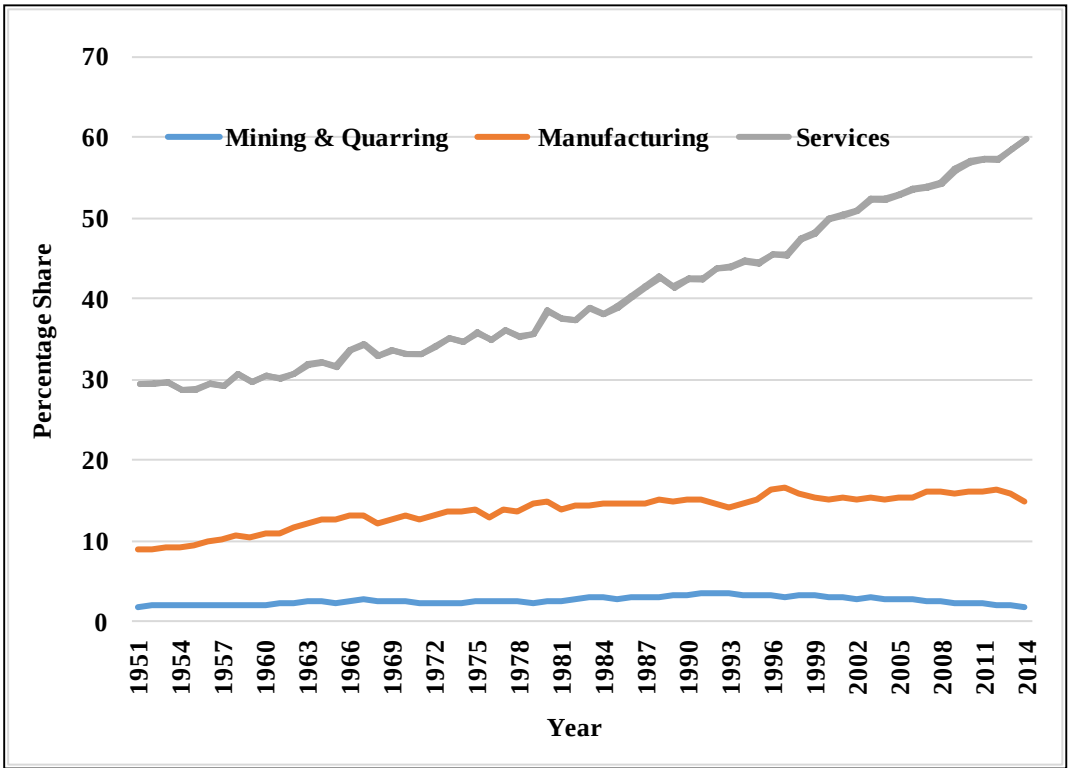


Figure-3b: Share of different sectors to GDP (1952-14)



The available data indicates that over the year share of Agriculture, Mining and Manufacturing has declined while Industry and Service sector shown a steady growth. Consequently, a big shift was observed in Indian economy by replacing Agriculture to Service sector. It is significant to note that Industrial sector, despite heavy investment, could not contribute as expected in the GDP and legging behind. The share of Industrial sector in GDP was declined in 2013-2014 as compared to 2012-13.

Analysis and results

Data pertaining to GDP and different sectors for the period 195-51 to 2013-14 was considered for analysis. Analysis was made to examine linkages between different sectors and GDP. Also, analysis was done to make projection of GDP and different sectors to assess future trends of growth of Indian economy. For analysis and parameter estimations SYSTAT was used and using the values of parameters future projections were made up to 2025.

Correlation coefficients are listed in Table-1, while parameter estimates for GDP and different sectors are given in Table-2 and Table-3 respectively. Projections for sectoral growth and GDP are presented in Figure-4 and Figure-5 respectively.

Table-1: Correlation coefficient between different components of GDP

Variables	GDP	Agri & Allied Services	Agriculture	Industry	Mining	Manu-facturing	Service
GDP	1000						
Agri & Allied Services	**0.813**	1.000					
Agriculture	**0.802**	0.998	1.000				
Industry	0.592	0.269	0.251	1.000			
Mining	0.034	0.025	0.028	0.342	1.000		
Manufacturing	0.512	0.184	0.168	0.814	0.109	1.000	
Service	0.638	0.156	0.139	0.440	0.037	0.433	1.000

Table-2: Mean deviation for different components of GDP

	GDP	Agri & Allied Services	Agriculture	Industry	Mining	Manufacturing	Service
Mean Dev	4.960	**2.903**	**3.035**	5.765	5.029	5.835	6.127

Table-3: Parameters for GDP and different sectors

GDP Components	a	b	MSE	CRS
GDP	2.657	0.072	9828.911	0.128
Agri & Allied Services	2.992	0.019	269.355	0.004
Agriculture	2.481	0.017	293.255	0.002
Industry	5.175	0.010	1050.363	0.010
Mining	5.989	-0.030	805.911	0.015
Manufacturing	5.075	0.024	1078.514	0.013
Services	3.141	0.093	1273.267	0.552

Figure-4a: Projections of different sectors (2015-2025)

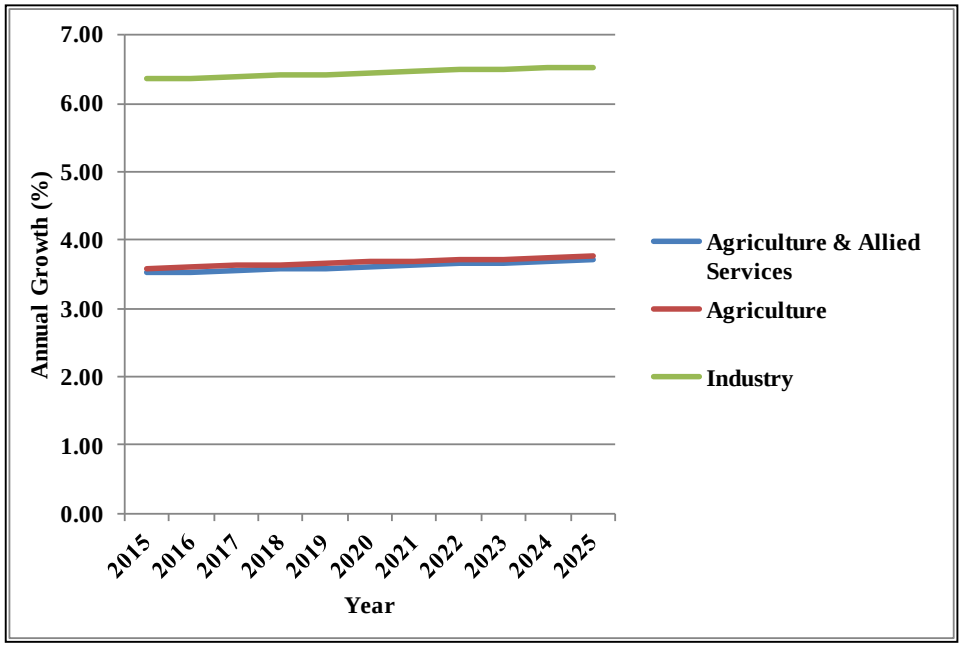


Figure-4b: Projections of different sectors (2015-2025)

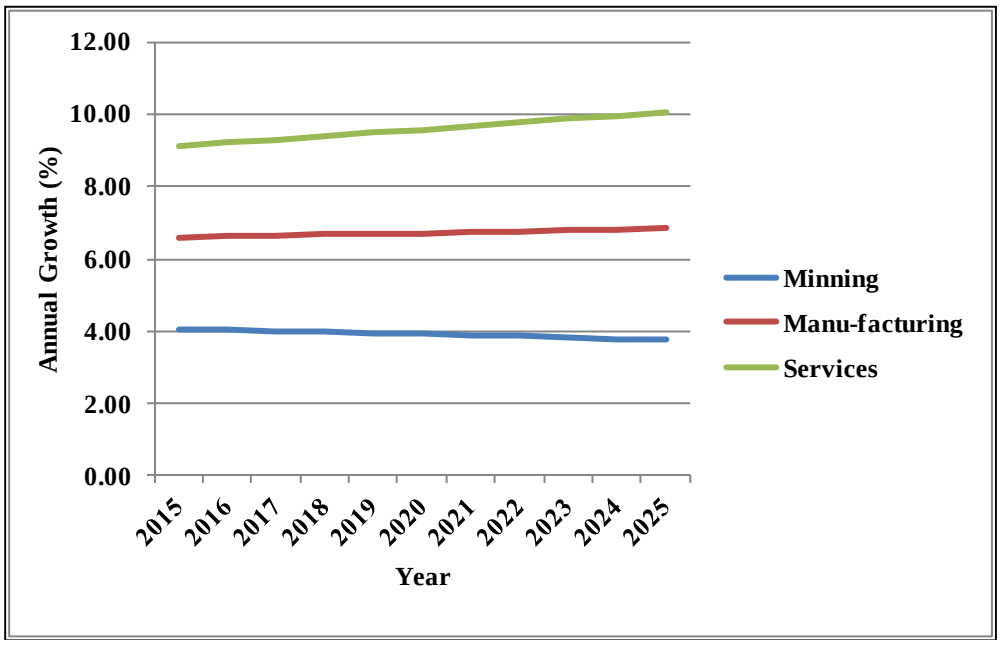
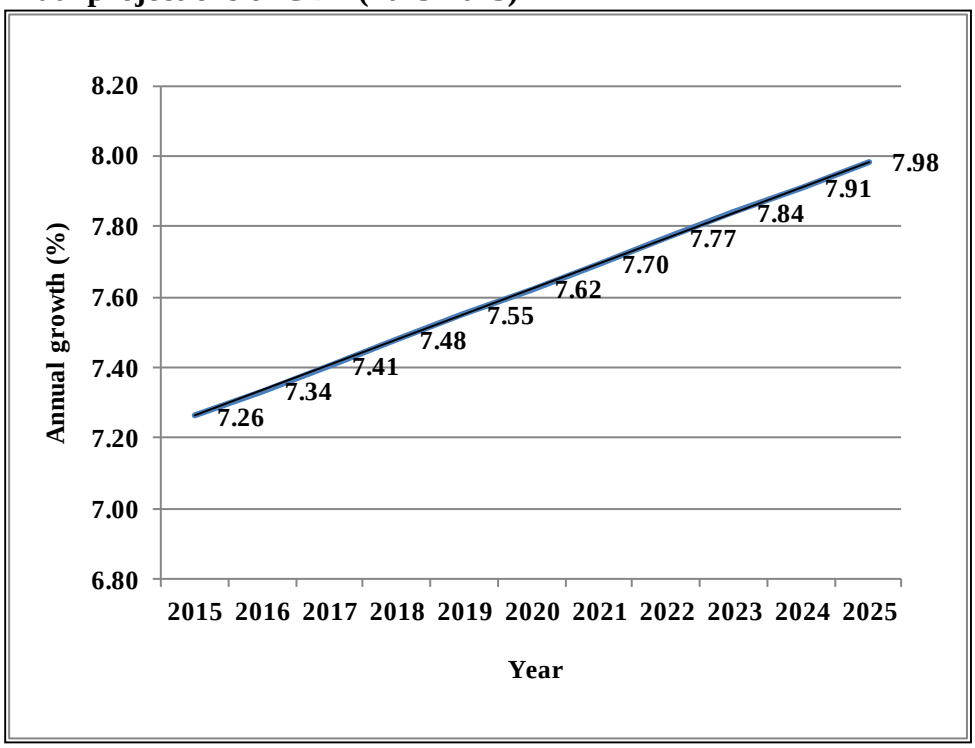


Figure-5: Annual projections of GDP (2015-2025)



In this paper an attempt was made to examine the linkages of different sectors of economy with GDP growth. It also tries to analyse future growth trends of GDP and different sectors of Indian economy. The results show that there is a statistically significant correlation between Agriculture and allied services/Agriculture (correlation coefficient(s) 0.813/0.802) and GDP followed by Service sector (correlation coefficient 0.638) and Industrial sector (correlation coefficient (0.512). This is supported by the mean deviation values for Agriculture & allied service (2.903) and Agriculture (3.035) which are least. The Mean deviation values for Industry and Service sectors are 5.765 and 6.127 respectively. Statistically it could be inferred that consistency in GDP growth is likely more dependent on Agriculture sector than Industrial and Service sector. The value of Mean deviation for GDP is 4.960 which is statistically significant which signifies that the GDP growth in future is likely to be stable. However, the rate of growth of GDP may remain slow.

Projection results indicate that Mining sector may face decline trends and annual growth of in the Manufacturing sector is expected scanty. Similarly, the growth rate of Industrial sector is likely to increase marginally, while Agriculture sector may perform little better in terms of annual growth. On the other, the rate of growth in Service sector expected little moderate in coming years. The major constituent components of Indian economy exhibit positive growth hence GDP is like to increase in future. Annual growth rate of Agriculture sector is expected about 4 percent. Similarly, Industrial sector is expected to grow annually with 5 percent, Mining sector 4 percent, Manufacturing 7 percent and Service sector 10 percent by the year 2020. Accordingly, annual

growth rate of GDP is expected about 8 percent per annum by 2020. However, the Government policy particularly on "Make in India" may boost GDP growth in coming years. The "Make in India" flagship project focused on manufacturing and industrial sector which will boost GDP by contributing a big volume to the economy.

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Participation of Banks in the Commodity Derivative Market- A Policy Perspective

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ABSTRACT

In India, Banks as per the current regulatory position are not allowed to participate directly in the commodities market. Indirect participation in the market in the form of financing commodity business, providing advisory services, financing working capital requirements and also owing stake in the commodity exchanges is however allowed.

The rationale behind not allowing banks to directly participate in this market has been the concern that doing so would promote excessive Financialisation of commodities and consequent price distortions and inflation. The other reason that has also been sighted is that the erstwhile regulator of the commodities market , the Forward market commission (FMC) had not been sufficiently empowered to deal with high volume trading which would result if banks were to be allowed to participate directly in the market

Allowing banks to participate in the market however has multiple associated benefits. Many committees constituted from time to time by the Government of India to examine this policy issue have also suggested that Banks be allowed to participate in the market, also with the strengthening of the regulation over the commodities market due to the merger of the Forward market commission (FMC) with the Securities and Exchange board of India (SEBI) in the month of September 2015, this policy issue needs to be relooked at.

This research paper aims to examine this policy issue from various perspectives especially in the light of the recent merger between the two regulators , the Forward market commission (FMC) and the Securities and Exchange Board of India (SEBI).

Key words: Banks, Commodity Market, Regulator, Financialisation & commodities

JEL Classification: G1, G2 & K2

I) Introduction

In India, Banks and other financial institutions such as insurance funds, pension funds and mutual funds as per the current regulatory position are not allowed to participate directly in the commodities market. The Banking Regulation Act, 1949 prohibits both Indian and foreign banks from trading in goods, Section 8 of the said act states “No banking company shall directly or indirectly deal in the buying or selling or bartering of goods, except in connection with the realization of security given to or held by it.” They are however allowed to finance commodity business, give advisory services, provide funds to finance working capital requirements and also own stakes in commodity exchanges, but not directly deal in commodities.

The primary reason behind not allowing banks to directly deal in commodities has been the concern that it would lead to increased Financialisation of commodities, promote speculation, price distortion and inflation. The argument that is usually sighted is that allowing more money into the commodity market would fuel inflation without any corresponding benefits to the primary producer, namely the farmers. The other reason sighted is that the regulator namely the Forward market commission (FMC) is not sufficiently empowered to deal with high volume trading and the risks associated with it namely speculation and parallel illegal trading. Proponents of allowing banks to trade in commodities market have bought out their own rationale behind what they say and the same appears to quite outweigh the above stated reasons for not allowing them. The major argument put forward by the proponents is that banks are most suitably placed to perform the aggregation function thereby allowing small and medium farmers to participate in the future market which otherwise are not in a position to do so due to the large contract size and small trading surplus. This would not only enable farmers and other participants in the commodity market to hedge away price risks more effectively but would also promote further liquidity in the market and strengthen its price discovery mechanism. In a way it would also promote financial inclusion of the farming community which is one of the most disadvantaged sections of the society. Also with the strengthening of the regulation over the commodities market due to the merger of the Forward market commission (FMC), the erstwhile regulator of the commodities market with the Securities and exchange board of India (SEBI), this policy issue needs to be relooked at.

On December 10, 2012, the then finance minister had proposed to add a new clause in the Banking Laws (Amendment) Bill, which allowed the entry of banks in commodity futures trading in India. After strong opposition by political parties on the grounds of parliamentary impropriety, the government dropped it from the Bill on December 18, 2012.

In the light of this background, this research paper begins by providing an overview of the commodities derivative market in India and its significance with reference to the development of an economy, it then examines the changes in the regulatory framework in this connection and thereafter proceeds to study the policy issue relating to the participation of banks in the commodities market by reviewing the arguments put for and against it.

II) Research Methodology:

This research is primarily policy based and has been undertaken through an extensive study of published and unpublished literature mainly comprising of government reports, case studies and other related literature.

III) The Commodities Derivative Market in India

Today worldwide the commodity markets have assumed great significance as far as the growth and development of an economy is concerned, Commodities both agricultural and non-agricultural are considered to be the building blocks of any economy. Almost all sections of the society right from the farming community to brokers, manufactures, traders and even the government are directly or indirectly affected by the functioning of this market. The commodities are traded in the spot market and in the derivative market. In the spot market the

buyer takes immediate ("physical") delivery of the commodity. They are also traded in derivatives markets through derivative instruments such as forwards, futures, options, and swaps. Since commodity "Futures" trading was permitted in 2003, the commodity derivative market in India has witnessed phenomenal growth but also at the same time trading in select commodities has been banned from time to time by the government of India. This was done because it was suspected that futures trading especially in the case of agricultural commodities were the cause of rising inflation. A Committee under the chairmanship of Prof. Abhijit Sen was appointed in the year 2008 to look into the issue of the relationship between Inflation and futures trading in agricultural commodities. The Committee however was unable to find any causal relationship between price rise and futures trading.

Trading in commodity derivatives have always been a matter of controversy at various policy forums across the world. There is a large group of people who feel that that it should not be allowed at all, as it brings about excessive Financialisation of the commodities through increased speculation and thereby promotes irregular price fluctuations. These increased price fluctuations promote uncertainty and fuel inflation. This very fact has made the government very apprehensive about introduction of commodity Future trading. The overcautious behavior of the government has actually not allowed the market to develop to its full potential. The irony is that a large section of the empirical evidence has proved that trading in commodity futures has nothing to do with price fluctuations in basic commodities and price fluctuations are the cause of demand – supply mismatches. It is this overcautious approach that has prevented the government from allowing banks and other financial institutions to directly participate in the commodities market.

On the contrary movement of India and other developing economies to higher levels of trade liberalization particularly in the context of agriculture has created a more compelling case for the strengthening of the commodities derivative market in order to enable it to perform its crucial role of price risk management, price discovery and thereby efficient resource allocation. The policy of the Government has been to protect and promote the agriculture sector through procurement and administered price mechanism. However, in view of the fiscal pressure and that of WTO to reduce direct support to agriculture under Agreement on Agriculture there is a policy shift towards a market-oriented approach. In recent years, a major theme in liberalization of the agricultural sector has been the improved functioning of product markets. It is increasingly felt that efficient product markets serve to further the interests of the agricultural sector. According to Ghosh N (2008a) commodity futures is a market mechanism that is viable for risk management and price discovery, and such institutions can help "bail out" the economy from the vagaries of international trade. In fact the World Bank way back in the year 1999 stressed on the use of market based mechanisms for bringing about price correction. The World Bank (1999) notes: "...market based management instruments, despite several limitations; offer a promising alternative to traditional stabilization schemes". Also apart from their role in price risk management and price discovery there has been an increased interest in commodity derivatives from an investment perspective, this is mainly because they serve as excellent hedge against inflation as their prices rise with the inflation and due to the fact that commodities have negative correlation with other asset classes primarily stocks and bonds. Studies have documented the negative co variation between equity returns and Inflation (J Lintner, 1975; E. Fama and G. W

Shwert, 1977; Z.Bodie, 1976). Also academic and industry research has suggested that there is significant negative correlation between returns on equity and commodity and therefore combining them into a portfolio would be advantageous. Returns from commodity investments are not highly correlated with stock and bond returns (Gorton and Rouwenhorst, 2006). Thus In view of the significance of this market primarily in terms of it providing a price discovery mechanism and consequent price risk management, its development in terms of ensuring an enhanced level of liquidity in the market and making it more broad based by ensuring higher level of participation especially from the farming community, promoting transparency and a higher level of effective regulation has become all the more pertinent.

IV) The Regulator

FMC headquartered at Mumbai, was a regulatory authority that governed the commodities market in India, It was overseen by the Ministry of Finance, Department of Economic affairs, Govt. of India. It was a statutory body set up in 1953 under the Forward Contracts (Regulation) Act, 1952. The FMC was originally overseen by the Ministry of consumer affairs; however from September 2013, post the Rs 5600 Crore National Spot Exchange Limited (NSEL) Scam which surfaced in July 2013 the commission's responsibility was moved to the Ministry of Finance, to reflect the fact that futures' trading was becoming more of a financial activity. The NSEL Scam was considered to be one of the biggest scams in the history of financial markets in India.

The Forward contract (Regulation act), 1952 under which FMC was constituted was more of an enabling act and the FMC was a kind of an advisory and a monitoring body rather than a full fledged regulatory organization. The real regulatory powers under the act were still vested with the Union Government. Not being sufficiently empowered served as major hindrance for FMC in discharging its regulatory role and this was considered to be the trigger due to which the NSEL Scam took place. In the year 2010 the government approved amendments to the Forward contract Regulation act by introducing the Forward contract regulations amendment bill, 2010 in the parliament. However, the bill lapsed and could not be passed. The passage of the bill would have provided more powers to the FMC and would convert it to an independent regulator (similar to SEBI) thereby strengthening the regulation of the commodity future market.

The happening of the NSEL scam and the consequent decline in the volumes in the commodities market due to loss of faith in the market was majorly attributed to the fact that FMC had not been sufficiently empowered to discharge its role as a regulator. To correct this and to strengthen the regulatory framework over the commodities market, the merger of the FMC with its stock market counterpart, the Securities and exchange board of India was announced in September 2015.

It was felt that the autonomous functioning of SEBI and its ability to respond quickly to crisis situations in addition to its substantial experience in handling derivatives market coupled with a huge manpower base would enable it to plug the loopholes in the functioning of the commodities derivative market and strengthen its regulatory framework. With the presence of a strong regulator like SEBI in place, the RBI could perhaps now think of allowing banks to participate directly in the commodities market.

V) The Rationale- For and Against Bank Participation

The proponents of not allowing banks to participate in the commodities market have mainly opposed it on the grounds that doing so would lead to increased Financialisation of commodities and thereby price distortions, speculation and consequent inflation, also another major argument that has been cited against allowing banks to participate in the commodities market has been lack of an effective regulatory framework. The second argument however no longer holds true now with the presence of a strong and empowered regulator like SEBI. What is also being said is that banks currently do not have the sufficient domain knowledge and expertise to deal with commodities futures. The RBI has from time to time has expressed a concern in this regard. However there is no reason why these kinds of competencies could not be gradually developed over a period of time.

Proponents of allowing banks to trade in commodities market have bought out their own rationale behind what they say and the same appears to quite outweigh the above stated reasons for not allowing them. They are listed as under:

1. Banks participation can lend depth and breadth to the market thereby promoting liquidity and strengthening the price discovery mechanism of the market.
2. As has been brought out in multiple studies investing in commodities provides the benefit of diversification and thereby consequent risk mitigation, banks having exposure in commodities can reap this benefit by directly investing in them thereby hedging away such an exposure In an interesting study in the Indian context covering a period of 2005-2011, it was brought out that by investing in commodities or in alternative channels, institutional investors like banks can not only compensate for the lower risk-free returns in their major chunk of investments in Government securities, but also will be able to diversify some amount of their portfolio risk which is expected to rise by taking exposure in commodity market (Mukherjee, 2011).
3. Banks and especially cooperative banks have always played an important role in promoting Financial Inclusion of the poor and disadvantageous sections of Indian society, By allowing banks to participate in commodity market, linkages could be established between the modern financial sector and the commodity producers namely the farmers and other commodity stakeholders thereby promoting financial inclusion.

4. Banks in India have a vast rural reach and expertise in agricultural lending. Commodity market has anyway played a crucial role in the development of agriculture by service as a price discovery and price risk management mechanism. Allowing the banks to enter into commodities market thereby would thereby further percolate the benefits of the market to the rural populace

5. Presence of a commodity exchange enables banks to monitor their value of the commodity collateral in real time to hedge against changes in its value and to have an easy channel of liquidation in the event of a default in the form of a liquid secondary market

6. Banks are repositories of financial skills and have excellent risk management expertise, they are thus in a suitable position to perform aggregation and offer risk management solutions and trade on behalf of both small farmers and large institutions.

7. The Small and Medium scale enterprise (SME) have also been a significant beneficiary of the commodity market, this can be increased manifold by the facilitative role played by the banks

8. Once banks start operating in the commodity derivatives market, they can lend to farmers and other cooperatives with an agreement that their produce be sold in the commodities future market to avoid downside risk in commodity prices in future, this would enable reducing the default risk of the farmers in the event of a fall in the spot commodity prices.

In fact, various committees set up by the government of India, from time to time to examine this policy issue have recommended the allowing of banks to directly participate in the commodities market. A committee set up under the chairmanship of Prof. Abhijit Sen in the year 2008 supported banks participation in the commodity market, terming their participation as critical. It states as under:

" *Their participation is required not only to extend finance against warehouse receipts (WRs) but also to enable small and marginal farmers to access the Commodity market" (para 7.11)*

(Source: Report of the Expert Committee (under Chairmanship of Abhijit Sen) to Study the Impact of Futures Trading on Agricultural Commodity Prices, Ministry of Consumer Affairs, Food and Public Distribution, Govt. of India, 2008)

A parliamentary standing committee set up under the ministry of consumer affairs in the year 2011, examining the FCRA noted in its report as under:

"*The Committee recommend that Banks, Insurance Companies and Mutual Funds, etc. should be allowed to participate in the commodity Markets in the larger interest of the farmers community which not only will provide more liquidity to the markets but also provide better price discovery and lower volatility". The committee further opines that participation of banks /financial institutions will also promote greater credit flow to the farmers for post harvest marketing.*

(Source: Report of the parliamentary Standing Committee for the Ministry of Food, Consumer and Public Distribution, Govt of India, submitted to the Parliament on December 19, 2011).

A committee was set up in the year 2014 by the Department of Economic Affairs, Ministry of Finance under the chairmanship of Dr.D S Kolamkar to suggest steps for fulfilling the objectives of price discovery and risk management of commodities derivative market. The committee noted in its report as under:

"One way to reduce the cost of capital for the commodities trader is, to make banks and other financial institutions an integral part of trading in commodity derivatives. A number of policies and regulatory restrictions restrict banks and other financial institutions from participating in futures markets. Restrictions on banks under the Banking Regulation Act and other RBI regulated entities need to be removed so as to deepen and widen the participation in these markets"

(Source: Report of the committee to suggest steps for fulfilling the objectives of price discovery and risk management of commodities derivative market, Department of Economic Affairs, Ministry of Finance, Government of India, April 2014)

VI) Conclusion

The commodities derivative market has a significant role to play in terms of providing a price discovery mechanism and consequent price risk management, though this market in India has been growing over time, it has always been subject to restrictive practices which have hindered its development, also not having a sufficiently empowered regulator has served as an impediment in its growth. The recent announcement of the merger of FMC with SEBI has been one major positive step instituted by the government to promote the development of this market , with an effective regulator in place which could keep speculation in check and due to the numerous benefits associated with the direct participation of banks in this market especially relating to the strengthening of the price discovery mechanism , the process of their entry should be gradually facilitated however if banks are to enter into commodity trade, they would need to develop expertise not only in the trading area but also in the supervision, control and risk management systems.

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Predicting Economic Crisis for Twenty-first Century

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ABSTRACT
Economic/Financial crisis is that when a country faces sudden economic shock resulting in financial assets suddenly losing a large part of their nominal value, contraction of Gross Domestic Product (GDP), liquidity problems and inflation/deflation scenarios. This can happen in a variety of situations. The genesis of these crises was in issues pertaining to Banking Sector, Problems of External Debts (Currency Valuation Issues - International Finance), and Speculative Asset Bubbles in the financial markets and mismanagement of economic parameters to mention a few. The economic crisis has wider ramifications on the Economic Prosperity, GDP Growth, and Employment Scenario of a particular country and overall world economy. The Historical Information about Economic/Financial crisis is available since from third century A.D., but for this paper consider various events happened in the past century (Since 1914-15) to establish the cause. The Economic/Financial crisis also leads to socio-political –economic uncertainty, which interns affect the prospect of any country. In todays globalized world such uncertainty and instability can cause a cascading effects on other countries and this may leads to a worldwide crisis The paper examined the behavior of certain economic and financial parameters to ascertain their causal relationship with the economic crisis. The paper looked into the major learning from such crisis and made an attempt to predict such crisis in future with the help of certain economic parameters.
Key Words: Economic Crisis, Currency Valuation, Economic Parameters

1. INTRODUCTION

Economic/ Financial crisis is referred to a situation when a country faces sudden economic shock resulting in financial assets losing a large part of their nominal value, contraction of G.D.P., reduction in money supply, rise in unemployment, chaos in the market and inflationary/deflationary spirals. Such economic conditions affect the overall health of economy of the country in terms of investment climate and international trade and it has effect on the economies that are dependent on it.

The Economic crisis can be classified into four major categories as

1) Banking Sector Crisis
2) Asset Bubble Crisis
3) Balance of Payment or External Sector Crisis
4) Overall Economic crisis

Banking Sector crisis is one which emerges from the irregularities and the deficiencies of banking sector. Such crisis results in a 'Run on Bank' situation and affects the financial system with banking sector in particular. Such crisis affects the confidence of the domestic and sometimes international investors in the banking system as their funds get blocked and they suffer severe financial losses.

The Asset bubble crisis arise from the formation of asset bubble in different asset class like Stocks, Real Estate and Commodities due to overall bouncy in economic activity and speculation. If such asset bubbles burst due to a threat, negative sentiments or profit booking it may result into large scale loss and give a jolt to economic growth.

The major reasons for the balance of payment or external sector crisis are default of sovereign external debt and adverse balance of payment situation. Such crisis affects the international Investors Confidence in an economy. The restructuring of debt and currency devaluation could be outcome of such crisis.

The overall economic crisis occurs due to a recession which is nothing but a combination of falling G.D.P. numbers for two consecutive quarters, high unemployment, stagnated wages and stagflation. If recession continues for longer period then it is termed as depression. Such situation affects the overall economic, political and social situation of a country. Such a crisis has wider ramifications as the neighbouring countries, trade partners, international Investors and lenders are also get affected. Economic crisis is like a contagious disease which does not recognize any borders and its spread is always wider.

Some of the Major Economic and Financial Crisis since A.D.1900 is classified in Table 1

Table 1: Major Economic/Financial Crisis since 1900 A.D.

Banking Crisis	Asset Bubble Crisis	Balance of Payment or External Sector Crisis	Overall Economic crisis
Swedish Banking Crisis (1991-92)	Black Monday US Market Crash (1987)	Latin American Debt Crisis of 1982	Panic of 1901, USA
Irish Banking Crisis (2008-09)	Japanese Asset Bubble Burst(1990)	Indian BoP crisis (1991)	Panic of 1907, USA
	USA Dot. Com Bubble (2000)	Briton's Currency Crisis (1992)	The Great Financial Crisis of 1914
	Sub Prime Crisis (2008)	Mexican Peso Crisis (1994)	Great Depression 1929-30
	Chinese Stock Market Crash (2015)	South East Asian Currency Crisis (1997)	USA Oil Crisis (1973)
		Russian Crisis (1998)	
		Argentina's Crisis (1999-2002)	
		Greece Debt Crisis (2010)	

Looking at table 1, it is important to know the early warning indicators of economic crisis so that investors can hedge their risks and policy makers' gets early alert against the forthcoming problems. Though it is difficult to avert crisis of great scales due to the inter linkages of different markets and globalization. The early prediction of economic crisis will be of great help in adequate policy formation so that it will reduce the impact of economic crisis to some extent if not avert it.

2. LITERATURE SURVEY AND RESEARCH METHOD

World over many studies are done on Economic Crisis in order to understand the genesis of crisis and its impact on the world economy. These studies also deliberate on the details of crisis and its interaction with previous and forthcoming events.

According to Minsky, Financial Fragility is a typical feature of any capitalist economy and higher the fragility higher will be the risk. Many researchers were not sure that the economic failures were due to free markets or due to the inability of governments to curtail such extensive crisis. (C.f. Ranjit Singh and Bhowal Amalesh, 2012).

Globalization contributed to the vulnerability of economic system. The important criterion to measure the extent of globalization is higher Trade / GDP ratio, Importance of foreign capital inflows and direct investments. (C.f. Dhar and Upadhya, 2011)

Karl Marx[1] stated that the relentless drive for profits would lead companies to mechanize their workplaces, producing more and more goods while squeezing workers' wages until they could no longer purchase the products they created. This will result into economic recession

According to Keynes, if Investment exceeds saving, there will be inflation. If saving exceeds Investment there will be recession. Keynes suggested that in the midst of an economic depression, the correct course of action should be to encourage spending and discourage saving. This runs contrary to the prevailing wisdom. In recessions the aggregate demand of economies falls. Lower spending results in demand falling further and a vicious circle ensues of job losses and further falls in spending. Keynes's solution to the problem was that governments should borrow money and boost demand by pushing the money into the economy. Once the economy recovered, and was expanding again, governments should pay back the loans.[2] Government which has deficit of funds may borrow from the countries which have surplus funds. This results into global imbalance. The large global imbalances, which in turn were the outcome of persistence loose monetary policies followed in developed economies, were also a major contributor to the global economic crises recently. (C.f. Mohan,2007, Taylor ,2008)[3] .

It was evident from Subprime crises were the Asian foreign exchange reserves were recycled in US financial system .Global Imbalance, or 'Saving Glut'[4]a term used by Ben Bernanke, has affected the global economic system. The growth and recession is a part and parcel of any business economic cycle. Growth, Peak, Recession and Recovery will be observed in any cycle. According to Goetzmann (2015), returns for 42 stock markets around the world from 1900 through 2014, the bubble-and-burst episodes are uncommon.

The Economic buoyancy results into growth in business activity and ease in availability of credit. This in turns drives the demand for goods and service, and develops asset bubbles with

fictitious capital like derivatives. This build-up over heats the economic system for which the only panacea could be a recession. This pattern was observed in many past crises.

The Table No. 2 highlights the fact that post 1990 has many economic and financial crisis than pre 1990. The global linkages, increased coupling is at its best could be the one of the reason for the more number of crashes. The outreach of economic crises is far flung from Japan to China to India to Russia a Europe, North America and finally Latin America. The present Economic Crisis at China and Political Crisis in Middle East is posing a great danger to global economic stability.

It is important to find the symptoms of such crisis early so that suitable remedial measure may be taken in advance to reduce the impact of future crisis. The current study made an attempt to develop a conceptual framework for the crisis with the help of micro economic indicator variables. The study is an analytical and exploratory in nature and based upon the secondary data retrieved from the World Bank web site[5]. The study has few limitations in terms of the number of crisis and indicator variable considered for the purpose, the data considered only of five years including the crisis year. Looking at these limitations, the results of the study may not be generalised.

Table 2: Overview of Economic/Financial Crisis since 1900

Sr. Nos.	Crisis	Observations
1	Panic of 1901, USA	The fight to control over North Pacific Railway cause a stock market crash and over all panic
2	Panic of 1907, USA	Combinations of factors such as Banking failure, linkages of stock market, currency and gold with each other.
3	The Great Financial Crisis of 1914	Liquidity Problem which affected the foreign exchange market, the discount market and stock markets first in London and then elsewhere. The approach of war triggered a financial crisis in some fifty countries around the world.(Roberts Richards,2013)
4	Great Depression 1929-30	Post world war-I economic disorder, competitive currency devaluation, Gold Standard and great stock market crash of October 29th, 1929 cause the Great Depression to follow
5	Oil Crisis (1973)	OPEC raises the Oil price which affected the US and the world economy.
6	Latin American Debt Crisis 1982	Sovereign debt defaults by Latin American economies such as Brazil,Argentina and Mexico
7	Black Monday USA Market Crash (1987)	Derivatives, Computer Trading and Twin deficits of USA are the main reasons for crash.
8	Japanese Asset Bubble	Appreciation of Yen, lower exports, cheap credit availability and stock and real estate bubble are the main

	Burst (1990)	reasons.
9	Swedish Banking Crisis (1991-92)	Busting of housing bubble cause severe credit crunch and bank insolvencies.
10	Indian Balance of Payment crisis (1991)	Depletion of foreign exchange reserves due to lower exports and higher import costs of oil.
11	Briton's Currency Crisis (1992)	Speculative attack on Pound and its subsequent devaluation against US dollar
12	Mexican Peso Crisis (1994)	Devaluation of Mexican Peso and Balance of Payment crisis.
13	South East Asian Currency Crisis (1997)	Speculative attack on Thai Baht and contagion effect on currencies of Philippines, Malaysia, South Korea and Indonesia
14	Russian Crisis (1998)	Russian default on debt, devaluation of rubble cause fall of Hedge Fund LTCM which jolted the wall street.
15	Argentina's Crisis (1999-2002)	Debt default, alternative currency arrangement and end of peso dollar fixed rate. It resulted in riots change of governments and unemployment.
16	USA Dot. Com Bubble (2000)	Over valuation of Technology stocks on NASDAQ, speculation over looking fundamentals, irregular accounting practices were the major reasons for market fall
17	USA Sub Prime Crisis (2008)	Easy availability of funds to sub-prime borrowers to buy homes , use of Credit Debt Obligations high leverages of investment banks and individual loan defaults cause liquidity crisis for the entire banking sector.
18	Irish Banking Crisis (2008-09)	Home loans, reduction in tax revenues, rise in unemployment cause arrears in bank loans which resulted depositors taking money out of banks.
19	Greece Debt Crisis (2010)	Greece defaults on IMF loan, misreported debt statistics, lead to widening of bond yield spreads and the cost of risk insurance on credit default swaps.
20	Chinese Stock Market Crash (2015)	High stock prices not supported by fundamentals, margin trading and slowdown in the economy cause a crash.

The financial crisis could be a result of many economic and financial adverse conditions or could be the result of complex business environment. What cause a crisis is still not known fully; hence it is important to know the important key economic variables which trigger the crisis. Some of the studies highlighted important variable and factors for financial crisis.

The study of 68 countries by Kraay and Nehru (2004) found that three factors explain a substantial fraction of the cross-country and time-series variation in the incidence of debt distress as, the debt burden, the quality of policies and institutions, and shocks.

Cohen and Valadier (2011) studied the determinants of debt distress with a database of 126 countries for the period 1970-2007. Their study observed that the probability of sovereign debt distress is explained largely by debt owed and institutional quality indicators. The four factors stand out in their estimation of likelihood of a debt distress as Debt and debt service, GDP per Capita, Governance Quality and World Shock (Baa rated Treasury Bond Spread).

Bandiera, Cuaresma, and Vincelette (2011), observed that countries with external debt above 50 percent of GNI, inflation and indebtness are positively associated with a higher probability of debt default.

Looking at the literature available on the topic, the current study selected following economic and financial indicators variables shown in Table No. 3 for the countries affected by the crisis listed in Table No. 4.

Table 3: Indicators-Variables selected for the study

Sr. Nos.	Indicator-Variable Name
1	Current account balance (% of GDP)[6]
2	Foreign direct investment, net inflows (% of GDP)
3	Market capitalization of listed domestic companies (% of GDP)
4	Short-term debt (% of total reserves)
5	Short-term debt (% of total external debt)
6	Bank nonperforming loans to total gross loans (%)
7	Total reserves (includes gold, current US$) BN
8	Total reserves (% of total external debt)
9	Total reserves in months of imports
10	Inflation, consumer prices (annual %)
11	Real interest rate (%)
12	Tax revenue (% of GDP)
13	Trade (% of GDP)
14	Inflation, GDP deflator (annual %)
15	Gross savings (% of GDP)
16	Unemployment, total (% of total labor force)

The study gathered the data for these indicator-variables for the period of total five years which includes the year in which crisis is occurred and four previous years prior to the crisis occurrence year. The countries selected for the study along with their crisis and the respective year of its occurrence is shown in Table No. 4. The data related with the indicator-variables are taken from World Bank's web site. The data for the year of crash is labelled as 't year' while the data for the fourth year prior to crash is considered as 't-4 year'. The data for China's recent stock market crisis of 2015 is not available hence year 2014 is considered as 'year t'.

Table 4: Countries and crises selected for study and their respective year of occurrence

Sr. Nos.	Country	Crisis and its occurrence year
1	U.S.A.	Oil Crisis -1973, Black Monday Stock Market Crash - 1987, Dot. Com Bubble -2000,Sub Prime Crisis-2008
2	Brazil, Mexico and Argentina	Latin American Debt Crisis -1982
3	Japan	Asset Bubble Burst -1990
4	India	Balance of Payment Crisis 1991
5	U.K. and Sweden	UK Currency Crisis 1992 and Sweden Banking Crisis 1992
6	Mexico	Peso (Currency) Crisis 1994
7	Thailand, Indonesia, Malaysia, Philippines and South Korea	South-East Asian Currency Crisis -1997
8	Russia	Debt and Currency Crisis -1998
9	Argentina	Debt Crisis -1999
10	Ireland	Banking Crisis 2008
11	Greece	Debt Default Crisis 2010
12	China	Stock Market Crash 2015

3. DATA ANALYSIS AND INTERPRETATION

The data for the financial crisis and their country of origin as listed in Table 4 are analysed using Vector Auto Correlation and the Percentage Error are estimated for the indicator variables that are listed in Table No. 3. The high percentage error for the indicator variables are the deviation from the actual and the fitted value of the model. Such inconsistency symbolizes the micro-economic imbalances which may be termed as symptoms of imminent economic financial crisis. The indicator-variables along with their significant percentage error for corresponding crisis are listed in the Table nos. 5 to 9 below.

Table 5: Data Analysis - Results for USA

Sr. Nos.	Crisis	Significant Indicator Variables with percentage error
1	USA Oil Crisis 1973	Foreign Direct Investment, net inflows (% of GDP), 11.93
		Inflation, Consumer Prices (annual %), 65.14
		Inflation, GDP Deflator (annual %) , 41.62
2	USA Black Monday 1987	Foreign Direct Investment, net inflows (% of GDP) , 59.18
		Inflation, Consumer Prices (annual %) , 62.99
		Inflation, GDP Deflator (annual %) , -12.33
3	USA Dot.Com Bubble 2000	Foreign Direct Investment, net inflows (% of GDP), 37.50
		Real Interest Rate (%) , 15.02
		Unemployment total (% of total labour force), - 20.00
4	USA Subprime Crisis 2008	Current account balance (% of GDP), 41.038
		Foreign Direct Investment, net inflows (% of GDP) , 65.62
		Bank nonperforming loans to total gross loans (%), 23.45
		Total reserves in months of imports, -14.75
		Tax Revenue (% of GDP), -17.37
		Inflation, GDP Deflator (annual %) , -61.64

Table 6: Data Analysis - Results for Latin America

Sr. Nos.	Crisis	Significant Indicator Variables with percentage error
1	Brazil Latin American Crisis 1982	Foreign Direct Investment, net inflows (% of GDP), 234.21
		Short-term debt (% of total external debt), -26.32
		Total reserves, 61.50
		Total reserves (% of total external debt), -64.13
		Gross savings (% of GDP), 22.08
2	Argentina Latin American Crisis 1982	Foreign Direct Investment, net inflows (% of GDP) , 158.59
3	Mexico Latin American Crisis 1982	Foreign Direct Investment, net inflows (% of GDP), 54.65
		Market capitalization of listed domestic companies (% of GDP), 2332.75
		Short-term debt (% of total external debt), 131.005
		Total Reserves, -200.79
		Total reserves (% of total external debt),-16.77

		Inflation, consumer prices (annual %), -36.34
		Inflation, GDP deflator (annual %), 25.21
		Gross savings (% of GDP), 20.74
4	Mexico Peso Crisis 1994	Current account balance (% of GDP), -77.04
		Foreign Direct Investment, net inflows (% of GDP) , 243.70
		Market capitalization of listed domestic companies (% of GDP), 114.70
		Short-term debt (% of total external debt), -63.63
		Total reserves (% of total external debt),-1974.48
		Inflation, consumer prices (annual %), -126.61
		Tax Revenue (% of GDP), -151.42
		Trade (% of GDP), -153.51
		Inflation, GDP Deflator (annual %) , -663.43
		Gross savings (% of GDP), -123.64
		Unemployment total (% of total labour force), 14.19
5	Argentina's Debt Crisis 1999	Foreign Direct Investment, net inflows (% of GDP) , 64.50
		Inflation, GDP Deflator (annual %) , 59.13

Table 7: Data Analysis - Results for Japan, India, UK and Sweden

Sr. Nos.	Crisis	Significant Indicator Variables with percentage error
1	Japan –Asset Bubble 1990	Foreign Direct Investment, net inflows (% of GDP), 253.06
		Inflation, Consumer Prices (annual %), 111.45
		Trade (% of GDP), 13.67
		Inflation, GDP Deflator (annual %) , 71.72
2	India- BOP Crisis 1991	Current Account Balance (% of GDP), 43.30
		Foreign Direct Investment, net inflows (% of GDP) , 64.18
		Short-term debt (% of total external debt), -23.97
		Total reserves (% of total external debt),-34.47
		Real Interest rate (%), -79.08
		Trade (% of GDP), 23.98
		Inflation, GDP Deflator (annual %) , 37.75
3	UK Currency Crisis 1992	Foreign Direct Investment, net inflows (% of GDP), -76.01
		Inflation, consumer prices (annual %), -34.88
		Real Interest rate (%), -24.12
		Inflation, GDP Deflator (annual %) , -105.90
4	Sweden Banking Crisis 1992	Foreign Direct Investment, net inflows (% of GDP) , 277,138.6
		Inflation, consumer prices (annual %), -225.49
		Real Interest rate (%), 30.97
		Inflation, GDP Deflator (annual %) , -254.03
		Gross Savings (% of GDP), 13.17

Table 8: Data Analysis- Results for South-East Asian (1997) and Russian Crisis (1998)

Sr. Nos.	Crisis	Significant Indicator Variables with percentage error
1	Thailand	Current Account Balance (% of GDP), 203.741
		Foreign Direct Investment, net inflows (% of GDP), 32.26
		Market capitalization of listed domestic companies (% of GDP), -21.73
		Short-term debt (% of total external debt), -11.91
		Total reserves, -57.46
		Real Interest rate (%), -26.04
		Trade (% of GDP), 15.39
		Inflation, GDP Deflator (annual %) , 18.26
		Unemployment total (% of total labour force), - 11.43
2	Indonesia	Current Account Balance (% of GDP), -94.39
		Foreign Direct Investment, net inflows (% of GDP) ,-27.24
		Inflation, GDP Deflator (annual %) , 20.74
		Unemployment total (% of total labour force), 11.54
3	Malaysia	Current Account Balance (% of GDP), 31.35
		Foreign Direct Investment, net inflows (% of GDP) ,61.28
		Short-term debt (% of total reserves) 61.11
		Short-term debt (% of total external debt), 71.85
		Total reserves, -20.41
		Total reserves (% of total external debt), 42.67
		Inflation, consumer prices (annual %), -67.20
		Real Interest rate (%), 72.06
		Inflation, GDP Deflator (annual %) , -10.97
4	Philippines	Foreign Direct Investment, net inflows (% of GDP) , 109.98
		Total reserves (% of total external debt), -37.92
		Real Interest rate (%), -55.45
		Gross Savings (% of GDP), 13.17
		Inflation, GDP Deflator (annual %) , -41.58
		Tax Revenues (% of GDP), -35.70
		Unemployment total (% of total labour force), -76.49
5	South Korea	Current Account Balance (% of GDP), 94.93
		Foreign Direct Investment, net inflows (% of GDP) , 29.53
		Market capitalization of listed domestic companies (% of GDP), -15.21
		Total reserves, -14.70
		Inflation, consumer prices (annual %), 74.39
		Inflation, GDP Deflator (annual %) , 40.45
6	Russia	Current Account Balance (% of GDP), 126.36
		Foreign Direct Investment, net inflows (% of GDP) , -19.19
		Total reserves, -59.35
		Gross Savings (% of GDP), 19.50

Table 9: Data Analysis- Results for Ireland, Greece and China

Sr. Nos.	Crisis	Significant Indicator Variables with percentage error
1	Ireland Banking Crisis 2008	Current Account Balance (% of GDP), -28.31
		Bank nonperforming loans to total gross loans (%),118.13
		Inflation, consumer prices (annual %), -45.20
		Total reserves, -344.322
		Total reserves in months of imports -16.98
		Inflation, GDP Deflator (annual %) , 43.64
2	Greece Debt Default 2010	Foreign Direct Investment, net inflows (% of GDP) ,-796.8
		Inflation, consumer prices (annual %), 68.49
		Inflation, GDP Deflator (annual %) , -347.71
3	China Stock Market Crash 2015	Current Account Balance (% of GDP), -81.72
		Foreign Direct Investment, net inflows (% of GDP) ,47.46
		Market capitalization of listed domestic companies (% of GDP), 51.15
		Bank nonperforming loans to total gross loans (%),31.85
		Inflation, consumer prices (annual %), 171.82
		Real Interest rate (%), -120.09
		Inflation, GDP Deflator (annual %) , 668.34

The Tables nos. 5 to 9 above explains that some indicator-variables irrespective of country and crisis showing more inconsistency than others. These indicator variables are,

- Foreign Direct Investment, net inflows (% of GDP)
- Inflation, GDP Deflator (annual %)
- Inflation, consumer prices (annual %),
- Current Account Balance (% of GDP),
- Total reserves
- Total reserves (% of total external debt) and

These indicator variables when couple with inconstancy of other variables such as**,** Market capitalization of listed domestic companies, Real Interest rate, Unemployment, Short term debt to Total external ratio can cause serious damage to the economic system of a country.

The country may face a problem of shortage of foreign currency in terms of adverse current account and capital account balance, which may leads to less investment in the economy**.** These conditions when coupled with inflationary pressure and real interest rate may acts as a dampener for further investments and finally leads to less employment and rise in unproductive loans of banking sector. The inconsistency in the tax collections affect the revenue generation of country which further reduces the investment outlay of an economy. This will not only affects the trade linkages with other world economies, but also affects the prices of real estate and stock markets and may even burst the bubbles (if any) developed in them These conditions explain the underline causation between the indicator variables and their impact on the economic and financial scenario.

4. CONCLUSION

It is difficult to predict the forth coming crisis. The crisis many times preceded by number of abnormalities commonly known as symptoms. If one detects or recognises the symptoms early, then it is possible to take suitable remedial measure against a looming crisis in order to reduce its impact. The symptoms could be traced in the inconsistencies of number of indicator variable. . It is also possible that such inconsistencies also could be due to fault lines in an economic system. These fault lines in future may erupt as a major crisis. It is also not impossible that the formation of fault lines could be due to inconsistencies in indicator variables. The current study based on the limited crisis and variables highlighted some of the indicator variables which have shown inconsistency in their values prior to the crisis. As study was based upon a smaller sample size the results may not be adequately representative. Hence the study highlights the further probing in terms of more number of indicator variables and their behaviour pre-post crisis of a time span of at least 7-10 years. The study also open a topic to explore an idea of examines the multiple crises faced by countries such as USA, Argentina, Mexico, Brazil and Russia in order to find intra and inter commonalities and correlation between them. The socio –economic and environmental factors now a day's plays a lead role in business sustainability and hence the inter relation of socio economic scenario with crisis must be established. The study concludes that certain indicator variable with inconsistencies in their values prior to the crisis helps to detect the forthcoming economic and financial crisis. After looking into different indicator variables, the current study in the end highlights the need, to develop causation between the indicator variables and the crisis in order to reduce its impact so that economic sustainability can be established.

NOTES:

[1]seehttp://www.rollingstone.com/music/news/marx-was-right-five-surprising-ways-karl-marx-predicted-2014-20140130Date accessed January, 15th, 2016.

[2] see http://www.maynardkeynes.org/maynard-keynes-economics.htmlDate accessed December 20th, 2015.

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[4] seehttp://www.federalreserve.gov/boarddocs/speeches/2005/200503102/).Date accessed December 15th, 2015.

[5] seehttp://data.worldbank.org/

[6] The Current account balances for India were taken from Economic Survey of India, 90-91 & 92-93. The data for Mexico, Thailand, Indonesia, Malaysia, Korea and Russia was sourced from the work of Peter Isard (2005) ,p.133

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The Study of integration between money and foreign exchange market –VAR model

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ABSTRACT

The following paper will highlight the interaction between the money market and the foreign exchange market. The success of monetary policy transmission depends upon the extent and speed with which changes in the Central Bank's policy rates are transmitted to the spectrum of market interest rates and the exchange rate in the economy. Financial market developments and the extent of market integration across various segments of financial markets play a key role in this context. The more financial markets are integrated, the more would be the strength of monetary transmission across them. The Indian money market and foreign exchange market have become intrinsically linked to each other, especially in view of the dominant presence of commercial banks in both the markets and the short nature of both the markets. The linkage is established through various channels such as banks borrowing in overseas markets, providing hedging facilities to corporates, accepting foreign currency deposits and acting as conduits for making payments for overseas merchant transactions. The money market is represented by the weighted average call rate, CBLO rate, 91 day-Treasury bill rate while the foreign exchange market is represented by 1-month and 3-month forward premia. Monthly data are used for this purpose. The chapter is divided into two parts. In the first part, a vector autoregressive model (VAR) model is constructed to study inter linkages between the money and foreign exchange markets. Various tools like VAR Granger Causality/Block Exogeneity Wald Tests, Impulse Response Function and Variance Decomposition techniques are used for this purpose. In the second part, risk pricing in financial markets are scrutinized through the GARCH- in- Mean model of Engle, Lilien and Robins (1987) consistent with the standard risk-return trade-off hypothesis and the asymmetric news and leverage effects. The purpose is to understand the ability of these markets to price risks.

Key Words – Money Market, Foreign Exchange Model, VAR

1. Introduction

The success of monetary policy transmission depends upon the extent and speed with which changes in the Central Bank's policy rates are transmitted to the spectrum of market interest rates and the exchange rate in the economy. Financial market developments and the extent of market integration across various segments of financial markets play a key role in this context. The more financial markets are integrated, the more would be the strength of monetary transmission across them. An important objective of reforms in India has been to connect the various segments of the financial market for bringing about a transformation in the structure of markets, reducing arbitrage opportunities, achieving a higher level of efficiency in the market operation of intermediaries and increasing the efficacy of monetary policy in the economy (Reddy, 1999, 2005).

Two of the important financial markets which are important for a Central Bank's monetary policy are the money market and the foreign exchange market. The integration of the two markets has become important for closer co-ordination of monetary and exchange rate policies.

The Indian financial system, till the early nineties, was characterised by an administrative structure of interest rates, restrictions on various market participants including banks, financial institutions and corporate in terms of the nature and volume of transactions they could undertake in the money, foreign exchange and capital markets. As a result, the markets remained segmented. The process of economic reform initiated during the early nineties created the enabling conditions for smoother movement between the financial markets. The Indian money market and foreign exchange markets have become intrinsically linked to each other, especially in view of the commercial banks having a dominant presence in both the markets and the short-term nature of both the markets. The linkage is established through various channels such as banks borrowing in overseas markets, providing hedging facilities to corporates, accepting foreign currency deposits and acting as conduit for making payments for overseas merchant transactions (RBI Currency Report, 2005-06).

According to Mohan (2007), the success of a monetary policy transmission framework, which relies on indirect instruments of monetary management such as interest rates, is contingent upon the extent and speed with which changes in the Central Bank‘s policy rate are transmitted to the spectrum of market interest rates and the exchange rate in the economy and onwards to the real sector. If markets are weakly integrated, the Central Bank’s interest rate signals will not have the desired impact on short- and long-term interest rates, the exchange rate and other asset prices. The greater the degree of integration across market segments, the stronger is the transmission of monetary policy to the spectrum of financial markets and to the real economy.

Financial market reforms in India have enabled greater integration of various segments of the financial market, reducing arbitrage opportunities, achieving a high level of efficiency in the market operation of intermediaries, and increasing the efficacy of monetary policy in the economy.

This paper attempts to study the relationship between the money market and the foreign exchange market using a Vector autoregressive model and the GARCH-M model.

The rest of the chapter is organized as follows. Section 2 provides a brief literature review. In section 3, we develop the vector autoregressive model. In Section 4, we apply the GARCH-M model to study the risk-return trade off in the money and foreign exchange market. Section 5 outlines the conclusions of the study.

2. Literature review

Bhoi and Dhal (1998), in one of the early studies on market integration, studied the extent of domestic financial market integration in the initial years of reform (April 1993 –March 1998). Using monthly data, they find that although a fully competitive environment was yet to emerge, several segments of the financial market have achieved operational efficiency. There are indications of integration of the money market and the foreign exchange market. Similar results were obtained by Nag and Mitra (1999) using Artificial Neutral Networks.

The paper by Parmar (2002) analyzes the behaviour of the Call money market in India during the period 1993 to 2000. The author attempts to understand the inter-linkage between the Call money market, stock market and the foreign exchange market. The connections, studied under a co- integration framework, suggest the existence of one co- integration vector. The paper by Bhatt and Virmani (2005) is about cross-border integration that exists between the Indian and the US money markets. They have studied instruments up to 3 months maturity.

They use the interest parity equation. In their paper, they have tried to estimate the degree of financial integration between India and the rest of the world by focussing on the degree of integration of the Indian money market with global markets. The paper shows that the short-term (up to 3 months) money markets in India are getting progressively integrated with those in the U.S.A, even though the degree of integration is far from perfect. Covered interest parity was found to hold while uncovered interest parity failed to hold.

Jain and Bhanumurthy (2005) have examined the issue of integration of financial markets in India using monthly data from 1993 to December 2002. Given the growing movement of capital flows, particularly short term capital, into the domestic financial markets; it is necessary to examine the phenomenon so as to reap the positive benefits without destabilizing markets. Using the multiple co-integration approach, they found a strong integration of the domestic Call money market with the LIBOR. Though the study found a long-term co-movement between the domestic foreign exchange market and LIBOR, the connection is not robust. This may be due to frequent intervention by the Central Bank in the foreign exchange market.

The RBI (2006) delved into the issue of financial markets integration in detail. From the correlation structure of the rates in different segments of the financial markets, the evidence of growing integration of financial markets, beginning 2000 emerges. There is proof of stronger correlation among interest rates in the recent period, 2000-06, than the earlier period, 1993-2000. The sharp increase in correlation between the Reverse repo rate and money market rates in the recent period implies enhanced effectiveness of money market transmission.

Bhattacharyya and Sensarma(2007) examine the efficacy and robustness of alternative monetary policy instruments in communicating policy signals and influencing financial market behaviour. They analyse the impact of changes in policy instruments on various segments of the Indian financial market through a Structural Vector Auto Regression (SVAR) model. They use a 10 year period (April, 1996-March, 2006) monthly data for their analysis. They divide the whole period into pre-liquidity adjustment (LAF) and post-LAF and tried to ascertain the relative importance of alternative instruments like Bank rate, CRR or the repo rate. Their study shows increasing evidence of integration between the money, the foreign exchange and government securities market, particularly at the short end.

Jena, Murty & Narasimhan (2008) attempt to test the integration between various segments of the financial market based on monthly data from March 1993 to March 2002.The use error-correction mechanism for this purpose. The money and the foreign exchange market have shown a high degree of integration. The high volatility in the foreign exchange market got transmitted to the money market rates in the mid-nineties. Forward premia in the foreign exchange market and interest rate differentials in the money market were the major driving forces behind investment decisions. Financial market integration gathers momentum once funds move freely from one market to another, wiping out arbitrage opportunities.

Ray and Prabu (2012) study the integration among different segments of the Indian financial markets. Using daily data over January 2005-November 2012, the authors construct a Structural Vector Autoregressive (SVAR) model and study the financial markets' microstructure and monetary policy transmission related to the money, bonds, foreign exchange and stock market. The authors find the money market segment to be fairly integrated. However, the money market and foreign exchange market show low correlation

due to the non-interventionist strategy of the RBI and the market-determined character of the rupee.

Dua and Tuteja (2013) examine the nexus between domestic and foreign financial markets vis -a -vis Indian and U.S money markets, equity markets and the foreign exchange market. They use weekly data from June2000 to September2011 to model the interaction among the markets using a VAR (1)-MGARCH (1, 1), BEKK framework. The study reveals that volatility in all the markets increased post the global financial crisis of 2008-9. Spillovers in volatility across markets were found to be due to both innovation effects as well as volatility persistence. Cross volatility effects from the Indian money market to all the other markets are significant but are negligible in magnitude.

3. Vector Autoregressive model

3 .1 Data and methodology

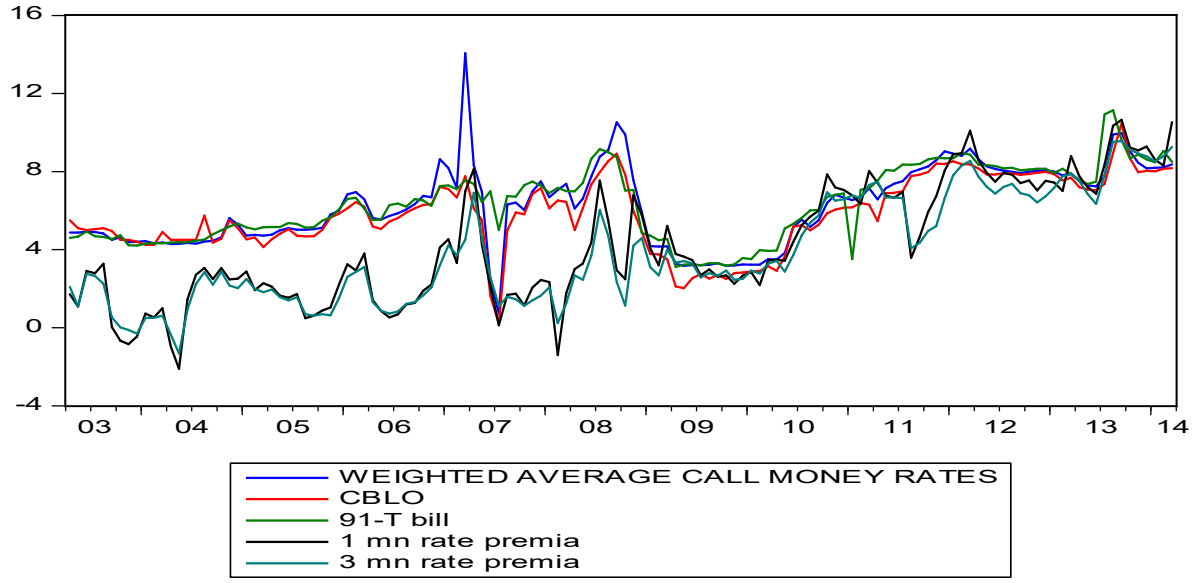
This paper uses the monthly data on interest rate for the Call money market, CBLO market, 91-day Treasury bill market and forward premium rates (both 1 month and 3 month). The period considered is April 2003 to March 2014.The monthly weighted average Call rate, 91-Day Treasury bill rate, 1 month forward premia and 3 month forward premia is obtained from the Handbook of Statistics on the Indian Economy. The monthly data on CBLO rate is obtained from CCIL. The total numbers of observations are 132.

Table 1: Descriptive Statistics of money and foreign exchange rates

	Call rate	CBLO rate	91 TBill rate	1 Month Forward Premia	3 Month Forward Premia
Mean	6.249476	5.824167	6.359825	4.210084	3.870627
Median	6.360000	5.850000	6.554850	3.303896	2.928165
Maximum	14.07000	10.46000	11.14067	10.64851	9.564770
Minimum	0.730000	0.220000	3.115900	-2.110023	-1.325552
Std. Dev.	2.040908	1.869206	1.837539	3.010384	2.730281
Skewness	0.279011	-0.278213	0.079032	0.274825	0.417719
Kurtosis	3.497960	2.713346	2.159132	2.040302	1.978683
Jarque-Bera	3.076433	2.154792	4.026234	6.727250	9.575762
Probability	0.214764	0.340481	0.133572	0.034610	0.008330
Sum	824.9309	768.7900	839.4969	555.7311	510.9228
Sum Sq. Dev.	545.6552	457.7048	442.3282	1187.176	976.5312
Observations	132	132	132	132	132

Table 1 provides the descriptive statistics of the interest rate variables. Except CBLO, all other variables are right skewed. The call money market has a kurtosis of over 3, meaning it has a leptokurtic distribution. The other series have kurtosis less than 3, showing that they have platykurtic distributions. The standard deviations of forward rates are higher than the money market rates.

Figure 1: Trends in Weighted Call rates, CBLO, 91-Treasury bill, 1month forward premia, 3 month forward premia



Source: RBI

Figure 1 shows the co-movement among various interest rates during the period 2003 to 2014. There is evidence of progressive financial market integration as reflected in the co-movement of interest rates particularly from 2008 onwards.

Causality test: One important issue in the analysis of the money and foreign exchange market integration is the extent to which changes in returns in one market are transmitted to other markets. This issue can be examined by causality tests. Accordingly, Granger Causality analysis is carried out within a bi-variate framework and the lag lengths chosen is 4 .The results of 'F' tests are reported in Tables 2.

Table 2: Results of Granger Causality Test (4 Lags)-128 Observations

Variables(xy)	F-Statistic
CBLO-Call	9.99251*
Call-CBLO	6.50142*
91 T Bill -Call	14.1005*
Call-91T Bill	2.52873***
1 Month Forward Rate-Call	0.64282(NS)
Call-1 Month Forward Rate	3.27239**
3Month Forward Rate-Call	0.66483(NS)
Call-3 Month Forward Rate	4.58539*
91 T Bill -CBLO	7.84773*
CBLO-91T Bill	1.47761(NS)
1 Month Forward Rate-CBLO	3.27484**
CBLO-1Month Forward Rate	2.83936**
3 Month Forward Rate-CBLO	2.75044**
CBLO-3Month Forward Rate	2.29987***
1 MN Forward Rate-91 T Bill	0.67264(NS)
91 T Bill-1 Month Forward Rate	2.22842***

3 Month Forward Rate-91 T Bill	**1.14135(NS)**
91 T Bill-3 Month Forward Rate	**1.32830(NS0**
3 Mn Forward Rate-1 Mn Forward Rate	**1.00586(NS)**
1 Mn Forward Rate-3 Mn Forward Rate	**0.79549(NS)**

(*): significant at 1% level, (**): significant at 5%, (***): significant at 10%

The results of the Granger Causality test suggest that there is a significant causal relationship among the money market instruments, Call, CBLO and 91 day Treasury bill rate. A bi-directional relationship exists between Call & CBLO and Call &91-Treasury bill. There is unidirectional causality running between the 91 Treasury bill and CBLO. In the foreign exchange market, a unidirectional relationship exists between the money market and the foreign exchange market rates. An overall view of the causality tests suggest that a significant causal relationship exists between short–term rates, an indication of integration among them.

Cointegration Analysis

The concept of co-integration requires that the set of variables should be integrated of the same order and their linear combination must be stationary. To examine whether the short term rates are cointegrated, we have used the Johansen and Juselius methodology which uses the relationship between the rank of a matrix and its characteristic roots. Following Johansen (1988), the co-integrating vector(s) could be estimated within a vector error correction framework after setting an appropriate lag order.

Table 3: Johansen cointegration tests

Hypothesized No. of CE(s)	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	**156.9091**	**69.81889**	**0.0000**	**90.74254**	**33.87687**	**0.0000**
At most 1 *	**66.16657**	**47.85613**	**0.0004**	**40.90543**	**27.58434**	**0.0006**
At most 2	**25.26114**	**29.79707**	**0.1523**	**15.71921**	**21.13162**	**0.2417**
At most 3	**9.541931**	**15.49471**	**0.3176**	**9.035626**	**14.26460**	**0.2832**
At most 4	**0.506305**	**3.841466**	**0.4767**	**0.506305**	**3.841466**	**0.4767**

Both the maximum and trace Eigen values statistics strongly reject the null hypothesis that there is no integration between the variables (i.e. r=0), but do not reject the hypothesis that there are two cointegrating relations between the variables (Table 3).

3.2 Estimating Vector Auto Regressive model

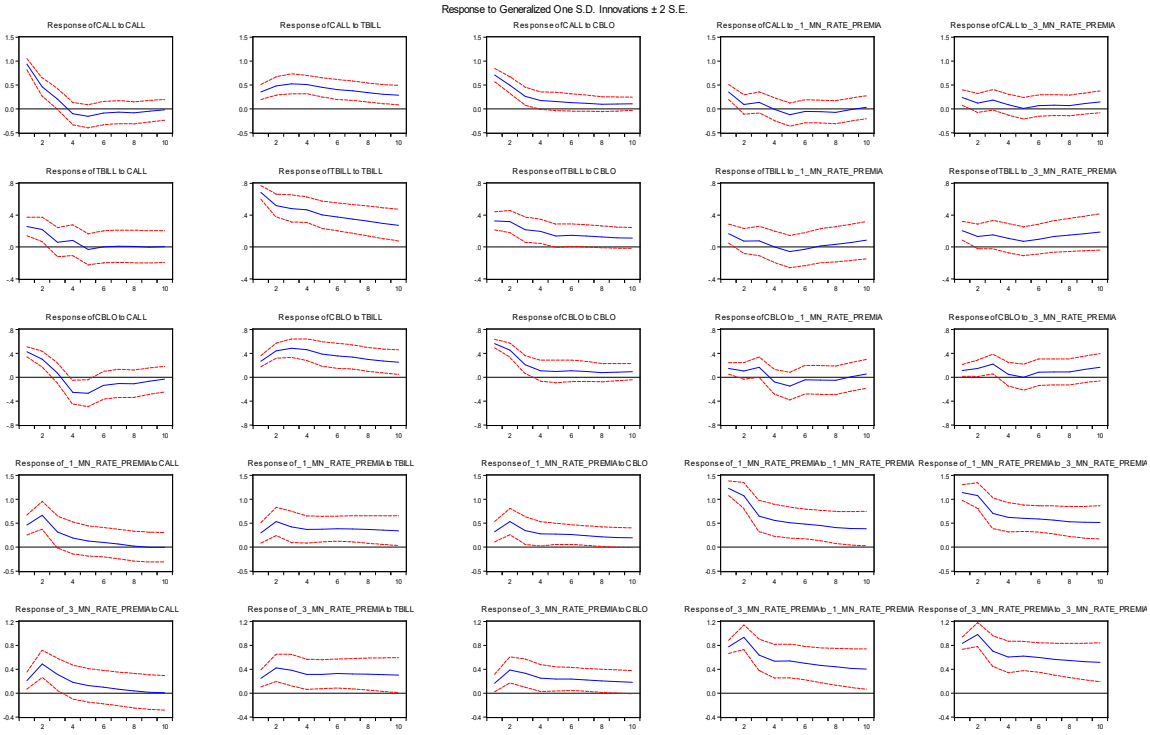
Sims (1980) provided a new macro econometric framework called Vector Auto regression. VAR is an alternative, non-structural approach to modelling the relationship between several variables. It is used as a forecasting system for interrelated time series and for analyzing the dynamic impact of random disturbances to the system of variables. The advantage of a VAR model is that it does not require that variables be specified as endogenous. The standard practice in VAR analysis is to report results from Granger causality tests, impulse responses and forecast error variance decomposition.

Impulse response function: Impulse response analysis is used to analyze the dynamic relationship among variables. It indicates the direction (positive or negative) and the nature

(temporary or permanent) of the variation. For testing the impulse response, we give a one standard deviation shock to each variable arising from its own innovation or from an innovation from another market. The impulse response shows the direction of change, the quantum of change, the time period and the time for stabilization.

For calculating the impulse functions, the ordering of the variables becomes important. Impulse responses refer to a unit shock to the errors of one VAR equation alone. This means that the error terms of all other equations in the VAR model are held constant. However, this is not possible as the error terms are likely to be correlated across equations to some extent. The assumption that the error terms are completely independent would lead to misrepresentation of the system dynamics. One way of dealing with is difficulty is to generate orthogonalised impulse responses. This is done by imposing restrictions such that the equation for y_{1t} would be estimated first and then for x_{1t}. The results have been obtained using generalized impulse response function.

Figure 2: Impulse response function

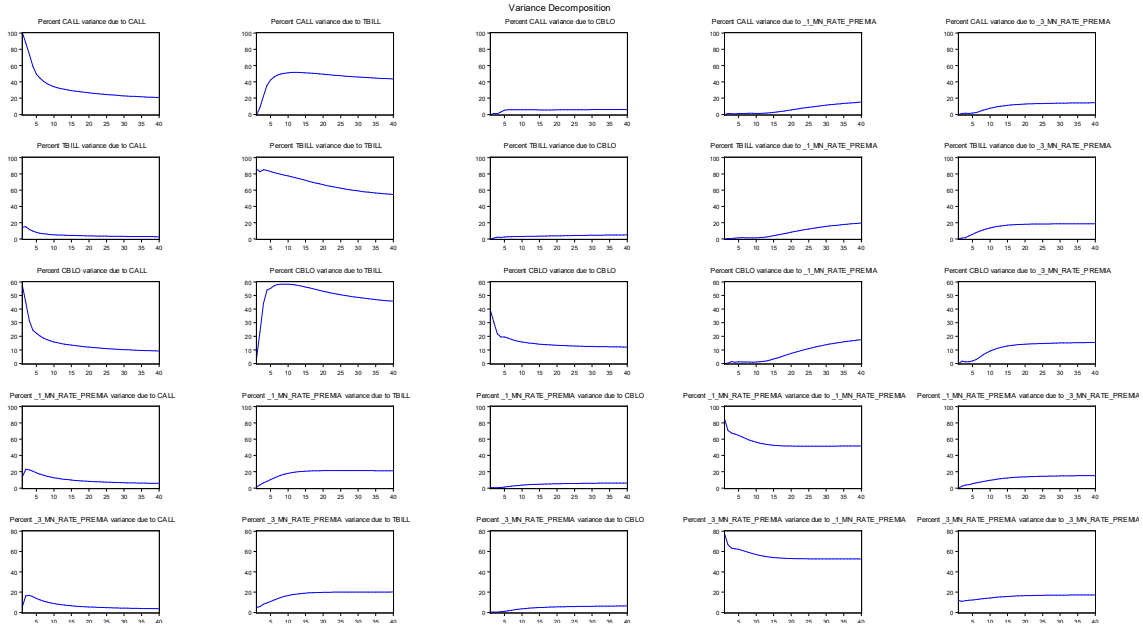


A one standard deviation shock to the call rate leads to decline in call rates before stabilizing at around a 10-month time horizon. Secondly, the net impact of a one standard deviation shock to a 91-day Treasury bill rate is positive. It exhibits a rising trend, reaches 0.5 and then it dips at around 5 month horizon and eventually stabilizes at around 9 month horizon. A standard deviation shock to call rates reduces the T Bill before converges to zero around 7 month horizon. The net impact of a one standard deviation shock to a 91-day Treasury bill rate is positive. There is a slight fall in the 91-day Treasury bill due to shocks to CBLO. A one standard deviation shock to call rates has a negative impact on the CBLO rate. The CBLO rate initially falls before converging towards zero by 9 month horizon. The net impact of a one standard deviation shock to a 91-day Treasury bill rate is positive. It exhibits a rising trend, reaches 0.4 and then it dips at around 5 month horizon and eventually stabilizes at around 9

month horizon. A one standard deviation shock to call rates has a negative impact on the 1-month forward rate. The 1 month rate falls to 0.1 before stabilizing at around 9 month time horizon. The net impact of a one standard deviation shock to a 91-day Treasury bill rate is positive. The 1 month rate responds in a similar manner to CBLO rate. The net impact of a one standard deviation shock to a call rate is positive. It exhibits a rising trend, reaches 0.4 and then it dips at around 3 month horizon and eventually stabilizes at around 9 month horizon. The 3 month forward rate responds in a similar manner for 91 day Treasury bill and CBLO rate.

Variance Decomposition: Variance decomposition provides a different method of depicting the system dynamics. It shows variation in an endogenous variable in the VAR. Variance Decomposition gives the proportion of the movements in the dependent variables that are due to their 'own shocks' versus shocks to the other variables.

Figure 3: Variance Decomposition Function



We find that at the end of the 40-month forecast horizon, the 91-day Treasury bill explains about 43 percent of the total variation in forecast error in the Call rate while about 20 percent of the forecast error variance of the call rate is explained by its own innovations. The CBLO rate explains less than 10 percent of the variance in the call rate. Around 54 per cent of the forecast error variance of the 91-day Treasury bill is explained by its own innovations. The 91-day Treasury bill explains about 45 percent of the total variation in forecast error in the CBLO rate. This show that 91-day Treasury bills are an important variable in determining forecast error variance of other markets. 51 per cent of the forecast error variance of the 1-month forward rate is explained by its own innovations and about 52 percent of the forecast error variance of the 3-month forward rate is explained by its own innovations.

4. GARCH -M Model

The main objective of this section is to analyse risk pricing as reflected in the movement of various interest rates, exchange rates using the generalised autoregressive conditional heteroskedasticity (GARCH) model. The idea here is that each financial variable represents a market segment identified with its underlying risk characteristics. The Call money market reflects liquidity effects. CBLO market could mirror credit risks. Yields on Treasury bill could represent interest rate or market risk. The forward rate premium is related to risks associated with the external sector. We apply the GARCH-Mean model to these markets to analyze the risks associated with these markets. A stable financial system is reflected in the ability of constituent financial market segments to price risks associated with various financial instruments (Mohan, 2007).

In this study, we use monthly data on interest rates and exchange rates from sources such as RBI Handbook of Statistics on the Indian Economy and the CCIL. The sample period is April 2003 to March 2014. The variables used in the study are the weighted average call money rate (Call), CBLO rate; 91-day Treasury bill rate and Rupees-US dollar forward exchange rate premia for 1-month and 3-month maturity. The monthly 1-month US Treasury Bill rate and 3-month US Treasury Bill rate is obtained from the Board of Governors of the Federal Reserve System (US).

Various aspects of risk pricing in the Call money market, CBLO market, 91-Day Treasury bill market,1-month forward premia and 3-month forward premia would be analyzed through the GARCH- in-Mean model of Engle, Lilien and Robins (1987) consistent with the standard risk-return trade-off hypothesis and the asymmetric news and leverage effects.

Engle, Lilien and Robins (1987) extended the GARCH model to the GARCH-M model which allows the conditional mean to be a function of conditional variance. The GARCH-M (1, 1) model can be specified as follows:

$y_t = \mu + \delta\sigma_{t-1} + u_t$, $u_t \sim N(0, \sigma_t^2)$

$\sigma_t^2 = \alpha_0 + \alpha_1 u_{t-1}^2 + \beta_{t-1}^2$

Where y_t = return

μ = mean

The non-negativity constraint for all the coefficients α_0 , α_1 and β is required to ensure that the conditional variance σ_t^2 is positive. According to Chou (1988), the dynamic structure of conditional variance can be captured more flexibly by the GARCH-M framework. In GARCH (1, 1), when $(\alpha_1 + \beta)$ approaches unity, the persistence of shocks to volatility is greater. If shocks to volatility persist, the effect of volatility on returns can be significant. The parameter δ is called the risk premium parameter. If δ is greater than zero and statistically significant, the model indicates that the return is positively related to its volatility. In other words, a rise in mean return is caused by an increase in conditional variance as a proxy for increased risk. In the mean equation, the variance (σ^2) can be specified with standard deviation (σ) or logarithm of variance i.e., ln (σ^2).

The first step in the analysis is to construct the GARCH-M model for each financial instrument. The first equation specifies the mean (or expected return) and the other the conditional variance of the variable.

For the mean equation, the return on each financial instrument is taken as the spread of that financial instrument over a risk-free instrument. The underlying principle is that the return on a market instrument (R_j) should equal the sum of return on a risk–free instrument (R_f) and the risk premium (ρ) (Misra and Dhal, 2009).

Therefore, the spread variable is defined as

$s_{j,t} = (R_{j,t} - R_{f,t})$

The mean equation is written in the form of an ARMA (p, q) process

$\phi(L)y_t = \alpha + \theta(L)\,\varepsilon_t + \delta\sigma_t^2$

Where $\phi(L)$ and $\theta(L)$ are the autoregressive (AR) and moving average (MA) lag polynomials.

$\phi(L) = \prod_{i=1}^{p}(1 - \phi_i L)$

$\theta(L) = 1 + \sum_{i=1}^{q}\theta_i L^i$

We analyze each financial instrument with GARCH, GARCHM, TGARCHM and EGARCHM models and select the one based on information criteria

The variance equation for GARCH-M:

$$\sigma_t^2 = \omega + \sum_{i=1}^{p}\alpha_i\,\varepsilon_{t-i}^2 + \sum_{i=1}^{q}\beta\sigma_{t-i}^2$$

The variance equation for TGARCHM:

$$\sigma_t^2 = \omega + \sum_{i=1}^{p}\alpha_i\,\varepsilon_{t-1}^2 + \sum_{j=1}^{q}\gamma_j\,\varepsilon_{t-j}^2\,I\left(\varepsilon_{t-j<0}\right) + \sum_{k=1}^{z}\beta_k\,\sigma_{t-k}^2$$

The variance equation for EGARCHM:

$$\text{Log}\sigma_t^2 = \omega + \sum_{i=1}^{p}\alpha_i\left|\varepsilon_{t-j}/\sigma_{t-i}\right| + \sum_{j=1}^{q}\gamma_j\,\varepsilon_{t-j}/\sigma_{t-j} + \sum_{k=1}^{z}\beta_k\,\log\sigma_{t-k}^2$$

For the Call money market, the benchmark interest rate would be the policy short-term interest rate and Repo rate in the Indian context since the latter provides a corridor to the former. Thus, the mean equation for this segment could be modelled in terms of the spread of the Call money rate over the Repo rate.

$Scall_t = (Rcall_t - Rrepo_t)$

and its mean equation as an ARMA process

$\phi(L)Scall_t = \alpha + \theta(L)\varepsilon_t + \delta\sigma_t^2$

For the CBLO market, the spread is calculated as the CBLO rate minus the 91-day Treasury bill rate:

$SCBLO_t = (R\,CBLO_t - Rtbill_t)$

A 91-day Treasury bill spread is taken as 91day Treasury bill rate minus Repo rate.

$Stbill_t = (R\,tbill_t - Rrepo_t)$

For the foreign exchange market, the covered interest rate parity (CIP) hypothesis suggests that the forward exchange premium (f_c) should be equal to the spread of the domestic interest rate (R_d) over the foreign interest rate (R_f) under the no-arbitrage condition. Therefore, the mean equation for this market segment can be specified as:

$s_{f,t}=f_{e,t}-(R_{d,t}-R_{f,t})$

The next step of the analysis is to apply the GARCH model for each market segment. The first step is that the standard mean equation is estimated using the AR (1) or ARMA (1, 1) model. Subsequently, the AR (1) model is extended to the GARCH variance equation, the GARCH-in-Mean model, TGARCHM and EGARCHM model. The model has been tested using generalized error distribution. For choosing a final model, the log-likelihood function and various information criteria are considered.

Table 4: GARCH model for Call money Spread

	ARMA(1,1)		ARMA(1,1) GARCH		ARMA(1,1) GARCHM		ARMA(1,1) TGARCHM	
Mean Equation								
	Coefficient	t-stat	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat
Intercept	0.951552	3.30	0.882906	4.49	-0.272922	-0.72	-5.388643	-1.97
AR(1)	0.882402	13.77	0.982945	181.12	0.979310	410.58	0.991477	322.35
MA(1)	-0.603426	-5.44	-0.036137	-19.31	-0.031601	-3.69	-0.063605	-3.40
ARCH-M					0.155836	1.41	-0.025600	-3.54
Variance Equation								
Intercept			0.045688	1.66	0.030524	4.41	0.042236	1.94
ARCH(1)			1.175747	1.68	1.252588	4.50	1.401331	1.49
GARCH(1)			0.375231	1.82	0.144631	1.60	-0.687984	-0.51
Threshold							0.441121	3.90
Distribution			0.514063	6.80	0.499160	7.31	0.485806	7.61
$\overline{R^2}$	0.28		0.01		0.02		0.02	
LL	-177.0734		-61.41615		-60.27648		-58.57781	
DW	1.83		2.51		2.51		2.48	
AIC	2.749213		1.04452		1.042389		1.031722	
SIC	2.815057		1.19815		1.217974		1.229255	

The call money spread over the Repo rate is characterised through an ARMA (1, 1)-TGARCHM model with log variance in the mean equation (Table 6.31). The intercept coefficient in the mean equation for the spread of the Call rate over the Repo rate turned out to be negative in the TGARCHM model whereas it was 95 basis point in the simple ARMA (1, 1) model. The coefficient of the GARCH volatility is negative and insignificant. The threshold term is positive and significant .The coefficient of the ARCH-M term is negative. The market was found to be described by a non-standard distribution reflecting the impact of extreme movement in this market.

Table 5: GARCH model for CBLO Spread

	AR (1,1)	AR(1,1) GARCH	AR(1,1) GARCHM	AR(1,1) TGARCHM	AR(1,1) EGARCHM
Mean Equation					

	Coefficient	t-stat	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat
Intercept	0.689629	5.82	0.363423	8.69	0.882432	3.53	0.066956	1.29	0.058666	0.90
AR(1)	0.512636	6.78	0.566993	35.58	0.398018	6.20	0.426714	12.05	0.302827	8.09
MA(1)										
ARCH-M					0.281968	2.29	0.666993	7.68	1.080831	3.74
Variance Equation										
Intercept			0.058028	1.35	0.141439	2.74	0.005540	2.11	-0.113546	-2.68
ARCH(1)			0.144981	0.98	0.156377	1.33	0.011564	1.84	0.058870	0.84
GARCH(1)			0.682743	3.39	0.419290	2.81			0.937857	38.90
Threshold							-0.102968	-0.87		
Exponential									0.100643	1.65
Distribution			0.690045	8.75	0.707411	8.49	0.636397	7.67	0.608649	8.47
$\overline{R^2}$	0.26		0.22		0.23		0.22		0.21	
LL	-130.4595		-78.4730		-77.42316		-72.95329		-69.17938	
DW	1.92		1.93		1.87		1.70		1.63	
AIC	2.022282		1.289715		1.288903		1.235928		1.178311	
SIC	2.066178		1.421403		1.442540		1.411513		1.353896	

For the CBLO, the AR (1) -EGARCH–in-Mean model (with variance in the mean equation) turned out to be the appropriate model. In this model, the intercept coefficient is positive and insignificant. The coefficient of the ARCH-M term was positive and statistically significant, suggesting that the market segment was capable of pricing risks on a continuous basis. The market exhibited volatility persistence since the sum of ARCH and GARCH effects exceeded unity. The market was associated with a non-standard distribution.

Table 6: GARCH model for 91- day Treasury bill Spread

	AR (1,1)		AR(1,1) GARCH		AR(1,1) GARCHM		AR(1,1) TGARCHM	
Mean Equation								
	Coefficient	**t-stat**	**Coefficient**	**z-stat**	**Coefficient**	**z-stat**	**Coefficient**	**z-stat**
Intercept	**0.897342**	**5.32**	**0.828949**	**7.09**	**0.624919**	**1.84**	**0.766465**	**2.79**
AR(1)	**0.703101**	**11.49**	**0.949134**	**116.86**	**0.946663**	**168.03**	**0.953989**	**123.80**
MA(1)								
ARCH-M					**-0.007582**	**-0.52**	**-0.023713**	**-0.73**
Variance Equation								
Intercept			**0.070774**	**1.08**	**0.074681**	**1.12**	**0.045233**	**1.35**
ARCH(1)			**0.365950**	**1.04**	**0.289510**	**1.09**	**0.570353**	**1.22**
GARCH(1)			**0.548440**	**1.64**	**0.530378**	**1.53**	**0.676895**	**2.910327**
Threshold							**-0.715898**	**-1.453368**
Distribution			**0.575249**	**7.99**	**0.627053**	**8.35**	**0.627053**	**8.72**
$\overline{R^2}$	**0.50**		**0.44**		**0.44**		**0.44**	
LL	**-111.7277**		**-65.16355**		**-65.33709**		**-63.89730**	
DW	**2.17**		**2.48**		**2.48**		**2.48**	
AIC	**1.736301**		**1.086466**		**1.104383**		**1.097669**	
SIC	**1.780197**		**1.218155**		**1.258020**		**1.273253**	

For the 91-day Treasury bill market, Simple AR (1)–GARCH (1, 1) turned out to be the appropriate model. The intercept term in the mean equation is statistically significant and positive. The 91-day Treasury bill exceeds the Repo rate on an average by 92 basis points. In the variance equation, the GARCH variable was found to be insignificant.

Table 7: GARCH model for 1-Month forward Spread

	AR (1,1)		AR(1,1) GARCH		AR(1,1) GARCHM		AR(1,1) TGARCHM	
Mean Equation								
	Coefficient	t-stat	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat
Intercept	1.360251	5.82	0.782864	4.89	-0.205113	-0.60	-0.473935	-0.60
AR(1)	0.583134	8.14	0.646604	11.99	0.545328	4.73	0.423619	4.73
MA(1)								
ARCH-M					1.595004	1.68	1.920918	2.60
Variance Equation								
Intercept			0.831203	2.90	0.166166	2.11	0.098865	1.68
ARCH(1)			0.339111	0.95	0.089664	1.96	0.095230	2.70
GARCH(1)			0.024103	0.11	0.766962	10.19	0.856579	12.01
Threshold							-0.219394	-2.75
Distribution			0.896135	6.12	0.839569	6.62	0.870559	6.58
$\overline{R^2}$	0.33		0.31		0.33		0.31	
LL	-199.1253		-179.9845		-178.1569		-174.9802	
DW	1.90		1.95		1.95		1.91	
AIC	3.070615		2.839459		2.826810		2.793591	
SIC	3.114511		2.971147		2.980446		2.969175	

The 1-month forward spread over the interest rate differential is characterised through an AR (1)-TGARCHM model with standard deviation in the mean equation (Table 6.34). The intercept coefficient in the mean equation turned out to be negative in the mean equation. The coefficient of the GARCH volatility is positive and significant. The threshold term was negative and significant. The coefficient of the ARCH-M term was positive and significant. The market was found to be captured by a non-standard distribution, reflecting the impact of volatility in this market.

Table 8: GARCH model for 3 -Month forward Spread

	ARMA (1,1)		ARMA(1,1) GARCH		ARMA(1,1) GARCHM		ARMA(1,1) EGARCHM	
Mean Equation								
	Coefficient	t-stat	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat
Intercept	1.399373	6.01	1.062823	5.11	0.856092	1.46	0.344801	0.75
AR(1)	0.554110	5.51	0.691068	9.31	0.640836	8.83	-0.023078	-0.10
MA(1)	0.294609	2.56	0.130213	1.27	0.193880	2.53	0.285010	1.80
ARCH-M					2.053577	5.32	2.033795	4.37
Variance Equation								
Intercept			0.175524	1.21	0.094854	1.41	0.028459	0.51
ARCH(1)			0.197128	1.13	0.034675	2.05	-0.191886	-2.74
GARCH(1)			0.600701	2.48	0.827280	8.05	0.826600	12.71
Exponential							0.408880	5.85

Distribution		1.042819	5.91	0.991568	6.65	1.063495	7.40
$\overline{R^2}$	0.50	0.49		0.50		0.54	
LL	-173.3329	-161.1089		-159.4341		-148.3488	
DW	2.05	2.00		2.05		2.20	
AIC	2.692105	2.566549		2.556246		2.402272	
SIC	2.757950	2.720185		2.731831		2.599804	

The 3 month forward spread over the interest rate differential is characterised through an ARMA (1)-EGARCHM model with standard deviation in the mean equation (Table 6.35).

The intercept term is positive in the mean equation but is insignificant. The coefficient of the GARCH volatility is positive and significant. The ARCH-M coefficient in the mean equation is positive and significant. The market is also associated with a non-standard distribution.

Section 4 Conclusion

The vector auto regression model suggests that the money market and the foreign exchange markets are gradually getting integrated and price variables in these markets are sensitive to price movements in other financial markets. The enhanced correlation among money and foreign exchange rates also indicates improvement in efficiency in the operations of financial intermediaries trading in different instruments. Another interesting observation is the role of the 91-day Treasury bill. The high correlation between risk-free and liquid instruments such as 91-day Treasury bill which serves as a benchmark instrument with other money market instruments such as call money market and CBLO and forward exchange premia underlines the efficiency of the price discovery process.

The GARCH-M model applied to various money and foreign exchange instruments reflects the following. These markets demonstrate their ability to price risks. The conditional measure of risk arising from the GARCH model had a positive impact on the conditional mean of various interest rate spreads, reflecting a trade-off between risk and return in the associated market.

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Loans against shares: Interest rate risk and credit risk management

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ABSTRACT

Banks in India grant loans against securities like Shares. In case of these loans banks are exposed to the risk of the price of the security, this is in addition to the credit risk and interest rate risk embedded in these loans. This additional risk translates into higher interest rate, thus interest rate on these loans are higher than mortgage loans or car loans. This paper suggests an innovative loan model where we reduce the bank exposure to the security and drastically reduce the credit risk and interest rate risk faced by banks. According to the model the bank uses the collateral provided by the customer as a funding source. This is analogous to the present practice carried out by banks in providing loans against fixed deposit where the fixed deposit itself can act as a funding source. Similarly in case of loan against shares, the model suggests a loan structure similar to a classic repo (sell/buy back) where there is a spot sale and a forward repurchase of a security. This would allow the banks to sell the collateral in the market to fund the loan and buy it back later when the loan is paid back. Since the shares are pledged as collateral and cannot be liquidated until the loan is paid back it eliminates credit risk and as there are no deposits funding this loan it effectively eliminates interest rate risk. The model uses derivatives as a hedging technique to eliminate risk exposure to the collateral. The paper looks at various scenarios to test the model and also what barriers exist in applying this model to the present case in India. In this regard, the paper makes recommendations regarding government policies and individual bank practices to manage credit and interest rate risk.

Keywords: Interest rate risk, credit risk, derivatives, elimination of risk exposure, Loan against shares

1. INTRODUCTION

Banks today offer loans against shares but they do not use those shares to finance the loan even though these securities are highly liquid. As a result the banks have to look at other sources of funding, which increases the cost of funding the loan. Apart from the cost of funding the bank also takes on significant amount of risk on its balance sheet in terms of interest rate risk and credit risk. Since the bank is exposed to the volatility of the pledged collateral, banks charge higher interest rate on loans against shares.

The paper suggests the use of the collateral pledged as a means of self-funding the loan which effectively eliminates the risks involved. The basic motivation for this model comes from the

present practice of giving loans against fixed deposits. Today an individual can go to a bank and avail a loan against fixed deposits (FD). Using the FD as collateral the individual can borrow up to 90% the value of the FD as loan from the bank. The bank charges an interest rate which is 100 bps above the rate of interest it gives the individual on FD.

Effectively, the individual is self-financing the loan he takes against FD. As the bank can use the same fixed deposit to fund the loan. This eliminates the cost of funding the loan. In addition the interest rate risk is also eliminated as the rate of interest charged on loan is pegged to the rate of interest the bank offers on FDs. Further on the bank will also eliminate the credit risk as the individual uses the FD as collateral which can be transferred to the bank in case of default.

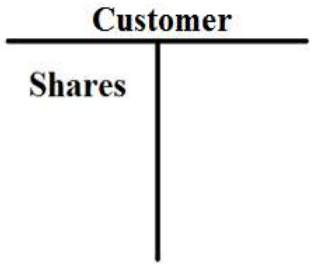
This notion of self-financing the loan and at the same time eliminating the interest rate risk and the credit risk using the collateral associated can be applied to loans against shares. So we are applying the same structure that exists for loans against fixed deposits to loans against shares.

2. RESEARCH METHODOLOGY

This is primarily a conceptual paper which presents a model for the banks to grant loans against shares. The fundamentals of the model were derived from the practice of giving loans against fixed deposits. The paper uses secondary data to develop and test the model. To check the feasibility and the validity of the model unstructured interviews were conducted with people associated with the derivatives and banking industry.

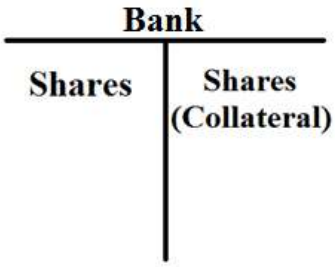
3. LOAN AGAINST SHARES

Consider the case of loans against shares. The client (customer) comes to take a loan from the bank and decides to take a loan against shares that he owns. So the shares act as a collateral for the loan granted by the bank. If we consider the present practice by banks in India, they give loans with a margin of 50% i.e. you can borrow only Rs.50 per Rs.100 market value of shares.

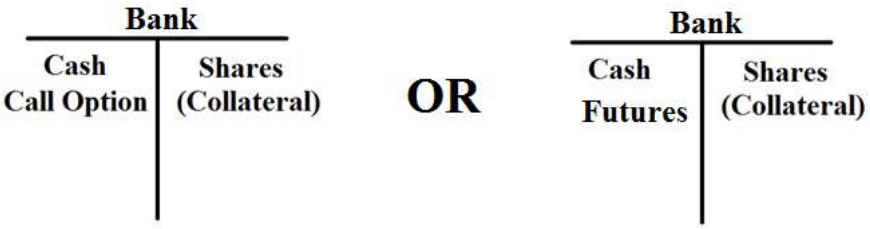


Here, we suggest a contract structure similar to a classic repo where there is a sale and a forward repurchase. So the customer would sell the shares to the bank when he takes the loan. So once the shares are transferred to the bank, they could sell the shares on the same day and then use the cash as the source of funding. As shown below in the balance sheet of the bank once the shares are transferred they act as both a liability and an asset. The asset is the shares transferred by customer. Here we have shown the same shares as a liability since bank owes the customer those share at a future date. So we are showing the forward sale as a liability. These shares from the customer point of view are acting as collateral for the loan. The balance sheet of the

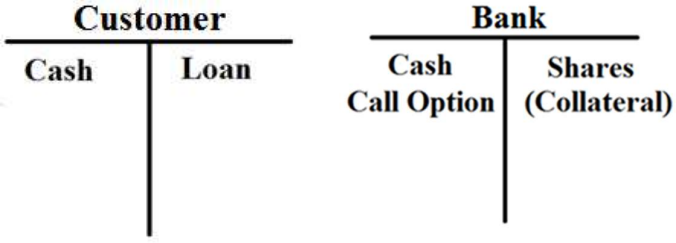
bank was blank before and now after grating a loan it has expanded on both the sides. So the bank is not putting in any of its own capital in this transaction.



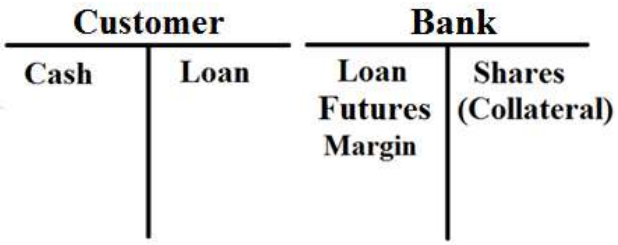
Now since the bank has to replace those shares at a later date when the loan is paid back, they are exposed to the risk that the share price would change when they try to buy it back. So the bank has to hedge this risk. The bank can hedge this risk in the derivatives market. There are two types of derivative instruments that the bank can use to hedge this risk. One is to buy a call option and the other is to get into a futures contract.



Now once the bank has sold the shares and hedged its position, the bank can transfer the cash to Customer. We will maintain the same 50% margin in case of a futures contract. So the bank gives the customer a loan equivalent to 50% of the market value of the shares. In case of a loan using option contract the margin will be determined based on the cost of the call option. We will explain how we determine this later. Below it shows the balance sheets of both the parties involved. It shows the derivative position of the bank as an asset on their balance sheet since they are the buyers of the contract. Margin mentioned on the balance sheet is the margin amount the bank maintains for this loan, which in this case is 50%.

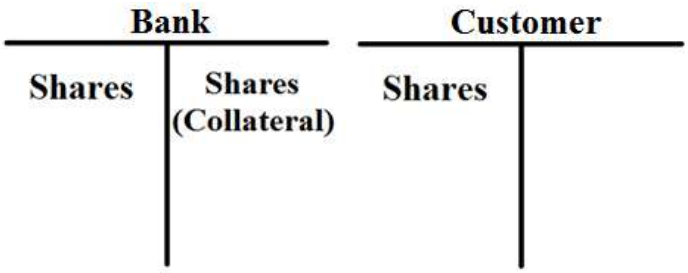


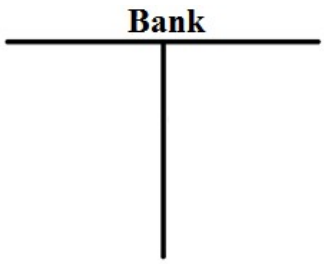
(Using options as derivatives)



(Using futures contract as derivatives)

Once the loan is paid back the call options (or futures) and margin disappears from their balance sheets and we are back to the initial position.





4. USE OF DERIVATIVES

Use of either derivative have cost associated with it, the cost of using a call option is upfront in terms of the premium that the bank will have to pay. In case of a futures contract the bank does not face any direct cost, but it faces cost in terms of basis risk.

4.1. Options or Futures

Once we get into a derivative contract two scenarios can occur the stock price could go higher or lower. In case when the bank uses derivatives contract, stock price movements would not affect the bank since the bank has hedged its position. Consider the case in which the stock price goes lower than the current market price. If the bank had not hedged its position it would have benefited enormously as bank could have bought the shares at a lower price. The call option allows the bank to take this advantage. If the stock price goes lower, the bank can just let the call option expire and buy the stocks from the market at a much lower price thus

recording an additional profit apart from its interest income. The model suggest the use of on American call option. Since American options are not exchange traded in India it would be an over the counter derivative (OTC).

In the futures contract there is daily settlement this exposes the bank to liquidity risk. So if the bank plans on using the futures contract to hedge they will have to transfer the problem of margin maintenance to the customer. Banks in India that give loan against shares already do this, they require customers to maintain 50% margin not because the bank has bought the futures contract but to control the risk of default by the customer.

We suggest a different model of margin maintenance. We can have an upper limit above which a customer can withdraw money from the account and a lower limit below which the customer gets a margin call. Setting the lower limit at 70% and the upper limit at 120% of the stock price when the loan was given. So suppose the stock price as Rs.250 when the loan was given the customer already has given 50% margin and he is given a loan of only Rs.125. So the customer does not get any margin call until the stock price drops below 70% of the stock price, i.e. Rs.175. Once the stock price goes below this the customer has to put up additional margin. Thus, below this price the customer has to maintain only 20% margin. Similarly if the stock price rises by 20% i.e. Rs.300 above this price the customer can withdraw addition margin from the account. This method reduces the liquidity risk for the bank and the liquidity risk is transferred to the customer.

4.2. Two Products

Since the bank can use either derivatives contract to hedge its position, the bank should have two different types of loan product. So when the customer comes to the bank asking for a loan against shares, banks can offers him two loan products he can choose from.

1) **Margin Loan** (hedged using **futures contract**) – here the customer has to provide an initial margin of 50%. So in case when he takes the loan and if his stock price keeps dropping he has to maintain a minimum margin of 20%. He can also withdraw the margin if the stock price rises above by 20%. So the customer faces liquidity risk.

2) **Non Margin Loan** (hedged using a **call option**) – In this case the customer does not need to maintain margin and is protected from stock price movements. Here, the customer does not face any liquidity risk. Also the customer gets close to 90% of the stock price as loan.

The interest rate the bank charges the customer on a non-margin loan will be higher than a margin loan.

5. DIFFERENT SCENARIOS

Testing the model under different scenarios

In case of default

The credit risk is eliminated in this case as in the case of loans against fixed deposits. If Customer defaults, it was his shares that financed the loan, so under the agreement the shares now belong to the bank. The margin acts as an incentive for Customer to not default on his loan. Since the value of his shares are more than the loan.

Non margin loan - But suppose the Customer defaults, and bank has bought a call option and also the stock price drops substantially. What eliminates credit risk is the fact that even though

stock price has dropped we have already sold those shares when Customer took the loan. Therefore what the bank would do is just let the call options expire and not buy back the shares.

Margin Loan - Default by customer would not be a problem since there is daily settlement and the customer is required to maintain 20% margin. So in case of default on a margin loan the bank would just close its futures position.

In case of prepayment

What happens in case the customer decides to prepay his loan? In case of the futures contract we don't have any issue as it is marked to market and there is daily settlement. In case of a call option we have assumed it's an American option so we can exercise the option whenever the customer prepays his loan.

In case of delayed payment

In this case the bank will have to buy a new call option or enter into a new futures contract. The term of the new contract will be a guess of when the customer will pay back the loan. In case he pays back before the expiry date of this new contract it would again become a case of prepayment.

In case of default of the counter party in an derivatives contract

The futures contract would not be a problem since it's settled daily. But in case of the options contract which is OTC, the bank will have to mention it in the contract that if the call option is in the money the counter party has to put up collateral.

6. INTEREST RATE CHARGED TO THE CUSTOMER

The interest rate charged to the customer would be based on the cost of the derivatives contract or the risk the bank is exposed to. Here we will calculate the interest rate charged on the loan in case of both a margin loan and a non-margin loan.

6.1. Non Margin Loan Model (Using Options)

We will consider the case in which a customer has comes to the bank with five different stocks. Now what would be the interest rate he would have to pay on this loan? Here we consider a loan for one year period. In this model the individual applying for loan against shares will supply the bank with shares as collateral. The bank will immediately sell the shares in the market and will buy call options with an expiration period equal to the maturity of the loan pledged. For the purpose of calculating the premium charged by the counter party for selling call options has been calculated with the help of Black-Scholes formula (only returns the pricing the value of a European option).

$$C(S,t) = N(d_1)S - N(d_2)Ke^{-r(T-t)}$$

$$d_1 = \frac{1}{\sigma\sqrt{T-t}}\left[\ln\left(\frac{S}{K}\right) + \left(r + \frac{\sigma^2}{2}\right)(T-t)\right]$$

$$d_2 = \frac{1}{\sigma\sqrt{T-t}}\left[\ln\left(\frac{S}{K}\right) + \left(r - \frac{\sigma^2}{2}\right)(T-t)\right]$$

$$= d_1 - \sigma\sqrt{T-t}$$

Where

S, is the spot price of the stock

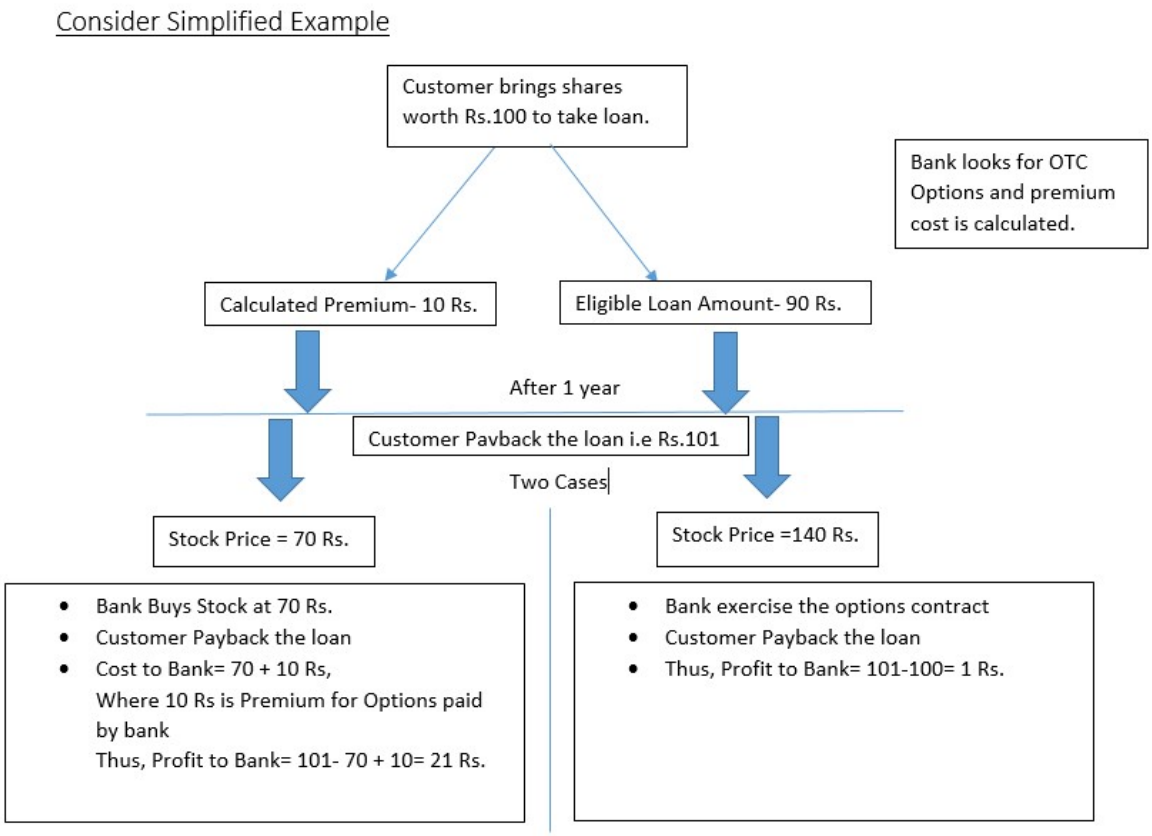
$C(S,t)$, the price of a European call option

K, the strike price of the option.

r, the annualized risk-free interest rate, continuously compounded.

σ, the standard deviation of the stock's returns

t , a time in years; now=0, expiry/maturity=T



As the model uses American call option the premium charged on the American call has been assumed will be 10% more than the European call. The maximum amount of loan an individual can avail is the difference between the strike price and the American call option premium. The bank will earn profit of 100 bps on the strike price of the call option. Thus, the effective rate of interest the customer will be charged is calculated on the eligible loan amount as the base. The rate charged to the customer is such that the final amount will be 101% of the strike price.

$$\text{Rate of interest} = \frac{\text{101\% of strike price} - \text{Eligible amount for loan}}{\text{Eligible amount for loan}} \text{ x } 100$$

As shown in annexure 1 the rate of interest in case of single stocks of each of the 5 companies amounts to be 11.58% and in the case of multiple numbered stocks of the same companies it amounts to 12.21%.

If the customer prepays the loan

In case the customer prepays the loan amount will not grow to be 101% of the strike price. This will create a funding gap. The bank in this case will charge the customer a prepayment penalty that will be equal to the funding gap created. The prepayment penalty will therefore change based on when the customer prepays. If the customer prepays early he will be charged heavy penalty and if he prepays closer to maturity the penalty would be smaller since there would be a smaller funding gap.

6.2. Margin Loan Model (Using Futures)

In this model when the customer transfers the shares to the bank, the bank will buy futures contract on the underlying shares and when the loan is paid back on maturity, bank will close its futures position. Since the number of single stock futures are limited in India the type of shares that are acceptable will also be limited. The model suggests buying futures contract for a month and rolling it over to match the maturity of the loan. Buying one month futures will help reduce basis risk. Bank can exit one contract and simultaneously enter into another contract for the following month.
In case the customer prepays the loan bank will square off the futures contract and buy the shares from the market. On the other hand, if the customer postpones his payment, bank will continue rolling over its futures contract.

The theoretical model for futures pricing is
$F = S_0 e^{(r-y)t}$
Where
F, is the futures price
S_0, is the spot price of the share
r, is the risk free rate
y, is the dividend yield rate
t, is the time period of maturity

The amount of eligible loan amount is 50% of the future price. Also, as the mechanism of the futures contract mandates, the bank will have to maintain a margin account with the exchange with whom the bank entered into the futures contract, this margin will come from the 50% margin that is taken from the customer.
The only risk the bank is exposed to is basis risk and since this risk is difficult to quantify, we suggest the bank should charge an interest of 100 basis points over the risk free rate.

Interest rate (r) = Risk free rate (Rf) + 100 basis points

7. ADVANTAGES OF USING THIS MODEL

1) Banks benefit since it eliminates interest rate risk as the source of funds was the shares and not some deposit. The movement in market interest rates would not have adverse effect on its profitability or net interest margin.
2) As discussed earlier it eliminates credit risk since it's the customer himself who acts as the source of funds for his loan.
3) Using this model improves the banks' profits without exposing itself to any additional risk.
4) The customer benefits since he can fund his liquidity requirement without the need to sell his shares.
5) Customer can now have a longer time horizon while investing in stocks. Since they can fund their liquidity requirement without selling their shares and thus they are protected from the short term volatility of the market.
6) In countries with well-developed derivatives market loans against shares would be at much lower rates, thus the customer benefits from these lower rates.

8. LIMITATION

1) **Failure of monetary transmission:** Normally the channel for monetary transmission for RBI is through the cost of funds for the bank. If the banks use the model this paper suggests RBI will not be able to raise the cost of funds of the banks through their traditional channel. As now the cost of funding a loan does not come from the interbank money market or deposits but from the derivatives market. Traditionally the interest rate the banks charge on the loan comes from what the banks have to pay to its customers as interest on deposits. But in this case since there are no deposits funding the loan, interest rate on loans will be determined by the derivatives market. This makes RBI job more challenging since it will lead to a breakdown in monetary transmission. RBI will not be able to control credit creation as it does in traditional ways.
   So if there is an asset bubble forming in some asset class, traditionally RBI would try to suppress it by raising the banks cost of funds. But in this case if the bubble starts getting financed by people borrowing against shares they own, RBI will fail to raise interest rates on these loans.
2) **Impact on stock prices:** Since there would be limit on the quality of stock the banks would be ready to accept as collateral for the loan. There would be only a select number of shares a bank may be ready to give loans against. If this loan model gets widely accepted this may lead to an increase in demand for those shares against which banks are ready to give loans. This will lead to an increase in the P/E ratio of some high quality stocks, and this increase will have little to do with the fundamentals of the company.
3) **Increase in volatility of the stock market:** There would be heavy buying and selling of stocks by the banks. This could lead to an increase in volatility of the stock market. Suppose there is lot of pledging of a particular stock by many customers, the banks are going to sell those shares as soon as they grant loans against those shares. If by matter of chance many people end up pledging the same shares this would lead to a sudden drop in the stock price. This drop would have nothing to do with the fundamentals of the company. This could in turn lead to sending wrong signals to the market as market participants would start to assume there is something about the company they don't know. Thus, they in turn would start selling.
   At the same time at some future date when the loan is paid back there would again be heavy buying by the banks. Which would put an upward pressure on the stock price. These activities by the banks would increase volatility in the stock market.

4) **No dividend payments:** Since the structure of the loan is similar to a repo where there is a sale and forward repurchase, the ownership of the shares when the loan is taken rests with the bank therefore the bank will receive the dividends. Thus, the customer loses out on dividend payments. This feature may make this loan structure unattractive to some customers.

9. GOVERNMENT REGULATION

RBI Guidelines for Loans against Shares

As per Master Circular DBOD.No.Dir.BC.4/13.03.00/2012-13 dated July 2, 2012[1]

1) Loans against security of shares, convertible bonds, convertible debentures and units of equity oriented mutual funds should not exceed the limit of Rs.10 lakh if the securities are held in physical form and Rs.20 lakh per individual if the securities are held in demat form.

2) Banks should maintain a minimum margin of 50 percent of the market value of equity shares / convertible debentures held in physical form. In the case of shares / convertible debentures held in dematerialized form, a minimum margin of 25 percent should be maintained.

3) The aggregate exposure of a bank to the capital markets in all forms (both fund based and non-fund based) should not exceed 40 per cent of its net worth, as on March 31 of the previous year. Within this overall ceiling, the bank's direct investment in shares, convertible bonds / debentures, units of equity-oriented mutual funds and all exposures to Venture Capital Funds (VCFs) [both registered and unregistered] should not exceed 20 per cent of its net worth.

Following are the modifications in the guidelines suggested for the success of our Loan model

- Banks should be allowed to grant loans more than Rs.20 lakh to attract customers having need for larger amounts.
- As our model has eliminated exposure to credit risk and interest rate risk by hedging it using derivative options, the restriction of minimum margin limit should be removed.
- In order to allow large number of customers to benefit from loan against shares, the restriction of bank's exposure to capital market should be reduced.

10. CONCLUSION

This model though has certain limitation, does help the banks in eliminating its credit risk and interest rate risk. RBI could control credit growth in non-traditional way, like putting a cap on how much a bank can lend against shares or limiting how much total lending a bank can do against shares. Such measures will help in monetary transmission. With steps taken to counter the limitations we believe this model can have an overall positive impact on Indian banking industry

1. https://www.rbi.org.in/scripts/BS_ViewMasCirculardetails.aspx?id=8135

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Annexure 1

The case of one stock of each companies

Company Name	Stock Price	Strike Price	Standard Deviation	Premium on European Options	Premium on American Options	Eligible Loan Amount per Stock
Infosys Technologies	₹ 1,049.05	₹ 1,060.00	7.71	₹ 76.45	₹ 84.10	₹ 964.95
Tata Steel	₹ 240.25	₹ 245.00	13.27	₹ 20.28	₹ 22.31	₹ 217.94
Asian Paints	₹ 834.70	₹ 845.00	15.25	₹ 79.96	₹ 87.95	₹ 746.75
Coal India	₹ 335.25	₹ 340.00	8.17	₹ 23.95	₹ 26.35	₹ 308.90
Bajaj Auto	₹ 2,472.55	₹ 2,500.00	7.32	₹ 176.49	₹ 194.14	₹ 2,278.41
Total	**₹ 4,931.80**	**₹ 4,990.00**		₹	**414.85**	₹ **4,516.95**

101% of Strike price ₹ 5,039.90

Eligible Loan Amount ₹ 4,516.95

Interest Rate on Loan	11.58
Profit By Bank	₹ 49.90

The bank takes a profit of 1% of the Strike price

The interest rate is caulculated such that loan amount given increases to 1.01 times the strike price

Customer's Portfolio

No. of Stocks	Total Values of Shares	Total Strike Price Value	Eligible Loan Amount
13	₹ 13,637.65	₹ 13,780.00	₹ 12,544.38
18	₹ 4,324.50	₹ 4,410.00	₹ 3,922.90
14	₹ 11,685.80	₹ 11,830.00	₹ 10,454.49
15	₹ 5,028.75	₹ 5,100.00	₹ 4,633.54
2	₹ 4,945.10	₹ 5,000.00	₹ 4,556.82
	₹ **39,621.80**	₹ **40,120.00**	₹ **36,112.13**

101% of Strike price ₹ 40,521.20

Eligible Loan Amount ₹ 36,112.13

Interest Rate on Loan	12.21%
Profit By Bank	₹ 401.20

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The Changing Phase of Mutual Fund Industry in India

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ABSTRACT

The Indian mutual fund industry has grown several folds to over 10 trillion INR in 2015 from 470 billion INR in 1993 after the entry of public sector banks, insurance companies, private and foreign players into the industry. In India the origin of Mutual Funds industry can be traced since the enactment of UTI (Unit Trust of India) Act, 1963. Due to various historic reasons the Unit Trust of India has maintained its prominent position in the mutual funds industry. The common investors continue to face issues in selecting the suitable product from among the multiple institutions offering variety of products and multiple options attached with each product. Hence, an empirical study was conducted to evaluate the performance of selected equity diversified growth schemes of 30 different mutual funds in India. Performance over three bull and three bear phases has been studied over a period of 3 years i.e., 2012-13 to 2014-15 using daily NAV (Net Asset Value) on a rolling basis for the period under study. Finally, the performance of the shortlisted equity funds after the process of elimination was evaluated using a Mutual Fund Ranking model proposed by the authors.

The ranking was done on both quantitative and qualitative basis with 70 per cent weight given to Quantitative parameters and 30 per cent to Qualitative parameters.

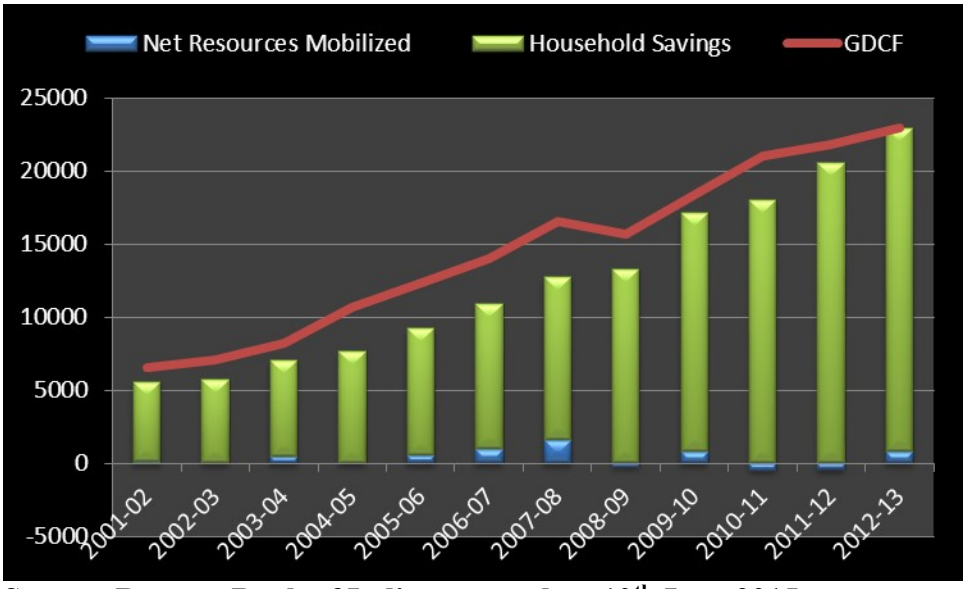
The rankings as per the model were also compared with CRISIL rankings for the respective mutual fund schemes to validate the model.

The study found that amongst the top 10 mutual funds, Franklin India Bluechip (G) fund is the best having lower concentration and market capitalization bias. The fund exhibits above average performance with respect to relative standard indices such as Sharpe ratio, Sortino Ratio, Information Ratio and Outperformance Ratio. The fund enjoys higher benefits of diversification and better sustainability to market volatility on account of higher liquidity ratio and larger asset base.Currently, if any investors want to reap higher return at a lower risk then Franklin India Bluechip (G) fund is the scheme to invest in for a likely better payoff.

Introduction

Household savings play an important role in domestic capital formation. Currently, only small part of the household savings in India is being channelized towards Indian capital markets. To mobilize savings and channel them to capital accumulation, an efficient financial system is essential. Mutual funds convert the scattered savings into productive assets by investing them into capital market instruments, thereby providing avenues for huge developmental investments (Exhibit 1). Thus, mutual funds have emerged as one of the important classes for financial deepening and financial intermediaries, catering to the needs of retail investors.

Exhibit 1: Mobilization of Household Savings through mutual funds channel

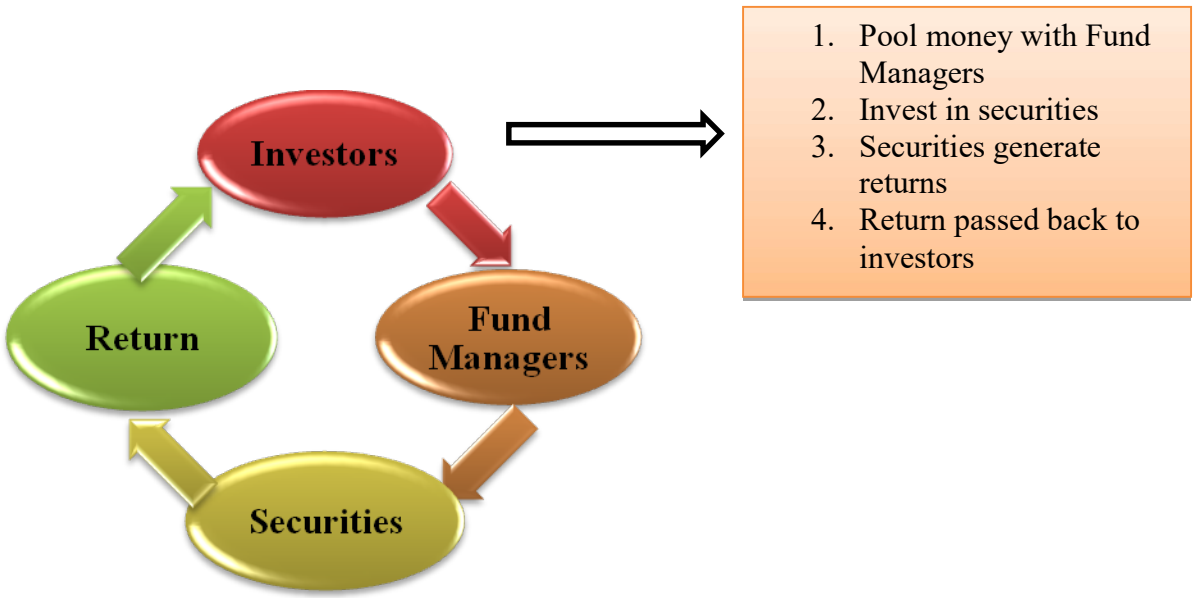


Source: Reserve Bank of India, accessed on 10th June 2015

The Securities and Exchange Board of India (Mutual Funds) Regulations, 1996 defines a mutual fund as a 'a fund established in the form of a trust to raise money through the sale of units to the public or a section of the public under one or more schemes for investing in securities, including money market instruments'. A mutual fund is, thus, a trust that pools the savings of a number of investors who share a common financial goal.

The mutual fund collects money directly or through brokers from investors. The fund manager uses the money collected to purchase securities such as stocks and bonds. The securities purchased are referred to as the fund's portfolio. The income earned through these investments and capital appreciations realized by the scheme are shared by it's unit holders in proportion to the number of units owned by them (Exhibit 2). Thus, a mutual fund is the most suitable investment for the common man as it offers an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost (Mishra et al, 2009).

Exhibit 2: Mutual Fund Operation Flowchart



Source: As compiled by the researcher

The history of the growth of mutual funds in India can be classified into four different phases. The first phase, from 1964 to1987, emphasizes establishment of UTI (Unit Trust of India) in 1963 under the act of the parliament by RBI (Reserve Bank of India). However, IDBI (The Industrial Development Bank of India) replaced RBI resulting in UTI having AUM[1] of over INR 6700 crores by 1988.

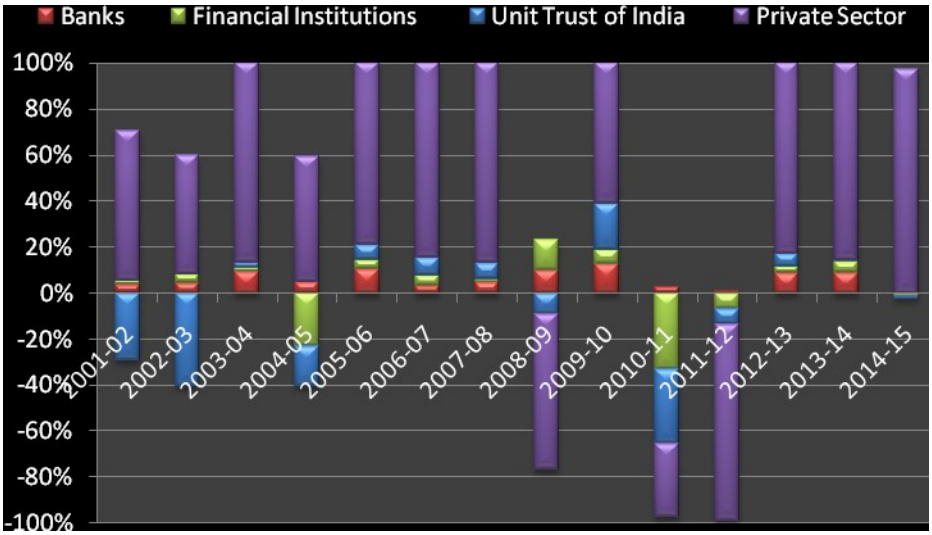
The second phase, from 1987 to1993, focused on public sector banks and LIC (Life Insurance Corporation of India) entering the mutual funds industry. The first non UTI mutual fund was SBI mutual fund established in June 1987, followed by PNB mutual fund, Indian Bank mutual fund. Bank of India (BOI), Bank of Baroda (BOB) and LIC established its stringent rules and regulations and the first mutual fund in the year 1989. Higher number of players in the Indian Mutual Funds Industry resulted in AUM of over 47,000 crores INR by the end of 1993.

The third phase, from 1993 to 2003, allowed the entry of the private sector in the mutual fund industry and introduction of stringent rules and regulations. All the mutual funds except UTI were to be registered and governed except for UTI. There was a tremendous growth witnessed during this phase with the entry of foreign mutual funds with total assets of INR 1.21 crores by the end of January 1993.

[1] Assets under management (AUM), sometimes called funds under management (FUM), measures the total market value of all the financial assets which a financial institution such as a mutual fund, venture capital firm, or brokerage house manages on behalf of its clients and themselves.

The fourth phase started in February 2003 in which UTI was divided into two separate entities. One entity was the Specified Undertaking of the Unit Trust of India representing assets of US 64 schemes, assured returns and certain other schemes. The entity had assets under management of INR 29.8 crores at the end of 2003. The other entity was Mutual Fund, sponsored by SBI, PNB, BOB and LIC. This entity was registered with SEBI with assets under management of over INR 76000 crores at the end of 2003 (Exhibit 3).

Exhibit 3: Net Resources mobilized by Mutual Funds

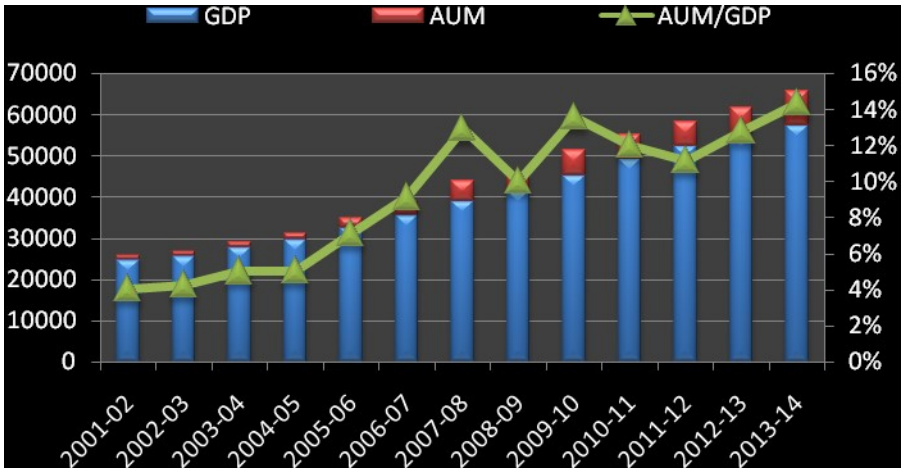


Source: www.rbi.org.in .Website of Reserve Bank of India, accessed on 10th June 2015

Currently mutual funds industry has entered into the phase of growth because of various mergers taking place among the different private players. The real economy, market structure, consumer confidence, capital formation, mobilization of savings, financial policy regime etc are some of the economic fundamentals affecting the scope and efficiency of mutual funds.

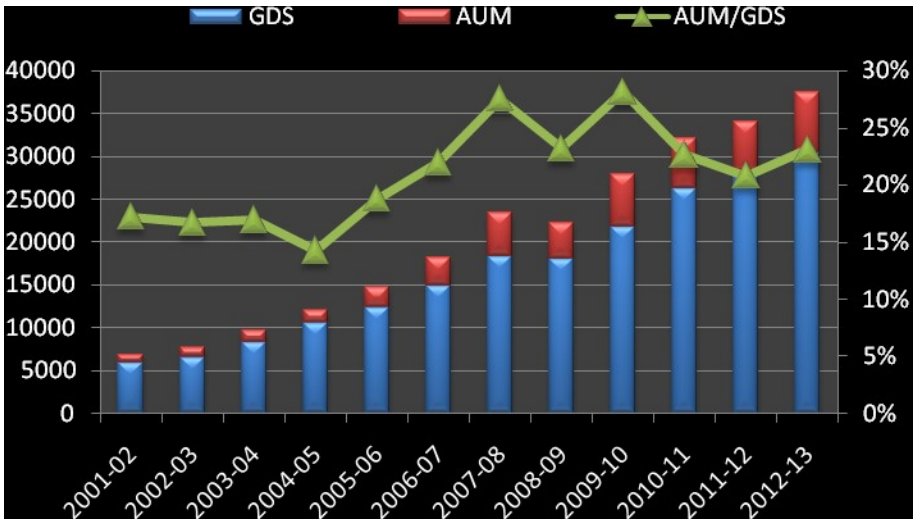
Presently, the net assets value of the mutual funds is more than 14 per cent of India's Gross Domestic Product (GDP) from about 4 per cent in 2001. The investment in mutual funds as a percent of Gross Domestic Savings (GDS) is also substantial. This is mainly on account of mutual funds providing benefits of diversification, liquidity to the investments, mitigation of risks, variety of instruments to invest in and an effective and efficient fund management protecting interests of the investors. AUM industry has reached a mark of almost INR 10 trillion in May 2015 from INR 470 billion in1993 because of the collaboration of all the industry stakeholder and the regulators of the mutual funds industry (Exhibit 4).

Exhibit 4: Assets under Management as percentage of Gross Domestic Product on a rise



Source: Data from website of Reserve Bank of India (Author's Compilation)

Exhibit 5: Gross Domestic Savings a boost to Assets under Management for Mutual Funds Industry



Source: Data from website of Reserve Bank of India (Author's Compilation)

Objectives of the study:

- To analyze the performance of equity mutual funds with that of benchmark index
- To evaluate the performance of equity mutual funds using Mutual Fund Ranking Model proposed by the authors
- To validate the rankings with the rankings recommended by CRISIL

Literature Review:

Treynor (1965), Sharpe (1966), and Jensen (1968) developed models that help to measure and evaluate a portfolio's performance. The models focus on measuring risk adjusted mutual funds returns. These standard indices have been used in detail in the study to evaluate the performance.

John and Donald (1974) conducted an empirical study to examine the relationship between the objectives of the stated funds with their risks-return characteristics. They concluded that on an average, the fund managers offered higher aggregate returns which were generally offset by expenses and load charges.

Lehmann and Modest (1987), for the first time, used multifactor models for performance measurement of mutual funds portfolio. According to the authors, the results exhibit significant differences between rankings based on the Capital Asset Pricing Model (CAPM) and Arbitrage Pricing Theory Model (APT). Further, substantial ranking differences were witnessed within Arbitrage Pricing Theory implementations.

Ippolito (1989) examined the relationship between mutual fund investment performances in terms of risk adjusted returns and other variables such as asset size, expenses, portfolio turnover, and load charges. As per the author, domestic mutual fund risk-adjusted return net of fees and expenses, showed comparable returns when benchmarked with index funds. However, portfolio turnover exhibited no correlation to the fund performance.

Barua, Raghunathan and Varma (1991) evaluated the investment performance of master shares during the period 1987 to 1991 using Sharpe, Jensen's Alpha and Treynor indices for measuring risk adjusted returns**.** They concluded that the fund performance was better than the market's performance. However, the performance of the investment fund was not in line with that of the Capital Market Line.

Goetzmann and Ibbotson (1994) analyzed aggregate returns of 728 mutual funds on monthly basis over 13 year period (1976-1988) using total returns and Jensen's Alpha as performance measures for measuring risk adjusted returns. They selected various lengths of periods to evaluate the performance from holding periods of the same length i.e. one month, one year, two years and three years respectively..

Jayadev (1996) evaluated the performance of two growth funds namely Mastergain and Magnum Express for either adapting to the market or selecting underpriced securities. The performance of the growth oriented funds was measured using Sharpe, Jenson and Treynor measures where monthly returns were compared to benchmark returns. The author inferred that both the funds exhibited poor performance in earning better returns for either adapting to the market or selecting underpriced securities. However, it was found that Magnum Express was well diversified and had reduced its unique risk as compared to Mastergain.

Gupta & Sehgal (1998) examined the investment performance of 80 schemes under 25 mutual funds, 15 in private sector and 10 in public sector, for 5 year period (June 1992-1996) in terms of

diversification and consistency in performance. As per the authors, the mutual funds portfolio diversification performed well and supported the consistency in performance.

Gupta (2000) conducted an empirical study to evaluate the investment performance of Indian mutual funds using weekly Net Asset Value (NAV) data across various categories of funds for the time period 1994-1999. The author concluded that the schemes showed mixed performance during the same time period.

Redman, Gullett and Manakyan (2000) evaluated the risk-adjusted returns for five portfolios of internationalmutual funds for three different time periods: 1985-1994, 1985-1989, and 1990-1994 using Sharpe's Index, Treynor's Index, and Jensen's Alpha. During the time period 1985-94, investment portfolios of US mutual funds consistently outperformed the US market. However, risk adjusted returns were below the stock market returns in the domestic market during 1990-94.

Kothari and Warner (2001) argued that standard performance measures depend on the Benchmark selected on account of the benchmark's ability to mimic the fund style. As per the author, the benchmark must therefore be selected carefully.

Korkeamaki and Smythe (2004) analyzed the Finnish mutual fund industry for the time period 1993- 2000, and focused on market segmentation and mutual fund expenses. The authors concluded that the Finnish mutual funds performed neutrally showing opportunities for diversification with the exception of equity funds which had underperformed.

Aggarwal (2007) conducted an empirical study on mutual funds industry in emerging markets like India. The paper focused on the pricing mechanism for mutual funds in the Indian markets with empirical studies on its valuation. The data was analyzed both at the fund manager and fund investor level.

Anand and Murugaiah (2008) conducted empirical study for the time period 1999 - 2003 to evaluate the sources of investments attributing the performance to specific activities of Indian Fund Managers. They also attempted to identify observed return partially due to the ability to pick up the best securities at given level of risk using Fama's methodology. A sample set of more than 113 schemes with more than 90 per cent of corpus to equity stocks of 25 fund houses was considered for the study.

The study concluded that the influence of market factor was more severe when the fund was performing negatively while the selectivity skills of the fund managers was more impactful and substantial than the other factors on the fund performance during times of generating positive return by the funds.

Afza and Rauf (2009) evaluated mutual fund performance using Sharpe Index with the Assistance of pooled time-series and cross-sectional data for all the open-ended mutual funds listed on Association of Pakistan (MUFAP) for the time horizon 1999-2006 on quarterly basis.

The empirical study focused on different fund attributes such as fund size, expenses, age, turnover, loads, average number of maturity, asset base and liquidity. The empirical study revealed that various funds attributes lagged return and liquidity had significant impact on fund performance.

Debasish (2009) studied the performance of 23 schemes under 9 mutual funds, 6 private sector mutual funds and 3 public sector mutual funds over 13 year time period (April 1996 to March 2009). The measures used for analysis are standard indices such as Sharpe ratio, Treynor ratio and Jensen's Alpha. The study revealed that while Franklin Templeton and UTI showed above average performers, Birla Sun-Life, HDFC and LIC mutual funds exhibited below average performance.

Dunna (2012)analyzed the factors contributing to the growth in the mutual funds industry in India. He also examined various challenges and opportunities for the Indian mutual fund industry. The author concluded that various financial and economic reforms gave wave of opportunities to the industry.

D' Silva and Bhuptani (2012) in their study analyzed the performance of mutual funds in comparison with other financial instruments. The authors concluded that mutual funds are safer for smaller investors and yield more return on the portfolio investment coupled with benefits of diversification. The empirical study revealed the need to educate the investor so as to channelize their savings and income in mutual funds investment.

Prajapati and Patel (2012) evaluated the performance of various diversified equity mutual funds in India from thetime period 2007 to 2011. The empirical study revealed that overall mutual funds had given positive returns and the best performers were HDFC and Reliance mutual funds.

Pala and Chandnib (2014) in their study examined the performance of the few income and debt mutual fund scheme on the basis of their daily NAVs for the time period October 2007 to October 2012.The empirical study revealed that the best schemes to invest in were those under HDFC Mid Cap Opportunity,

Methodology of Ranking for Equity Funds:

Elimination:

The Schemes are first run through the process of elimination. The process of elimination takes in to account screening of the schemes for the NAV track record and asset bases. Schemes with more than one year NAV track record and an asset base of at least INR 100 crore are selected for the process of ranking.

The selected schemes are then put through the process of qualitative and quantitative ranking with 70 per cent weight given to Quantitative parameters and 30 per cent to Qualitative parameters

The parameters on which the quantitative ranking is done are explained below:

Quantitative Parameters:

1. **Sharpe Ratio (10%):**

Sharpe Ratio was developed by Nobel laureate William F. Sharpe in 1966. The ratio is a measure of excess return per unit of risk in an investment asset. It is used to characterize how well the return of an asset compensates the investor for the risk taken. When comparing two assets each with the expected return against the same benchmark with return, the asset with the higher Sharpe ratio gives more return for the same risk. Investors are often advised to pick investments with high Sharpe ratios. Accordingly, 10 per cent weightage has been given to the above parameter.

2. **Outperformance ratio (5%):**

The outperformance ratio checks the consistency of the returns vis-à-vis its peers. The Funds returns are compared to its category average return on a rolling basis to calculate the number of days the fund has outperformed during the period of study. The consistency of returns is one of the most important criteria in the selection of schemes, as one time performance can be misleading from judging its expected future performance. Resultantly, a five per cent weightage has been given to the parameter mentioned above.

3. **Asset Base (10%):**

The funds asset base conveys an important aspect in the overall selection of equity funds. Corporates in the recent years have been large investors in the equity schemes, which have increased the volatility in NAV's of these schemes. A small scheme may display more volatility at times due to redemption and large investments impacting the fund harder than the large funds. Moreover large funds due to its investments face lower trading costs vis-à-vis small funds and hence charge a lower expense ratio. Hence, 10 per cent weightage has been allotted to asset base.

The large corpus is thus considered to more stable with respect to proportion of institutional money and redemptions. A higher corpus is considered much safer and hence given a higher score.

4. **Sortino Ratio (10%):**

The Sortino Ratio named after Frank.A.Sortino measures risk adjusted returns relative to an investment target penalizing downside volatility. The mean in the formula represents the returns the fund manager is able to earn over and above the expectations of the investor. A large Sortino ratio indicates that there is lesser probability of making huge losses. Hence, an allocation of 10 per cent was made to gauge the capabilities of the fund manager.

5. Market Capitalization Bias (5%):

The equity funds are also ranked on the basis of their portfolio mix. A portfolio is split into large cap and small & mid cap stocks that comprise the portfolio. Since the mid and small cap stocks invariably carry greater risk in term of company specific risks, price volatility and lower liquidity, a portfolio carrying a higher portion in it is considered to be more risky. In the ranking, a large cap focused portfolio is rewarded for its good performance by maintaining higher proportion in large cap stock whereas funds venturing in mid and small caps are penalized. The fund excessive performance can sometime come from its action of deviating from the stated mandate, hence looking at performance only can be misleading if portfolio characteristics are ignored. This parameter is used in the evaluation of large cap funds only with an allocation of 5 per cent weight in the mutual fund ranking model.

6. Stock concentration in the portfolio (5%):

As the classic portfolio theory says, diversification is the best way to reduce the risk in the portfolio. A portfolio having a high concentration in a few stocks would therefore be more vulnerable to company specific and price risks. In this step, the portfolio is put through the process of concentration analysis and is rewarded for diversification and penalized for concentration. Accordingly, a 5 per cent allocation has been given in the mutual fund ranking model.

7. Portfolio Liquidity (5%):

The portfolio of a fund comprises of stocks with varying liquidity and marketability. The stock with low liquidity carries a high impact cost at the time of selling. The Fund therefore has to keep in view the liquidity of its portfolio before buying a stock. A sudden redemption pressure on the fund may force the fund manager to sell the stock immediately, which may cause the fund to take a hit due to impact cost. Funds in the raking process are scored with respect to its overall liquidity. One with the highest liquidity (signified by lesser number of days for converting its entire portfolio into cash) is given the highest score.

Qualitative Parameters:

A. Asset Managing Company's (AMC) Ranking (15%) : Equal weightage is given to all the parameters mentioned below as all the parameters are equally significant for the assessment of the equity schemes relatively.

The ranking of the AMC is done on the basis of following parameters

1) Background of the AMC

- Parent company information analysis
- Promoters, shareholding pattern
- Years in existence
- Number of countries of operation, etc

2) Risk Management systems in the AMC

- Structure of risk management unit
- Risk caps on individual funds
- System for monitoring risks and corrective action
- Guidelines on cross sales
- Soft dollar arrangements with brokers (if any)
- Dependency on third party research

3) Compliance and regulatory risks

- Structure of compliance in the organization
- Personal investment/trading guidelines for the employees
- Chinese walls between investment management and trading

4) Operation and technology risk management

- Operational set-up: Registrar, Fund accountant, etc
- Back-up and disaster recovery processes for key systems eg, customer records, distributor details of transactions, etc

5) Investment Management

- Fund Management Team
- Internal Limits for each scheme in equity funds
- Investment guidelines and the process involved to see that the investment management adheres to these guidelines
- Turnover of the fund management team
- Process of documentation of investment ideas and decisions
- Guidelines on portfolio Churn
- Understanding the investment strategy, detail of the investment objective, the universe of securities, stock/sector selection methodology etc
- Expenses and Load structures in the AMC

B. Fund Manager scoring: Equal weightage is given to all the parameters mentioned below as all the parameters are equally significant for the assessment of the equity schemes relatively.

- Past history & performance of the fund manager vis-à-vis its peers and benchmark
- Educational Background of the fund manager
- Experience of the Fund manager in the investment industry
- Fund manager's tenure in the current fund house and history of past switches
- Style of managing funds
- Adherence to the guidelines and investment mandates

Final Scoring & Selection:

The scores obtained from the above quantitative and qualitative analysis are aggregated to form a final score and recommended in line with the investment aims and objectives of the clients.

Empirical Results:

Table 1 shows descriptive statistics using standard indices such as EugeneFama Ratio, Sortino Ratio, Outperformance Ratio and Information Ratio for the top 30 equity diversified mutual funds in India for the period 1st April 2012 to 31st March 2015 using daily NAV for these schemes on rolling basis.The results of relative measures of return are higher in case of the top mutual fund equity schemes of the sample set of 30 schemes considered. Among the top 10 mutual funds schemes, Franklin India Bluechip (Growth) is the best for the investors who want higher returns. Outperformance ratio is maximum for this scheme indicating that it gives higher abnormal return.

Table 1: Eugene Fama Ratio, Sortino Ratio, Outperformance Ratio, Information Ratio

Funds/Ranking Parameters	Eugene Fama Ratio	Sortino Ratio	Outperformance Ratio	Information Ratio
Franklin India Bluechip– Growth	4.02	0.39	100%	2.83
Birla Sun Life Frontline Equity Fund - Plan A – Growth	9.70	0.27	100%	2.31
Franklin India Prima Plus – Growth	1.37	0.13	98%	1.70
BNP Equity – Growth	1.19	0.08	98%	1.57
HDFC Top 200 – Growth	11.36	0.07	97%	1.41
Reliance Vision – Growth	4.06	0.06	96%	1.24
Kotak Select Focus – Growth	3.30	-0.01	95%	1.15
ICICI PruFocussedBluechip– Growth	7.26	-0.11	85%	1.06
SBI Bluechip– Growth	8.77	-0.12	81%	1.04
DSP BlackRock Equity Fund – Dividend	3.73	-0.12	81%	1.03

Source: Author's Compilation

Table 2 shows descriptive statistics using standard indices such as Sharpe Ratio, Liquidity Ratio, Concentration Ratio, Market Capitalisation bias and the Asset Base for the top 30 equity diversified mutual funds in India for the period 1st April 2012 to 31st March 2015 using daily NAV for these schemes on rolling basis. The empirical study reveals that the top 10 schemes with large asset base, higher benefits of diversification on account of lower concentration in the top 10 ten holdings of the total holdings and larger proportion of large caps in the schemes can sustain better in volatile market sentiments. Also, the relative measure of returns such as higher Sharpe ratio indicates excess returns for the investors with lower impact cost relatively.

Table 2: Sharpe Ratio, Liquidity Ratio, Concentration Ratio, Cap-wise Score, Corpus

Funds/Ranking Parameters	Sharpe Ratio	Liquidity	Concentration	Cap-wise Score	Corpus
Franklin India Bluechp– Growth	0.85	9.33	5	0.5	4,307
Birla Sun Life Frontline Equity Fund - Plan A – Growth	0.83	6.15	5	0.5	4,230
Franklin India Prima Plus – Growth	0.75	2.69	5	0.5	3,627
BNP Equity – Growth	0.68	2.66	5	0.5	2,340
HDFC Top 200 – Growth	0.63	2.55	5	0.5	2,020
Reliance Vision – Growth	0.58	2.46	5	0.5	1,970
Kotak Select Focus – Growth	0.50	2.30	5	0.5	1,900
ICICI PruFocussedBluechip– Growth	0.45	2.11	5	0.45	1,610
SBI Bluechip– Growth	0.38	2.06	5	0.45	1,586
DSP BlackRock Equity Fund – Dividend	0.35	1.97	5	0.45	1,580

Source: Author's Compilation

Table 3 analyzes the qualitative parameters such as Fund House Score and Fund Manager Score for the overall portfolio assessment of the top 30 equity diversified mutual funds in India for the period 1stApril 2012 to 31stMarch 2015. The top 10 mutual fund schemes have been in existence for over ten years, strong promoter backing, better turnover, higher adherence to compliance and regulations, better risk management tools and techniques.

Finally, total score has been calculated allocating 70 per cent weightage to the quantitative parameters and 30 per cent to the qualitative parameters using weighted average portfolio method. The final score reveals that Franklin India Bluechip (G), Birla Sun Life Frontline Equity Fund - Plan A(G) and Franklin India Prima Plus are highly diversified equity schemes giving excess returns to the investors consistently over the last three years.

Table3: Fund House Score, Fund Manager Score, Total Score

Funds/Ranking Parameters	Fund House Score	Fund Manager Score	Total Score
Franklin India Bluechip– Growth	0.63	0.56	4.4125
Birla Sun Life Frontline Equity Fund - Plan A – Growth	0.60	0.52	4.285
Franklin India Prima Plus – Growth	0.63	0.56	4.1025
BNP Equity – Growth	0.48	0.53	4.1
HDFC Top 200 – Growth	0.63	0.56	3.9675
Reliance Vision – Growth	0.50	0.5	3.84
Kotak Select Focus – Growth	0.47	0.44	3.83125
ICICI PruFocussedBluechip - Growth	0.44	0.38	3.6875
SBI Bluechip– Growth	0.63	0.56	3.6175
DSP BlackRock Equity Fund - Dividend	0.53	0.44	3.4

Table 4: Rankings forEugene Fama Ratio, Sortino Ratio, Outperformance Ratio, Information Ratio, Sharpe Ratio

Funds/Ranking Parameters	Eugene Fama	Sortino Ratio	Outperformance Ratio	Information Ratio	Sharpe Ratio
Franklin India Bluechip - Growth	7	8	4	5	7
Birla Sun Life Frontline Equity Fund - Plan A – Growth	9	9	5	7	9
Franklin India Prima Plus - Growth	6	7	4	6	6
BNP Equity – Growth	6	8	4	6	6
HDFC Top 200 – Growth	10	10	5	8	9
Reliance Vision - Growth	7	7	4	5	7
Kotak Select Focus - Growth	7	8	5	7	7
ICICI PruFocussedBluechip - Growth	8	9	4	5	9
SBI Bluechip– Growth	9	9	4	5	8
DSP BlackRock Equity Fund - Dividend	7	7	5	7	7

Table 5: Ranking for Liquidity Ratio, Concentration Ratio, Cap-wise Score, Corpus

Funds/Ranking Parameters	Liquidity	Concentration	Cap Wise Score	Corpus
Franklin India Bluechip - Growth	5	1.25	5	9
Birla Sun Life Frontline Equity Fund - Plan A - Growth	5	5	4	5
Franklin India Prima Plus - Growth	4	5	2	7
BNP Equity – Growth	5	1.25	5	6
HDFC Top 200 – Growth	4	5	4	10
Reliance Vision - Growth	4	5	3.5	10
Kotak Select Focus - Growth	5	5	4	3
ICICI PruFocussedBluechip - Growth	4	5	3	7
SBI Bluechip– Growth	1	5	2	10
DSP BlackRock Equity Fund - Dividend	4	3.75	2	6

Table 6: Ranking for Fund House Score, Fund Manager Score, Total Score

Funds/Ranking Parameters	Fund House Score	Fund Manager Score	Total Score	Ranking
Franklin India Bluechip- Growth	10	9	4.4125	1
Birla Sun Life Frontline Equity Fund - Plan A – Growth	8	6.5	4.285	2
Franklin India Prima Plus - Growth	10	9	4.1025	3
BNP Equity – Growth	7	7	4.1	3
HDFC Top 200 – Growth	10	9	3.9675	4
Reliance Vision - Growth	9	8	3.84	5
Kotak Select Focus - Growth	7.5	7	3.83125	6
ICICI PruFocussedBluechip - Growth	7	6	3.6875	7
SBI Bluechip– Growth	10	9	3.6175	8
DSP BlackRock Equity Fund - Dividend	8.5	7	3.4	9

Source: Author's Compilation

Note: Refer the annexure for ranking criteria for parameters mentioned above

Conclusion:

In India Mutual fund industry has grown tremendously in the last two decade. Prior to the year 1993 the major control was with the public sector banks and the insurance companies. But entry of the public sector banks, insurance companies and the private players has given boom to the industry. Currently Indian Mutual funds industry has reached a mark of almost 10 trillion INR as on May 2015 because of the collaboration of all the industry stakeholders, AUM and the regulators of the Mutual Funds Industry. AUM of the assets management industry has grown from 470 billion INR in 1993 to 1396 billion INR in 2004 and to 8252 billion INR in 2014.

The present paper analyses the performance of top 30 mutual funds schemes as per the elimination process followed in 47 large cap diversified funds for a time period of 3 years from 1st April, 2012 to 31st March 2015. The selection of equity schemes is done using Mutual Fnd Ranking Model proposed by the author. The ranking is done on both quantitative and qualitative basis with 70 per cent weight given to Quantitative parameters and 30 per cent to Qualitative parameters. Quantitative parameters include Sharpe Ratio, Outperformance Ratio, Sortino Ratio, Net Selectivity Ratio, Asset Base, Market Capitalization Bias, Stock Concentration and Portfolio Liquidity. Qualitative parameters include Fund House and Fund Manager Score respectively for overall portfolio assessment.

The study found that amongst the top 10 mutual funds, Franklin India Bluechip (G) fund is the best having lower concentration and market capitalization bias. The fund exhibits above average performance w.r.t. relative standard indices such as Sharper ratio, Sortino Ratio, Information Ratio, Outperformance Ratio. The fund has higher benefits of diversification and better sustainability to market volatility on account of higher liquidity ratio and larger asset base.Currently, if any investors want to reap higher return at a lower risk then Franklin India Bluechip (G) fund is the scheme to invest in for a likely better payoff.

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Understanding global micro, small and medium enterprise driven economies and its application to Indian scenario

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ABSTRACT

Globally micro, small and medium enterprises (MSME) sector is a well-known tool for driving a country's growth engine. The MSME are credited for equitable growth across the globe. In the Indian context MSME sector plays a pivotal role as it contributes 37.33% to total manufacturing output (2012-13) with market value of fixed assets at 1,363,700.54 crores (2014-15) and correspondingly predicted employment figures of 1,114.29 lakhs (2014-15). The above numbers clearly show the depth of MSME sector in India.

Looking at the global scenario, Germany has a strong and a vibrant MSME sector. With 99% of its companies as MSME, which accounts for 45% of the country's corporate investment and 68% of employment.(2015) The goods delivered by these MSMEs are of top notch quality.

In Japan, MSMEs account for 99.7% of its 4.2 million companies. They account for 69% of total employment and total value addition of 53% (2007). Majority of these MSMEs were driven by export boom during the high growth years.

Strong growth in Indian economy is good news for our MSME, but a threat looms large behind the veil. The Yuan's inclusion in the "SDR" currencies basket implies the further opening of China's economy along with devaluation of its currency, to keep its exports competitive. China's major markets are the US and Europe, where aggregate demand is expected to fall in the upcoming years due to its ageing population. At such a juncture Indian markets will see a large amount of Chinese dumping undercutting our MSME industries.

In this paper the authors have pursued a secondary research approach to identify traits, strategies, policies and factors from major MSME driven economies and their application towards evolving a framework for Indian MSME sector.

1. INTRODUCTION

Micro, small and medium scale enterprises play a very important role in any economy and are undoubtedly its backbone. MSME provide large scale employment with comparatively low capital costs as compared to that of large industries. They have been instrumental in equitable distribution of wealth in the Indian context.

In India, majority of the MSMEs are owned by families, who run and fund them. There have been lots of efforts to make funds available to these units through various government/ bank initiatives. Yet there exists a large gap in funding them. Vast amount of work has been done on the financial aspect of the MSMEs such as improve their access to credit. The aim of the authors is to establish a knowledge and technology driven framework which would ease the process of doing business in the country. To achieve the ultimate goal of having a sound framework that

empowers and reinvigorates our MSMEs the authors have studied two of the best nations Germany and Japan. In addition MSMEs from Taiwan and Brazil have been studied to better understand the emerging market landscape. However, major focus is on Germany and Japan as both these nations have adopted a MSME driven growth model in a way which is a miracle in itself.

Germany:

In the early 1990s East and West Germany reunified to form the Federal Republic of Germany. There was significant pressure on the country's resources as large chunk of East Germany's population was unemployed. Also Germany became a part of the currency union of Euro. In 2003, the government of Germany presented a program – 'Agenda 2010' for generating employment and reducing poverty. A slew of reforms in order to improve the factors of production were implemented. This helped Germany regain its competitiveness in its core strengths of auto, chemicals and machine tools. A large part of this rise was fueled by the micro, small and medium enterprises which led to the revival of economic fortunes for Germany. Some of these organizations have become global names. All this was made possible thanks to handholding by government, industry chambers and a favorable socio-political climate.

Japan:

After the Second World War, the condition of Japanese economy was fragile. Heavy destruction of infrastructure severely reduced its output capacity. With majority of its output coming from small industries; the manufacturers, suppliers, distributors and banks formed close knit group called as keiretsu. This coalition helped Japan grow as an economy. With newer production techniques devised by the Japanese, their product quality improved, spurring an export boom to feed the aggregate demand of the world. Powerful enterprise unions coupled with a co-operative and facilitating bureaucracy, guarantee of lifelong employment, focus on quality and loyalty ensured steady growth for these companies. Their miraculous growth is a lesson worth emulating for India and other developing economies.

FACTS ON INDIAN MSME:

Table 1: Number of enterprises, employment and fixed assets of Indian MSME's[1]

Sr. No.	Year	Total Working Enterprises (in Lakh)	Employment (in Lakh)	Market Value of Fixed Assets (Rs. in Crore)
1.	2006-07	361.76	805.23	868,543.79
2.	2007-08#	377.36	842.00	920,459.84
3.	2008-09#	393.70	880.84	977,114.72
4.	2009-10#	410.80	921.79	1,038,546.08
5.	2010-11#	428.73	965.15	1,105,934.09
6.	2011-12#	447.64	1,011.69	1,182,757.64
7.	2012-13#	447.54	1,061.40	1,268,763.67
8.	2013-14#	488.46	1114.29	1,363,700.54

- Projected

As seen in table 1, MSMEs contribute a large chunk to employment and own substantial assets. Hence, if India is to unlock her growth potential it is the MSMEs whose growth needs to be accelerated.

Table 2: Contribution of Indian MSMEs to GDP (at 2004-05 prices)

Year	Gross value of output of MSME manufacturing sector (crores)	Share of MSME sector in total GDP (%)			Share of MSME manufacturing output in total manufacturing output (%)
		Manufacturing sector MSME	Services sector MSME	Total	
2006-07	1198818	7.73	27.40	35.13	42.02
2007-08	1322777	7.81	27.60	35.41	41.98
2008-09	1375589	7.52	28.60	36.12	40.79
2009-10	1488352	7.45	28.60	36.05	39.63
2010-11	1653622	7.39	29.30	36.69	38.50
2011-12	1788584	7.27	30.70	37.97	37.47
2012-13	1809976	7.04	30.50	37.54	37.33

Source: 1. Fourth All India Census of MSME 2006-07.
2. National Account Statistics 2014, COST, MOSPI.
3. Annual Survey of Industries, COST, MOSPI.

As seen from the above table manufacturing sector MSMEs contribution to GDP in the recent years has declined, whereas services sector has kept pace with the growth. Therefore, reviving manufacturing, will aid our country in reaching its potential growth rate in a sound and stable manner.

STEPS TAKEN BY GOVERNMENT OF INDIA:

Through development commissioner:

- Providing for technology up-gradation, modernization, quality improvement and infrastructure.
- Developing human resources through training and skill up-gradation.
- Providing economic information services
- Evolving and coordinating policies and programs for development of MSMEs as ancillaries to large industries

Through MSME Development Institutes:

- Assistance/consultancy to prospective entrepreneurs.
- Assistance/consultancy rendered to existing units
- Preparation of state industrial profiles.
- Preparation/updating of district industrial potential surveys.
- Skill development programs.
- Quality control &up-gradation.
- Ancillary development.
- Preparation of directory of specific industry.
- Promotion of handholding program called 'Rajiv Gandhi Udyami Mitra Yojana' (RGUMY) for micro & small entrepreneurs.
- Cluster development program.
- Public procurement policy.

2. RESEARCH METHODOLOGY:

The authors have adopted a secondary research method in which they have analyzed each of the above mentioned countries for their policies and regulations which have spurred their growth as a MSME driven economy. Since MSMEs are an unorganized lot, it is very difficult to collect proper authentic data regarding them through primary research. The authors checked and found that sector/ industry specific data was available. But collating such data from the perspective of MSMEs has constraints and inconsistencies associated with it. Due to constraints of time and cost, it is challenging to collect primary data from German & Japanese consulates. It was also observed that substantial amount of primary data was available relating to the finances of MSMEs. As a result a comprehensive view on MSMEs had to be developed through analysis of available data. Comparative study technique has been deployed in the present work to identify the challenges and opportunities associated with MSMEs in the Indian context.

GERMAN MSMEs:

Salient features:

- Owned and managed mainly by families, hence focus is on long term strategy and not on short term tactics
- German MSMEs account for 99.95% of all companies and contribute 68% of total employment
- They contribute 53.8% to GDP, and account for 27% of gross fixed capital formation.
- Adopt conservative financing tools, thus reducing leverage and hence risks associated with it
- A large chunk of the trainees graduating every year get absorbed in the MSME sector. This helps in keeping overall unemployment rate below 7%.
- Conducive economic policy and a simplified taxation regime mean regulatory and bureaucratic hurdles are a thing of the past.
- A large share of Germany's exports, are driven by its MSMEs, indicating their level of competitiveness and global ambitions.
- German MSMEs are known to keep pace with their larger counterparts as far as product and process innovation goes.

Analysis on various economic parameters for German MSMEs:

- MSME, big companies and state-owned enterprises are treated on the same pedestal. There are MSME programs which help MSMEs to access resources and finance. The government has public procurement guidelines that help MSMEs to take part in state tenders.
- Germany has very easy entry regulations; efficient product certification procedures. Its efficient customs regulations are tailored to improve exports. Partial exemption for MSME from reporting, record keeping and accounting requirements makes life easier. Easing of regulation on exit and bankruptcy reduce uncertainty.
- Germany has a secure, stable and efficient property rights protection system in the world. (In-line with EU standards).
- The company is required to give pre-notification period of 14 days and no severance payments are required by law. Redundancy procedures are efficient. Enterprises with less than 10 employees are exempt from special requirements for collective dismissals. The law permits use of fixed-term contracts.

Labor training:

The employment policy of the German Mittelstand (GM) (the medium-sized companies in Germany) is characterized by sustainability. The 'constant' human resources policy – as against the conventional policy of "hire and fire" has been an anchor of stability for the country during the crisis of 2008-09(companies offered employees reduced salaries and less working hours to adjust production). At the same time, German MSMEs constantly focus on training their own talent pool to eliminate redundancy of skills. In doing so, they benefit from the "dual" system of vocational training, whereby young people both attend school and acquire the necessary practical skills in a company. Another pillar of support for the German Mittelstand are the local banks, such as savings banks and co-operative banks that are in the business of financing MSMEs.

Product or process innovation:

The dynamic nature of GM firms breeds an ecosystem of innovation. This has resulted in 54% of GM firms creating a product or process innovation between 2008 and 2010. The Fraunhofer Society is Germany's best known and most important applied research institution. Its purpose is to help translate basic research and nascent technologies into viable commercial products. This is especially true for small and mid-sized companies, where lower revenues are to the detriment of R&D investment. The federal government, through the Federal Ministry for Economic Affairs and Energy (BMWi), provides direct funding for MSMEs through the Central MSME Innovation Program (ZIM-Solo). Companies that have fewer than 250 employees can apply for a non-refundable research subsidy to cover expenses associated with the development of R&D projects, either in-house or by a research institution. The funds, up to €350,000, can cover up to 55 percent of R&D activities and up to 50 percent of the consulting services.

TAIWANESE MSME's:-

As of 2013, MSMEs accounted for 97.64% of all enterprises in Taiwan, 78.3% of total employment and 29.44% of all sales (by value) of Taiwanese enterprises. Taiwanese MSMEs account 34.58% of domestic sales and 14.48% of total export sales by value.

Salient features:

- Large subcontracting between MSMEs acts as a buffer against vagaries of growth, business cycles
- Most MSMEs are original equipment manufacturers (OEM) or in services with a focus on exports.
- The MSMEA (Small & medium enterprise administration) offers services such as:
    1. Start-up & incubation: Providing information and consultation services. Incubation centres provide specialized assistance from academia, legal professionals, R&D specialists, government and private enterprise. Regional R&D centres build interface with schools and training institutes
    2. Training in management, quality upgrade and financial assistance: The government aims to strengthen management quality by establishing corporate organizational management systems. It endeavours to improve the functions of MSME service network. Help MSMEs secure business opportunities through government procurement. The government provides guidance relating to quality concepts like

Total quality management (TQM), 5S, Six sigma. It also offers complete one stop shop for all kinds of financial assistance at local/state level.

3. Information management, mutual assistance and collaboration: Projects like MSME e-business innovation service help firms to join the digital bandwagon. The government seeks to increase sharing of resources and working together between MSMEs to develop new products

Figure 1: Spheres of business in which Taiwanese government facilitates MSMEs:

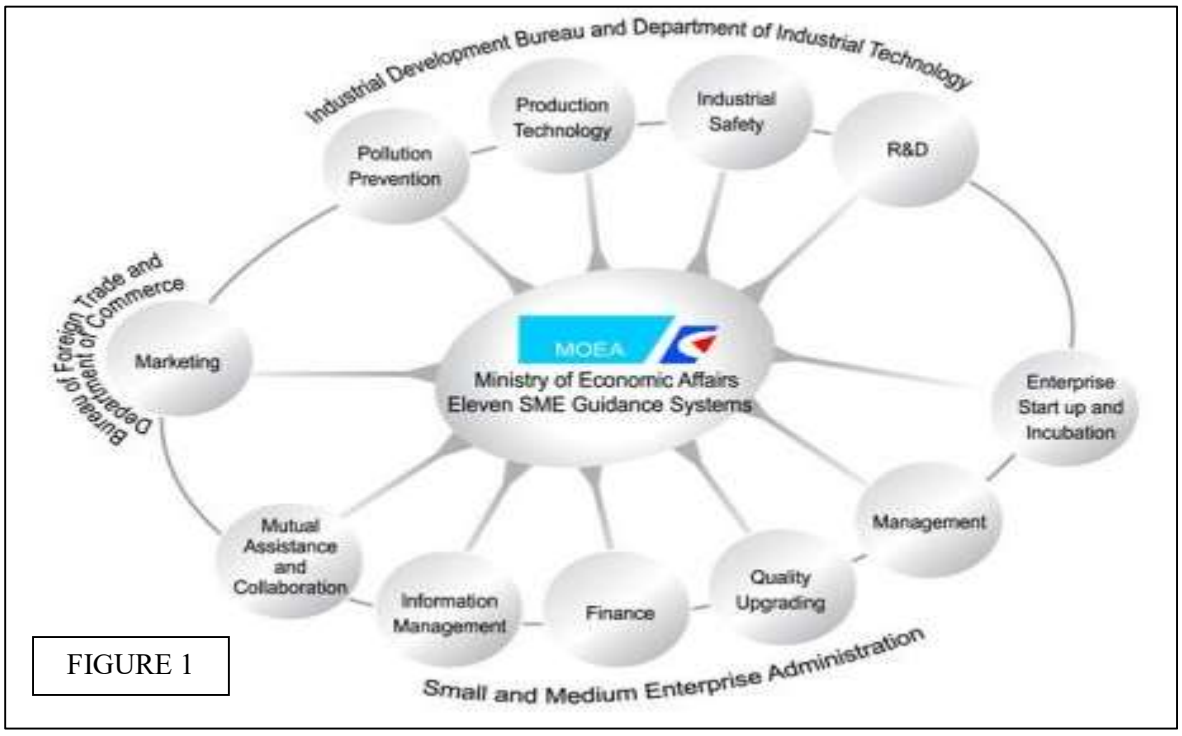

FIGURE 1

BRAZILIAN MSME's:-

MSMEs account for 99% of all enterprises in Brazil, and 17.1% of its exports. They consume 12.5% of total credit. MSMEs contribute approximately 20% to Brazil's GDP.

Brazil's industrial policy revolves around Competitiveness and Development with the aid of the following:

- Reduction of state interference.
- Free entry & exit.
- Technological innovation.
- Productivity.
- Quality standards.

MSME policy:

- A network model - connection of large, medium and small through sub-contracting practices.
- Multi agency system – public and private institutions of national and state level take part in the state purchase policy - rich network of institutions.
- Decentralization of program implementation.
- Micro and Small Enterprise support service (SEBARE) - Coordinator of MSME related issues at the National level.
- The government strives to design programmes to suit the needs of MSMEs.
- The Financiadora de Estudios y Proyectos (FINEP) in Brazil combines technical support.
- Elimination of barriers to imports, distribution and marketing.
- Facilitating imports, entry of foreign enterprises.
- Simplification of technological transfer process- redesigning the role of the National Industrial Property Institute.
- Support Programme to technical training in industries:
    1. Increased spending in Science and Technology.
    2. Reorient it to application of industrial technology.
    3. Encourage private enterprises to carry out technical activities with the help of fiscal and credit incentives.
    4. Modernization through state procurement.
- Improve sector Competitiveness:
    1. Identified sectors with corporative advantage.
    2. SEBRAE needs to have sector specific strategies.
        i. Support programme for the division of vertically integrated enterprises.
        ii. Technological parks.
        iii. Enterprises Incubators.

JAPANESE MSMEs:

In Japan, MSME account for 99.7% of its 4.2 million companies. They account for 69% of total employment and total value addition of 53% (2007)[4]. Majority of these MSME were driven by export boom during the high growth years.

Salient features:

- Generally families own and control MSMEs, hence focus on judicious use of resources.
- Work culture is driven by loyalty, people look for lifelong employment in a firm.
- Japanese are very diligent; serving for long hours is considered a virtue.
- Small and Medium Enterprise Basic Law emphasizes not only on the need to create and support a better business climate for MSMEs but also propagates the importance of venture, start-ups, other new business creation , business innovation.
- Focus on strengthening the education, training foundation of MSME, restructuring and conducting research/education programs.

- A unique element of Japan's corporate organization is its elaborate 'pyramid' structure of subcontracting relationships, where MSMEs play a crucial part. Large 'parent' firms tend to outsource their work to some other firms which handle outsourced operations. The same may be outsourced to the next in the value chain, which is generally an MSME. The whole process involves specialization of work and cost curtailing exercise which simultaneously reduces the production time.
- Japan has also enacted a separate law to facilitate the creation of new businesses, with the objective of doubling the number of new startups in five years. Under this law, efforts are being made to strengthen areas such as financing mechanisms, provision of information, training of personnel, technology up-gradation.
- Provision of other support services to new businesses and venture startups.

JAPANESE POLICY:

An institution to aid MSME in:

- New industrial area entry support (i.e. automotive industry, IT & software, etc.).
- Finance (loan, tax, and subsidy).
- Management infrastructure strengthening.
- Training and human resources development.
- R & D Support.
- Shopping center activation support.
- Industrial parks, science parks.

MSME Support Center as One-Stop-Shop:

Local government measures for MSME promotion.

- Consultation and guidance by sending registered MSME consultants.
- Providing useful information to support MSMEs according to the diagnosis given by consultants.
- Sending specific experts for further advice.
- Conducting seminars, training courses for MSMEs.

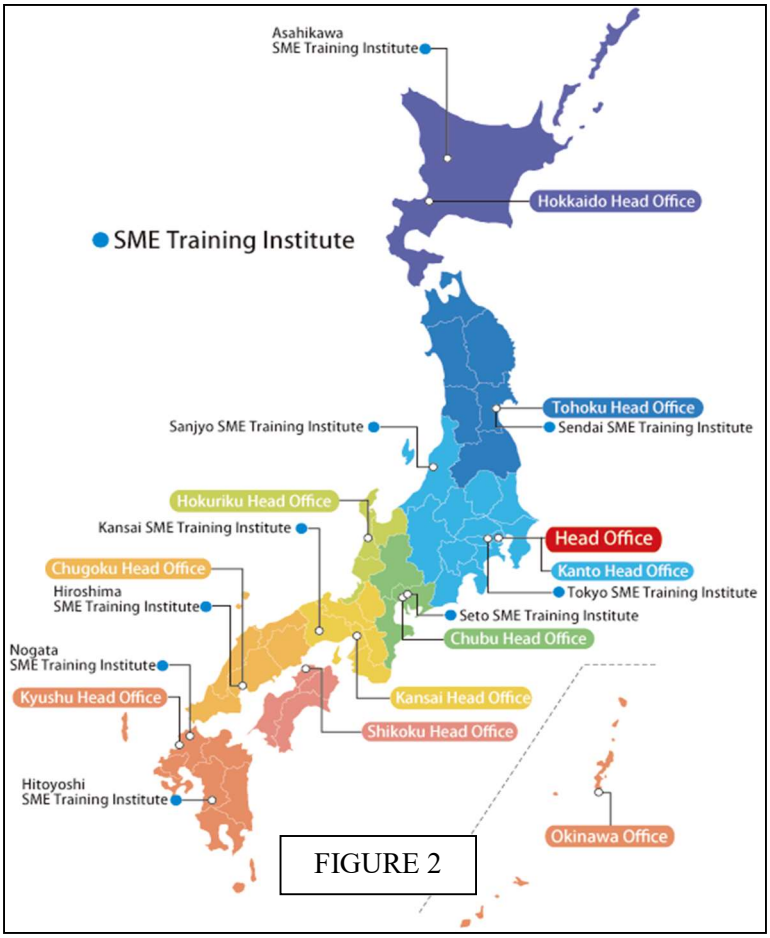

FIGURE 2

MIRASAPO: An online support portal

MIRASAPO is a comprehensive portal site, which means "supporting the future of MSMEs". It began operations provisionally at the end of July 2013.

Functions of MIRASAPO:

- Support measures and provision of information:
  Provide easily comprehensible information about support measures by the government and public institutions. Electronic application functions can be used for some subsidies.

- Formation of a community:
  Provide a forum (community) where users can exchange information with experts and more experienced managers about specific themes, e.g. starting a business or expanding overseas. Users can create new communities tailored to their own issues.
- Expert counseling:
  Developing a database of experts in each field, enabling users to choose an expert according to the particular issue they face and seek counseling online.
- Regional platforms:
  These are networks created in each region via collaboration by a number of MSME support institutions, with databases of experts being shared among those institutions.

Support for venture businesses:

- Subsidies for promoting business startups that stimulate local demand and providing them with a subsidy to cover part of the costs involved in implementing that plan.
- The Japan Finance Corporation (JFC) screens the business plans of people starting a new business or those who have started a business but have not yet reached the end of their second tax return period, and offers unsecured loans without the need for a guarantor to those deemed appropriate.
- Credit guarantees corporations warrants the money borrowed by those planning to start new businesses and by new business operators in order to carry out their business.
- SMRJ* provides financial, management-related and hands-on support for operators of relatively new MSMEs (0-5 years) through the investment companies.
- Japan Venture Awards, (Organizer: SMRJ) awarded to highly entrepreneurial managers, who serve as a model for those aspiring to start a company.
  *SMRJ: Organization for Small & Medium Enterprises and Regional Innovation, JAPAN

3. ANALYSIS OF COUNTRIES – INDIAN CONTEXT:

The extensive analysis of various documents of Germany, Japan, Taiwan and Brazil reveal that the presence of certain set of policies and business related parameters are the key for pioneering growth in an emerging economy like India. Accordingly the authors have identified certain criteria that would create an enabling atmosphere for small businesses to flourish.

Table 3: Comparison of countries on various business parameters:

Parameters	India	Germany	Taiwan	Brazil	Japan
Quality of output	Low	High	High	Low	High
Consumption of output	Local	Export	Export	Local	Export
Technology orientation	Low	High	High	Low	High
Employee absorption(percentage of cos/percentage in employment	Likely to be average (as formal employment not measured)	1.47	1.25	1.9	1.45

Availability of finances	Low	High	High	Medium	High
Availability of information	Low	High	High	Medium	High
Availability of advance resource	Constrained	High	Medium	High	High
Size of industry (number wise)	Large	Medium	Small		Medium
Diversity in the country	Very High	Moderate	Minimal	High	Minimal
Availability of consultation	Very little	Yes	Yes	Yes	Yes
Training of labor	No	Yes(govt. sponsorship available)	Yes	Yes	Yes(Institutes facilitate)
Cluster development	Low	High	Medium	Medium	High
Investors in business	Low	High	High	Medium	High
Peer connectivity	Low	Yes	High	Medium	Yes
Labor laws	Primitive	Advanced	Advanced	Advanced	Advanced
Skill of labor	Low	High	High	Medium	High
Infusion of new talent	Low	Very High	Low(dependent on expats)	Medium	High
How active is chamber of commerce	Low	Very High	High	High	High
Start-up finding ease	Low	High	Low	Low	High
Ease of getting clearances	Low	Very high	Very high	Low	High
R&D	Low	Very high	High	Low	Very high

The basic theme observed across the countries is that majority of the MSMEs are family owned and managed businesses. As a result, these businesses have a more long term outlook. The owners are more proactive in managing the business. It is also seen that these businesses are more conservative than their larger counterparts. These characteristics are found to be true even in case of Indian businesses. However, the countries considered are far more homogenous in nature, while India is much more diverse. India being a conglomerate of various sub-cultures, the authors suggest that the above parameters will be relevant to ease and aid the business scenario in India. It is just that India needs suitable modification to the model in order to suit her scale and size. The authors would therefore, like to propose a confluence of knowledge, technology and transparency as the pillars of the framework to improve the ease of doing business for Indian MSMEs.

4. PROPOSED FRAMEWORK:

Information and transparency enablers (online or app):

- Make publically available a check list of all NOCs (No Objection Certificate), licenses and other mandatory state approvals to *start* a business.
- Make publically available a check list of all NOCs, licenses and other mandatory state approvals for *operations* of a business.
- To have investor/owner login to this IT platform/App where they can register their company and look at status of the foresaid checklist. The progress of various licenses, approvals and NOCs can be checked online. Once completed the platform may guide the owner as to the next step if the process needed to be undertaken.

- To have one stop contact number (preferable if a single individual assists a firm throughout) to deal with all queries of application and approval.
- Single ID for **GST taxation**, with all information about what taxes are applicable.
- 'Right to Services Act' must be embedded in the said framework and punitive action against government employees in case of non-adherence to timelines.
- Land bank information must be made available on the said platform.
- Once a company is registered on the platform a list of government schemes can be made available for the investor's use.
- Earmark industrial land (like industrial parks) with pre-set criteria as to which industry can be opened where, hence aiding faster decision making process.
- Information of allied infrastructure for land earmarked must be provided on the platform to aid investors.
- Procedure, time line for change of land use must be clearly defined for land outside industrial parks.
- Defined guideline for waste disposal, pollution control, etc be made available to the investor as per the sector in which he has registered the company on the platform.
- Allow online download of various certificates of approvals from various agencies.
- Issue of "Factory License" and all subsequent renewals with validity of 10 years or more.
- Factory related approvals to be incorporated on the platform.
- Third party or self-certification is allowed for boilers, with renewal period of 3 years.
- Inspection compliance should be based on risk profile of the company. Grading to be done on a scale of high, medium and low.
- All inspection reports should be made available on the platform within 48 hours post inspection.
- To resolve commercial disputes, establish special division/bench under district courts for all districts in India.

Policy enablers:

- Since our MSMEs are in a nascent and evolving state, our first aim must be to encourage them to satisfy our local consumption demand.
- A consortium of MSMEs must be allowed to bid for public procurement projects. (quality and history of the group can be assessed with the help of information available on the IT platform)
- Entry and exit barriers to be eased - focus on new bankruptcy code for easier exit.
- An efficient procedure for product certification and quality assessment regulation to make companies competitive.
- Simplified and transparent IPR laws with due recognition to the IPR pioneers in each sector to evolve a thought of innovation across the industry.
- Easing of employee protective regulations is not politically and economically feasible unless a comprehensive social security system is put in place.
- A proper framework to define what is "R&D" and give benefits to pioneers in "R&D" (across sectors) such as financing 50% or more of their research spending. This will boost the innovation curve in the industry and spurt growth as per Solow's growth model.
- Like the Japanese, India should also encourage a pyramid structure of work sub-contracting from larger companies to MSMEs.
- To establish special training institutes or use existing government institutes across all districts to train labor in special skills. These skills can be technical or managerial.
- Allow a network of consultants, to aid those owners who have registered on the above said platform. The consultant can be hired on the platform and payment to be made through the platform. The platform will allow consultants to be rated by the users as per work done. All industry specific consultants should be grouped together. Experts with in-depth specialization to be made available for further consultation.
- A proper framework for venture capitalists to review companies based on the data of the IT platform. Legal recourse to VC financing to be clearly defined.
- Various education courses must include a mandatory internship with MSMEs, this would aid in skill development as well as bringing fresh ideas to the business. E.g. a mechanical engineering graduate can take an internship in the third year (one semester) and do the final year project as that which is given by the MSME he interned for. A similar thing can be done for a management graduate, commerce graduate etc.

China's threat:

Though the authors have proposed a policy structure to ease doing business in India, the economy is still in a very preliminary stage of development. Today, the world is facing an acute crisis of demand; the economies across the globe are running on huge debt. The Chinese economy, driven up largely by heavy fiscal stimulus since 2008, is slowing down due to a slump in its exports. It has run up large debts. Under such circumstances, devaluation of the yuan is the only luxury for those at the helm in Beijing. With abysmal capacity utilization, China will grow to be a threat for nascent Indian MSMEs across sectors. The policy makers in India must be wary of the dragon with their only cover being proper identification of products being dumped, and levy anti-dumping duty on the same. This also means Indian MSMEs will be required to become more productive and adopt technology faster.

Limitations:
The research carried out is secondary in nature. The data is collected from reliable sources viz. journals, websites (many were government organization or government sponsored). The circumstances, under which these findings were compiled and necessary assumptions made, could not be independently verified by the authors. Future research can include more countries for a comparative study on the MSME led growth model.

5. CONCLUSION:

Every country faces its own unique challenges in growing its economy. However, it is seen in most countries across the world, that a consistent focus on creating jobs is the surest way to eradicate poverty and stimulate growth. Through the present research the authors observe that the MSME sector is the largest employer in most countries. This clearly illustrates that a prosperous and booming MSME sector translates into a sustainable growth trajectory. While studying for the paper the authors came across many schemes and initiatives which were similar to those as studied from the above analyzed countries. The biggest dilemma in Indian scenario has been the lack of implementation of these schemes and policies. In a time when technology differentiates haves and have-nots, current initiatives like Make in India, Digital India, Skill India and Start-up India are indeed the need of the hour. Hence, the focus of this paper has been on suggesting a conducive regulatory and policy framework, which backed by technology, transparency and information would aid the current government's initiatives. It is only when technology meets policy making, the inertia or lack of implementation of our mammoth bureaucracy can be expunged. The time is right, so are intentions, therefore will India join the growth bandwagon?

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A Study on Impact of Financial Inclusion Program in Selected Rural Areas in Sabarkantha district

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ABSTRACT

Poverty and income inequality is a challenge in India. Although nation has seen the rapid economic expansion in the past decade still a larger chunk is deprived of basic financial exposure and assistance. Inclusive growth is need of the hour and is being looked upon very seriously by several emerging and developing nations. Lack of access to financial services for small/marginal farmers and weaker section of society is serious threat to economic progress. RBI is very zealous about financial inclusion program and has been encouraging banks to pursue it.RBI has devised the BC/BF Model in 2006 to increase the outreach of Banking facilities to the financially excluded areas.

This paper intends to investigate the impact of financial inclusion program run by RBI through the various banks in India. As financial inclusion program intends to target three aspects – Basic savings, Loans and Insurance needs of the excluded.This study tries to investigate the implementation of the model in actual field level situations and to analyze the saving habits and banking facility available in rural areas. Also to see is there any change in respect to financial exposure to the excluded.For the purpose of the study primary data was collected from selected rural areas in Sabarkantha District through Questionnaire and secondary data was collected from the websites of RBI, NABARD, Banks, etc. Measures of Central Tendency, Dispersion, etc were applied to analyze the data.

From the Study we observed that people showed interest in availing the services of this model but lack of proper execution of program and expertise of personnel was also questionable due to lack of sufficient training. As such growth in number of bank account was seen but villagers were not getting other banking facilities which they are supposed to get.

And here by we can conclude that the enforcement of this program will broadened the financial inclusion and there by contributing to poverty reduction and lower income inequality.

Introduction

A strong financial system is a pillar of economic growth, development and progress of an economy. For the serious economic growth support from all the section of society is needed. For sustainable economic growth it is necessary to cover all the weaker section of the society under the umbrella of Financial Inclusion. The ease of access of banking facilities and strong bank branch will boost the financial inclusion.

In developing countries like India banking sector is focusing more for profit making urban areas and the rural areas are excluded because of less profit expectation. However, now those financially excluded areas where basic banking facilities were not provided are in the major focus. Financial Inclusion Program is about giving basic financial facility to all people who are financially excluded. It is the approach to cover all untapped region where there is more potential of banking growth.

The Reserve Bank of India set up Khan Commission in 2004 which gave recommendation of financial inclusion and it was incorporated in 2005-2006. It is mandatory for all nationalized banks to be a part of Financial Inclusion program. Now, commercial banks are also working on this way for greater market reach and growth opportunity.

Financial Inclusion is very appropriate way for social and economic development of rural areas and targeting those people who are small and marginal farmers, laborers, women, SHG, unorganized sector workers, etc.by providing basic banking facility, insurance and small credits, easy transfer facility.

There are few approaches for financial inclusion like bank led approach, technology based approach, knowledge based approach, government initiatives and product led approach. It is not possible for any bank to open an branch in every village because it is not financially viable for any bank to sustain in such region and cover up all fixed cost to run a branch. So, they use alternatives like kiosk bank branches, BC (Business Correspondent) model. In BC model a person is employed by bank as business correspondent who works in small villages to provide basic banking facilities like opening an account, taking deposits and providing withdrawals of small amount, providing credit of small amount, providing insurance instruments etc. The BCs have to create awareness in the village about savings and banking facilities.

Literature Review

Dr. A.Tamilarasu (2014) noted in his research that Financial Inclusion growth is possible only through proper mechanism which channelizes all the resources to all the direction of the customers. Because India is considered as largest rural populations in the world and belongs to agriculture activities, financial inclusion is aimed at providing banking and financial services to all people in a fair, transparent and equitable manner at affordable cost. He studied the growth in commercial banks in India from 2008 to 2013 and reach of banks in rural, semi-rural, urban and metro cities. He found that Total number of the bank offices have been increased in almost all the areas (urban,semi-urban, suburban, rural and metropolitan) the increasing trend also shows the high rate of increasing during the study period between 2008 and 2013.

Bhoomika Garg (2014) studied in her research that despite of vast expansion, a large number of group remain excluded from the "opportunities and services" provided by the financial sector. Such excluded groups include small and marginal farmers, women, unorganized sector workers including artisans, self-employed and pensioners. It observed the role of banks and non-banking financial institutes in financial inclusion. The challenges faced in financial inclusion like low cost Automated Teller Machines (ATMs), Lean Branch Models, Mobile Banking, and Interoperability of BCs. She concluded that after nationalization of banks in 1969, the reach of CBs, RRBs, Co-operative credit institutions have remarkably increased in rural areas but a group of society remains ignored from the financial services. She recommend that banks should take a step forward to formulate specific plans to enhance Financial Inclusion of unbanked section of the society.

RAIHANATH.MP & Dr. K.B. PAVITHRAN (2014) noted that Commercial banks play a vital role in the economic development of a country like India. Indian economy in general and banking services in particular have made rapid strides in the recent past. However, a sizeable section of the population, particularly the vulnerable groups, such as weaker sections and low income groups, continue to remain excluded from even the most basic opportunities and services provided by the financial sector. They observed the post 2003-2004 developments in commercial banks and roles of commercial banks in financial inclusion like financial literacy, credit counseling, BC/BF model, KYC norms, KCC/GCC, no-frill accounts Financial literacy, branch expansion, mobile banking. They concluded that for the success of the financial inclusion initiative what is important is to provide banking services at an affordable cost to the disadvantaged and low income group. Commercial banks have to perform a vital role in this regard. However the road towards 100% financial inclusion is yet to complete.

Charan Singh (2014) noted as the majority of the rural population is still not included in the inclusive growth, the concept of financial inclusion becomes a challenge for the Indian economy. Since 2005, many concerted measures are initiated by the Reserve Bank of India and Government of India in favor of financial inclusion but the impact of these did not yield satisfactory results. The paper aims to focus on utilizing the existing resources such as Mobile phones, Banking Technologies, India Post Office, Fair Price Shops and Business Correspondents (BCs) thereby making it more efficient and user friendly for the interest of the rural population as well as the formal sector. It also observed the measures taken by GOI, RBI and NABARD. He studied that effectiveness is limited in BC model. He found that BCs stressed safety as the value proposition of the bank, citizens believed it to be safer to keep their money at home rather than to save it in a bank. People's confidence in banks was significantly higher in villages where the bank has a physical presence. And several people have availed loans from banks far in excess of their deposits. Banks are caught in a vicious circle, where they cannot refuse loans to people who might not have the capacity to repay them.

Dr. Anupama Sharma & Ms. SumitaKukreja (2013), studied that there have been many formidable challenges in financial inclusion area such as bringing the gap between the sections of society that are financially excluded within the ambit of the formal financial system, providing financial literacy and strengthening credit delivery mechanisms so as to improvised the financial economic growth. Research methodology is partly descriptive, partly exploratory and partly casual .For this study data and information has been collected with the help of Books, Magazines, Newspapers, Research Articles, Research journals, E-Journals, RBI report, report of

NABARD etc. They also gave the forthcoming plan of banks for financial inclusion. They concluded that financial inclusion has not yielded the desired results and there is long road ahead but no doubt it is playing a significant role and is working on the positive side.

Research Methodology

Objectives:

The basic objective of this research paper, as the title denotes, is to study the impact of financial inclusion program. For this purpose, we focused on the following objectives:

- ✓ To find out saving habits and Banking facility available in selected villages of sabarkantha district.
- ✓ To analyse the implementation of the model in actual field level situation.
- ✓ To analyse the current status of financial inclusion in selected villages of sabarkantha district.

Area of the Survey:

For the purpose of the study Sabarkantha District was chosen, as in most of the villages of this district BC model was implemented and because of ease of access of data & reach. The study was divided in two parts: one is for Business Correspondents (BCs) and the other one is for villagers. For BCs we collected data from whole Sabarkantha District and for villagers, we selected three blocks of sabarkantha district namely Talod, Himmatnagar and Prantij. From each block, three villages were selected for the survey.

Sampling Method and Tools of data collection and analysis

Both the primary and secondary data was collected. Convenience and snowball sampling techniques were used for data collection. Data for BCs was obtained from Bank officials and websites. In all 28 BCs were reviewed for our survey telephonically. Appropriate questionnaires were designed and used to collect data from villagers. In all 140 villagers were interviewed personally to fill up the questionnaires, which were further divided into 50 respondents (approx.) per block.

Analysis of feedback received from the respondents

Feedback was collected from 140 villagers in the ratio of 50:50:40 respectively from 3 blocks i.e. Talod, Prantij and Himmatnagar of Sabarkantha District. There were two questionnaires designed for data collection. One is for BCs and other is for villagers.

The questionnaire of villagers was divided in 3 sections. Section 1 is describing demographic profile of respondents; section 2 is describing saving habits and banking facilities and section 3 is about responses of villagers for the activities and services of BCs.

Section 1: Demographic Profile of respondents:

In demographic profile, questions regarding gender, age, education, occupation, income were asked to know about the background of the villagers.

Major respondents who have bank accounts were males. Still females were not aware about banking facilities and rather dependency on the male gender was more.(Table 1.1)

Major respondents belong to the age group of 31-40 years and the least response was seen in old age group. (Table 1.2)

It was observed that major respondent had basic education that is up to 10^{th}. None of them were illiterate or post graduate. (Table 1.3)

Majority of customers were doing petty business followed by farmers. The bank accounts might help them in providing financial assistance. (Table 1.4)

Keeping in mind the target group of financial inclusion the majority respondents belong to income group less than 50000. They should be prime target for financial inclusion. (Table 1.5)

Table 1.1

Gender	Talod	%	Prantij	%	Himmatnagar	%	Total	%
Male	46	92%	46	92%	36	90%	128	91.42%
Female	4	8%	4	8%	4	10%	12	8.58%
	50		**50**		**40**		**140**	

Table 1.2

Age	Talod	%	Prantij	%	Himmatnagar	%	Total	%
18-30	9	18%	7	14%	8	16%	24	17.14%
31-40	22	44%	15	30%	17	34%	54	38.57%
41-50	8	16%	22	44%	13	26%	43	30.71%
Above 50	11	22%	6	12%	2	4%	19	13.58%
	50		**50**		**40**		**140**	

Table 1.3

Education	Talod	%	Prantij	%	Himmatnagar	%	Total	%
Illiterate	0	0	0	0	0	0	0	0
<5th	14	28%	5	10%	11	27.5%	30	21.42%
<10th	22	44%	22	44%	19	47.5%	63	45%
10th & above	11	22%	13	26%	7	17.5%	31	22.14%
Graduate	3	6%	10	20%	3	7.5%	16	11.44%
Post graduate	0	0	0	0	0	0	0	0
	50		**50**		**40**		**140**	

Table 1.4

Occupation	Talod	%	Prantij	%	Himmatnagar	%	Total	%
Aggricuture	19	38%	18	36%	7	17.5%	44	31.14%
Petty Business	21	42%	11	22%	15	37.5%	47	33.57%
Labours	6	12%	10	20%	10	25%	26	18.57%
Others	4	8%	11	22%	8	20%	23	16.72%
	50		**50**		**40**		**140**	

Table 1.5

Income	Talod	%	Prantij	%	Himmatnagar	%	Total	%
<50000	22	44%	30	60%	26	65%	78	55.72%
50000-100000	21	42%	13	26%	11	27.5%	45	32.14%
100000-150000	2	4%	3	6%	2	0.05%	7	5%
150000-200000	3	6%	2	4%	0	0	5	3.57%
200000<	2	4%	2	4%	1	0.025%	5	3.57%
	50		**50**		**40**		**140**	

Section 2: Saving habits & Banking Facility

1. Question regarding saving and where they used to save was asked to find out the saving habits before and after the implementation of BC model in the villages. The options available for savings were home, bank and post office. Before the implementation of BC Model, the respondents were used to keep their savings at home only. But the later picture reveals an inclination of savings in banks. (Table 2.1)

Table 2.1

Particulars	Talod		Prantij		Himmatnagar		Total	
	Before	**After**	**Before**	**After**	**Before**	**After**	**Before**	**After**
Home	16	0	8	0	11	0	35	0
Bank	23	48	38	23	17	34	78	105
Post office	0	0	0	0	0	0	0	0

2. What type of accounts villagers have is presented in table 2.2

The villagers generally open Current account/ Saving account (CA/SA). Recurring deposit (RD) & Fixed Deposit (FD) were not so familiar to them. And from the data it is evident that the number of account had increased. And mostly people were interested in opening the account because zero balance facility provided under Pradhan Mantri Jan Dhan Yojna (PMJDY).

Table 2.2

Particulars	Talod		Prantij		Himmatnagar		Total	
	Before	After	Before	After	Before	After	Before	After
CA/SA	23	48	38	23	17	35	78	106
Recurring deposit (RD)	0	0	0	0	0	0	0	0
Fixed Deposit (FD)	0	0	0	0	0	0	0	0

3. Table 2.3 presents the data regarding who helped villagers in opening the bank account.Before the BC Model, the number of accounts were less, as the villagers have to find way by themselves to open the account. But the later scenario has shown that major number of accounts been opened by BCs.

Table 2.3

Particulars	Talod		Prantij		Himmatnagar		Total	
	Before	After	Before	After	Before	After	Before	After
Village Panchayat Officials	0	4	0	0	0	0	0	4
Friends/Relatives/ Neighbor	3	3	0	0	1	6	4	9
BC/BF	0	37	0	21	0	20	0	78
Self	20	4	38	2	16	9	74	15

4. Table 2.4 shows how villagers gain access to their bank account. From the responses of last question we can say that BCs had helped villagers in opening accounts, but still in order to access even the basic facilities, the villagers still have to go to the nearest city or village as BCs were not providing the services properly, though the POS device for doing transactions were provided to BCs.

Table 2.4

Particulars	Talod		Prantij		Himmatnagar		Total	
	Before	After	Before	After	Before	After	Before	After
Bank branch in village	11	18	16	0	0	0	27	18

BC/BF	0	12	0	0	0	0	0	12
Bank branch in city/ nearby village	12	28	22	22	17	35	51	85
SHG	0	0	0	1	0	0	0	1

5. To know the frequency of saving, the question regarding how frequently they save in a month was asked. Table 2.5 shows the frequency of saving in each block. To get further insight the number of transaction they do was included. Table 2.6 represents the number of transactions in a month by the villagers.
   The saving habit was not so prompt and majority of the people used to save as and when they have money. One of the reasons behind this can be their low income and the other might be improper services by BC.
   The frequency of transactions in a month was also very low because for accessing the account they have to visit the bank branch in nearest city or village as most of the time BC was not available.

Table 2.5

Particulars	Talod	Prantij	Himmatnagar	Total
Don't save / never	2	0	1	3
At least once a month	1	0	0	1
Daily	0	1	0	1
Fortnightly	5	0	1	6
Weekly	5	6	7	18
I put in money as and when I can	37	43	31	111

Table 2.6

Particulars	Talod	Prantij	Himmatnagar	Total
Zero or very few	3	4	7	14
One	12	10	14	36
Two	26	32	18	76
Four – Ten	7	4	1	12
More than Ten	2	0	0	2

Section 3 Response of customers for activities and services of BC

Activities by BCs

The response from villagers was taken about the type of activities performed by BC. Table 3.1 list down those activities and the response of villagers.

Except in Talod, very negative responses were observed. As BC was not guiding properly about other facilities and was over all non-supportive. Majorly he was seen helping in opening of accounts and form filling but for rest, he was not so prompt.

Table 3.1

Activities	Talod		Prantij		Himmatnagar		Total	
	Yes	No	Yes	No	Yes	No	Yes	No
Creating awareness about savings & other products	41	9	24	26	21	19	86	54
Helping in account opening and submitting forms	42	8	26	24	21	19	89	51
Education & advice on managing money & debt counseling	29	21	1	49	0	40	30	110
Supporting in filling up of loan applications/account opening forms for deposits	21	29	0	50	0	40	21	119
Allowing deposit/withdrawal of cash from accounts as per the customer's convenience	17	33	0	50	0	40	17	123
Providing proof of transaction for each & every transactions	16	34	0	50	0	40	16	124

Services related activities by BCs

To evaluate the services of BCs, questions about the availability, integrity and other activities of BCs were asked. Table 3.2 shows the responses of villagers for services of BCs and level of satisfaction. BC was not charging any additional amount on transaction and he did not sell his own products, still it was seen that villagers were not satisfied by BC's services because BC was not available on convenient timing and the integrity of BC was also questionable.

Table 3.2

Services related activities by BC	Talod		Prantij		Himmatnagar		Total	
Activities	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
BC is available at the convenient timing	37	13	11	39	15	25	63	77
Confidence on the integrity of BC	35	15	16	34	17	23	68	72
BC is charging small amounts from the customers, in addition to bank charges	2	48	0	50	0	40	2	138
BC is selling his own products in order to avail banking services by us	0	50	1	49	0	40	1	139
BC is providing information related to subsidies and other Govt. benefits applicable to you	25	25	2	48	1	39	28	112
Are you satisfied with activities conducted by BC	31	19	3	47	13	27	47	93

Analysis of feedback received from BCs

28 BCs from Sabarkantha district were interviewed telephonically. The questions were majorly rolled around the villages they served & the village they reside, and reporting branch, number of accounts served by them, hours worked in a day, monthly transaction they do, whether the occupation of BC was their main occupation or subsidiary.

1. It was observed from the data collected that majority of the BCs were working as part time: as it was the subsidiary occupation for them (Table 4) and some of were students also that might be the reason why they worked average 2 hours a day.

2. In some cases one BC was serving 3 to 4 villages simultaneously. That might be one of the reasons why they were not able to provide services effectively.

3. The Average Number of accounts served by BCs was 243.

4. The average monthly transactions done by BCs were 125 which is very less as one BC covers upto 3 to 4 villages and the total population comes to be 10000 approx.

Table 4

Occupation	Total
Main	9
Subsidiary	19

Activities by BCs

The questions regarding what types of facilities were provided by them were asked to BCs. Table 5 shows the responses of BCs for particular facilities.

Majority of BCs were in collection and preliminary processing of account opening forms for deposits including verification of data. But the cross selling of other products like mutual fund or insurance were not done by the BC. They were creating awareness in villages about savings and other product still they were not providing term deposits. Smart value deposits and withdrawals were not done much. Majority of the BCs were furnishing of mini accounts statements and other accounts information. And Recovery of principal/collection of interest in respect of borrower accounts was not done at all by any BCs.

Table 5

Activities	Yes	No
Collection and preliminary processing of accounts opening forms for deposits including verification of data	23	5
Cross selling of other products like insurance/mutual fund	6	22
Creating awareness about savings and other products and education and advising on managing money and debt counseling	22	6
Sourcing of term deposits	11	17
Smart value deposits and withdrawals	7	21
Payments of disbursed small value loans and obtaining prescribed documents	18	10
Furnishing of mini accounts statements and other accounts information	19	9
Recovery of principal/collection of interest in respect of borrower accounts	28	0

Challenges/Problems

Table 6 shows which challenges BCs are facing in executing their work. The major challenge faced by BCs while working was network connectivity problem and after that they were also facing problem in POS device. Some of the BCs were not provided with POS device also.

Table 6

Challenges	Yes	No
Network Connectivity	13	15
POS device	9	19
Security	1	27
Smart Card	5	23
Basic Documents	1	27

Findings

- ✓ It was found that the saving habits in villages were not so prompt as they don't have regular income and also most of the villagers have less than Rs. 50000 annual income.
- ✓ We observed that the number of bank accounts have been increased due to implementation of BC model and introduction of Pradhan Mantri Jan Dhan Yojna (PMJDY).
- ✓ Although number of bank accounts have increased but there is no significant improvement in the banking facilities available to villagers.

- ✓ A huge discrepancy was found between the feedback of BCs and villagers as all the BCs were saying that they were providing all the services to villagers what they are entrusted to. But it was found that villagers were not getting any of the services except opening a bank account under Pradhan Mantri Jan Dhan Yojna (PMJDY).
- ✓ It was observed that the significant work has been done in Talod District. As in Punsari and Doltabad the BCs were providing satisfactory services.
- ✓ In the rest of the villages it was found that the BCs were visited the villages only once for account opening only.
- ✓ In some of the cases, BCs were willing to work but there was lack cooperation from bank and the POS device and Smartcards were also not provided to BCs.
- ✓ From the feedback of BCs, we found that network connectivity in villages was the major problem they are facing.
- ✓ In Akodra BC model was not implemented. ICICI bank has adopted Akodra and established a branch over there. ICICI bank has also made it a digital village. But the villagers are facing problems in using the digital services as they are not so educated and used to the technology. Bank has equipped the village with lots of banking facilities but villagers were not trained as to how to utilize those benefits. On paper the growth is seen but reality dosen't evident this.

Conclusion

We observed from our study in 3 blocks of Sabarkantha that despite of passage of time in implementation of BC model the results are not satisfactory. Villages did not having basic facility of banking except the opening of bank account by BCs. BCs were not providing other services which they were supposed to provide under the financial inclusion program. Many BCs were working as part time that's why the effectiveness was missing. Training and expertise of BCs were also questionable. From our study, we suggest that proper selection and training of BCs should be there so that BCs can know what they supposed to do and how. Banks should also do follow up for the services provided by BCs in their respective villages.

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The study of relationship between foreign direct investment inflows and employment generation in India

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ABSTRACT

In the last two decades, Indian economy has received huge amount of money through foreign direct investments. The world has made foreign direct investment an essential component of development strategy for both, developed and developing countries. Investigators have performed various studies in order to corroborate that FDI plays an important role in generating employment and improving the economic development in host countries. A multiple regression analysis model is used to study the relationship between foreign direct investment and employment generations in India.

KEYWORDS: FDI, Employment, GDP.

1. INTRODUCTION

According to International Monetary Fund (IMF), FDI is defined as "an investment operating in an economy other than that of the investor." The investor's purpose is to have an effective voice in the management of the enterprise (IMF, 1977). FDI is the process by which the residents of one country (the source) acquire the ownership of assets for the purpose of controlling the production, distribution and other productive activities of a firm in another country (the host country). FDI was found to have emerged in India since the British rule but its presence was considered negligible. It was natural for India to consider foreign capital as one of fear and suspicion as the British played an exploitative role by 'draining away' resources from the country. Gradually, as India achieved independence, it became necessary for FDI to become a part of her national interest. FDI has observed to portray a different trend in India since 1991 as finally the national economy was opened to global trade. There have been many arguments stating that inflows of FDI improves the economic growth, and consequently enhances employment opportunities. FDI provides technological advances (increasing GDP) and widens the scope for the domestic market (increasing employment). With the help of the regression tool, a multiple-regression analysis carried out in order to confirm the above statement and if not true then to study to what extent the employment and GDP are affected by FDI in India.

2. REVIEW OF LITERATURE

The economic literature has extensively examined the FDI flows to uncover its influence on growth and development and labour market. Evidence from case studies of FDI on the employment and wage impact are quite controversial. The effect on the host countries has been considered in different aspects. Most research has emphasized the effect on economic growth, wage levels, technology spillover, foreign trade, employment structure and employment in the host economy (Floyd 2003, Dicken 2007). The impacts of FDI on aggregate employment at regional or world level have received little attention in the empirical literature. The studies at the aggregate level showing that increases in FDI do in fact lead to improvements in employment levels at the national level are the studies of Braunstein and Epstein (2002), Spiezia (2004), and Vacaflores (2011). Vacaflores (2011) examines the effect of foreign direct investment (FDI) on employment generation for a group of Latin American countries in the period 1980-2006 and finds that FDI has a positive and significant effect on the employment generation in host countries, which is driven by its effect on male labour force. This positive effect is particularly important for less developed economies, periods with low inflation, and for the later period of the sample, but suggests that only countries with high level of informality and those attracting low average inflows of FDI accrue this benefit. Lee and Vivarelli (2004) point out that even if trade and FDI are expected to positively affect employment, employment creation cannot be automatically assured, as the employment effect can be very diverse in different areas of the world. Vacaflores and Mogab (2012) find that the subsidiaries in Asia are the ones that respond to increases in FDI by the largest additions in employment, followed by subsidiaries in the Americas, but that only those subsidiaries in the Manufacturing and Service sectors present a statistically significant influence. Banga (2005) in its analysis for 78 three digit level industries in India have shown the impact of FDI, trade and technological progress on wages and employment. The findings show that the higher extent of FDI in an industry leads to higher wage rate in the industry; it has no impact on its employment. Similarly technological progress is found to be laboursaving. Ramirez (2001) has shown that the technology transfers to Mexican economy from the parent companies are capital intensive in nature, resulting in a limitation in the long term employment creation in the automobile industry. However, in contrary to negative impact, the study by Ernst (2005) shows the concern of positive employment impact on the domestic economy. Concerning chemical products, an analysis of employment data of major TNCs confirms the relatively positive employment impact. The figures are relatively less favourable for Mexico. TNCs involved in computers and, in particular, electronics, created significant employment in Mexico during the 1990s in the chemical industry but figure for the year2000 has shown a declining trend in all the companies examined. Hooda (2011) through her study of FDI and Indian economy concluded that her results obtained from the Economic Growth Model and Foreign Direct Investment Model show that FDI enhances the financial position of India by providing a sound base for economic growth and development of the country. FDI not only contributes to the GDP but also to the foreign exchange reserves of the country. In contrast to this, Rizvi and Nishat (2009) concluded their study of the impact of FDI on employment opportunities in India,

China and Pakistan, by stating that it would not suffice to expect FDI to create a direct impact on employment opportunities in the above mentioned countries. They also suggest that in addition to FDI enhancement policies, other measures to boost employment growth should be generated. However, another research performed by Craigwell (2006) on the Caribbean region whose empirical results suggested that an increase in FDI leads to the generation of increased employment. Even though there were significant gaps in the data of employment, the obtained results were supported by the evaluation of the conventional facts on FDI inflows over the past three decades. It is estimated that FDI has the greatest impact in the first year which is enhanced after the consideration of trade policies, absorption and financial development, implying that in a healthy and unwavering economic environment better returns of foreign investments are generated.

3. RESEARCH METHODOLOGY

3.1 Research Objective:

1. To study employment generated in India under public sector and private sector.
2. To study impact of foreign direct investment on employment generation in India.

3.2 Research Hypothesis:

H01: FDI has no significant impact on public sector employment generation in India.
HA1: FDI has significant impact on public sector employment generation in India.

H02: FDI has no significant impact on private sector employment generation in India.
HA2: FDI has significant impact on private sector employment generation in India.

H03: FDI has no significant impact on total employment generation in India.
HA3: FDI has significant impact on total employment generation in India.

3.3 Research Design

The study will be of descriptive type and mode of inquiry will be qualitative in nature because it will describe how it has impacted. The multiple-regression method will be used with the help of the SPSS software to empirically analyze the correlation of the data sets of FDI, and Employment. Three regression equations are used to study relationship; First, the impact FDI has on the employment generated in the public sector. Second the impact FDI has on the employment in the private sector and Third, the impact of FDI on the total employment of the country.

3.4 Methods of Data Collection:

The study is of retrospective in nature and will be based on secondary data. The period is considered for is post liberalization of Indian economy and accordingly last 10 year's data will be considered i.e. from 2002-2012. The authentic and already published data will be collected and compiled for the study. The major sources include RBI Bulletins, Annual Reports and Handbook of Statistics on Indian.

4. ANALYSIS AND RESULTS

Table 1: Foreign Investment Inflows In India

Year	Foreign Direct Investment	
	Rs. Billion	US $ Million
2002-03	246.81	5095
2003-04	198.30	4322
2004-05	272.34	6052
2005-06	397.30	8962
2006-07	1030.37	22826
2007-08	1398.84	34844
2008-09	1914.19	41903
2009-10	1796.42	37746
2010-11	1642.55	36047
2011-12	2200.00	46552
2012-13	1868.69	34298
2013-14	2185.95	36047
2014-15	2711.83	44290
Source: RBI Annual Publications		

Foreign direct investment (FDI) has been instrumental behind the growth of services sector in India. Since the opening up of the economy in 1991, FDI in India has grown in leaps and bound, from a mere US $97 Millions in 1990-91 to US $ 2155 Million in 1999-00. FDI has grown into mammoth from US $ 3272 Million in 2000-01 to US $ 32627 Millions in 2014-15. Just between 2000-01 and 2014-15, the FDI inflow has increased by a staggering 897.15% and in these 15 years spans the annual percent growth rate is 59.81.

Table 2: Sector Wise FDI Inflow in India (Amount in US $ Millions)

No.	Sectors	05 - 06	06 - 07	07 - 08	08 - 09	09 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	Total
1	Service	543	4664	6615	6116	4176	3296	5216	4833	2225	3253	40937
2	Construction	151	985	1743	2028	2852	1103	2796	1322	1226	758	14964
3	Telecommunication	624	478	1261	2558	2539	1665	1997	304	1307	2895	15628
4	Computer	1375	2614	1410	1677	872	780	796	486	1126	2200	13336
5	Drugs & Pharm.	172	215	7	228	213	209	3232	1123	1279	1523	8201
6	Automobile	143	276	675	1152	1236	1299	923	1537	1517	2570	11328
7	Chemicals	390	205	229	749	366	398	7252	292	878	669	11428
8	Power	87	157	967	985	1272	1272	1652	536	1066	657	8651
9	Metallurgical Ind.	147	173	1177	961	420	1098	1786	1466	568	472	8268
10	Trading	NA	NA	NA	NA	198	156	545	718	1343	2761	5721
Source: DIPP FDI Statistics, RBI Annual Publications												

A substantial part of the FDI has gone into the services sector. And FDI's contribution to this sector has only grown overtime. Table 2 shows the share of FDI that has gone into top 10

sector of the economy for the period 2005-06 to 2014-15. The cumulative inflow of FDI in service sector during the period of 1990 – 2000 is US $ 15580 million; 2000 – 2010 is US $ 23640 millions. There has been a few studies in Indian context that examined the service led growth of India. Eichengreen and Gupta (2009), Eichengreen and Gupta (2010) and Bosworth et al. (2006) have all shown that Indian growth has been largely influenced by the services sector performance. The objective of this study is to understand the growth transmission from FDI to GDP via the services sector. The paper goes farther to investigate the service sub-sectors' performance in the process

Table 3. Employment in Public Sector and Organized Private Sector In India (In Millions)

Year	Public Sector	Private Sector	Total
2002-03	18.58	8.42	27.00
2003-04	18.20	8.25	26.45
2004-05	18.01	8.45	26.46
2005-06	18.19	8.77	26.96
2006-07	18.00	9.24	27.24
2007-08	17.67	9.88	27.55
2008-09	17.80	10.38	28.18
2009-10	17.86	10.85	28.71
2010-11	17.55	11.45	29.00
2011-12	17.61	12.04	29.65
Source: RBI Handbook on Indian Economy 2015			

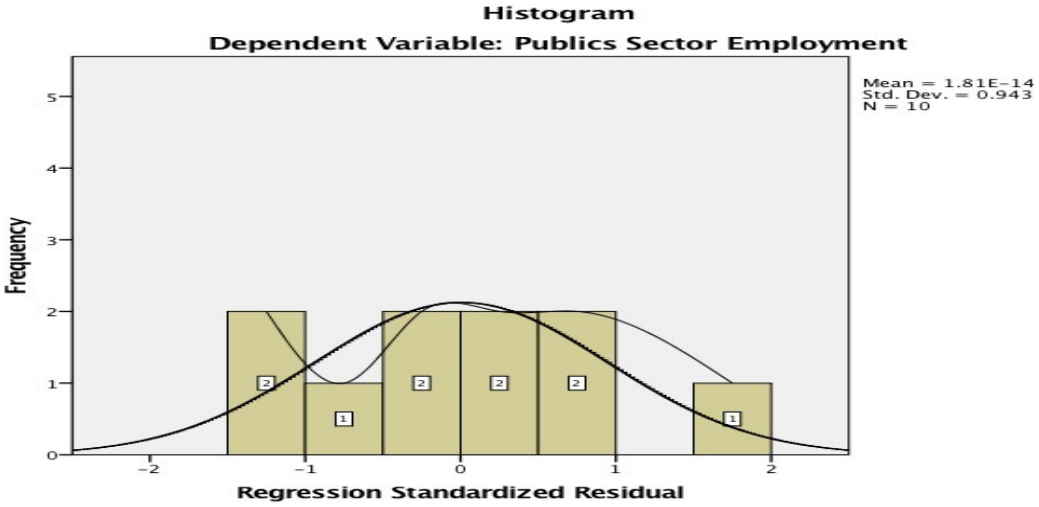
The table 3 shows 10 years data on employment generations in the public sector and organised private sector in India from 2002-03 to 2011-12. The public sector employment shows decline trends in the emloyment generation, whereas organised private sector shows upward movement trend in employment generation in India. From the table data; researcher councluded that more FDI inflows into different sectors of Indian economy generates more employment oppoutunites for economy.

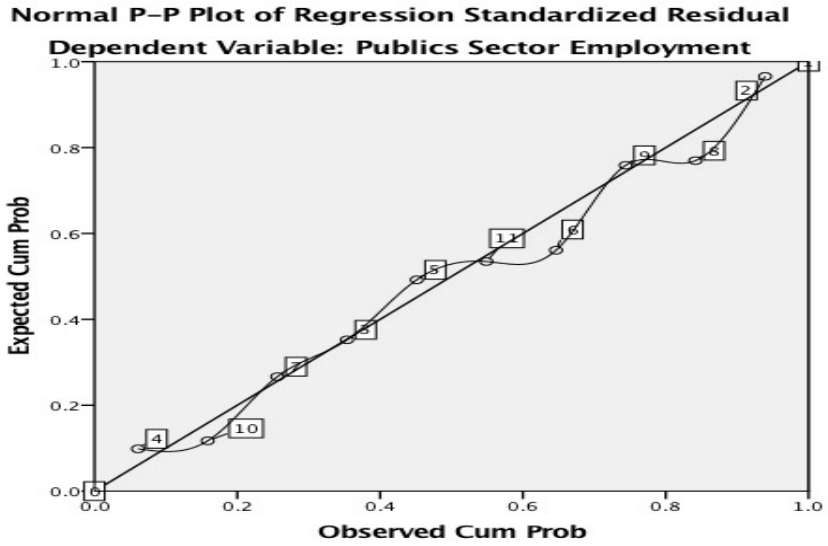
THE IMPACT OF FDI ON PUBLIC SECTOR EMPLOYMENT

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.653	1	.653	20.573	.002[b]
	Residual	.254	8	.032		
	Total	.908	9			
a. Dependent Variable: Publics Sector Employment						
b. Predictors: (Constant), FDI						

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.336	.103		178.546	.000
	FDI	-1.594E-5	.000	-.849	-4.536	.002
Dependent Variable: Publics Sector Employment						

Collinearity Diagnostics[a]					
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	FDI
1	1	1.836	1.000	.08	.08
	2	.164	3.345	.92	.92
a. Dependent Variable: Publics Sector Employment					





Inferences:

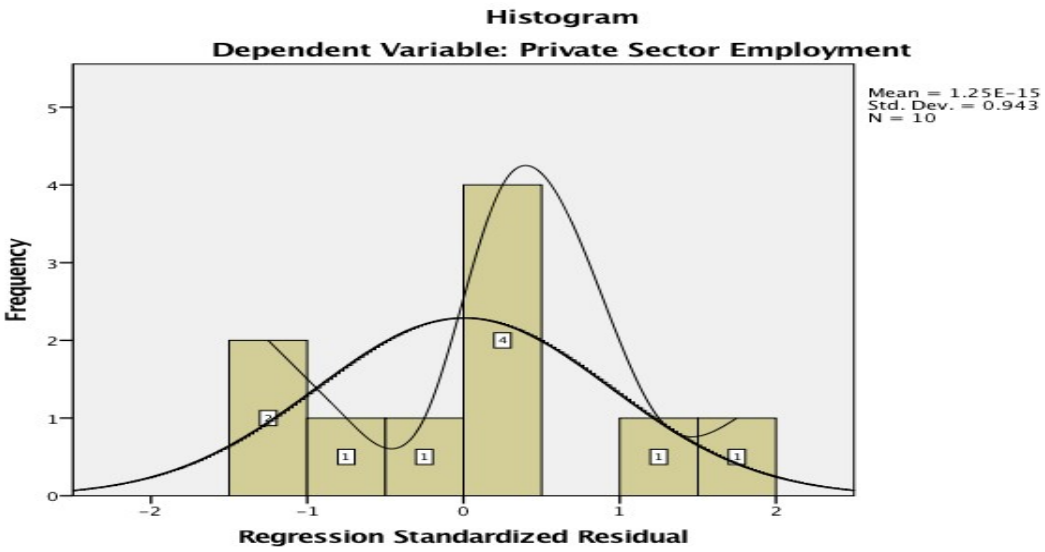
The above analysis is complied by SPSS Software at 0.05 significant level. The probability of statistical of FDI and their impact on Public Sector Employment is 0.002, which is less than 0.05 significant levels so the null hypothesis is rejected and result is significant. At the level researcher concluded FDI significantly predicted to that job opportunities in public sector. The researcher collected no. of data for FDI and Public Sector Employment in between 2002 – 2012 and design the framework and find out FDI is the independent variable and their impact on public sector employment is the dependent variable. The significant analysis showing there is positive significant impact of FDI on Public Sector Employment. The researcher also concluded that correlations coefficient showing the relationships between FDI and Public Sector, which is 0.92 it is showing strong relationship between FDI and Public Sector.

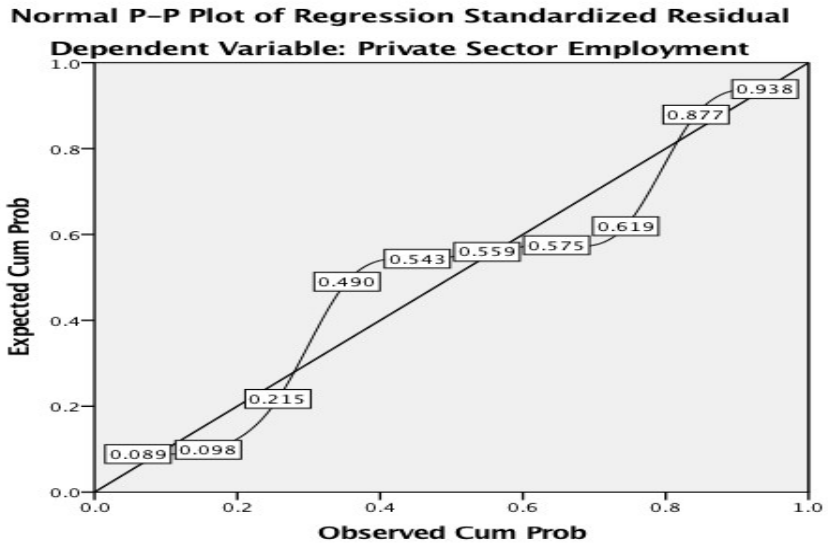
THE IMPACT OF FDI ON PRIVATE SECTOR EMPLOYMENT :

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.500	1	14.500	53.170	.000[b]
	Residual	2.182	8	.273		
	Total	16.682	9			
a. Dependent Variable: Private Sector Employment						
b. Predictors: (Constant), FDI						

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.939	.301		26.382	.000
	FDI	7.507E-5	.000	.932	7.292	.000
Dependent Variable: Private Sector Employment						

Collinearity Diagnostics[a]					
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	FDI
1	1	1.836	1.000	.08	.08
	2	.164	3.345	.92	.92
a. Dependent Variable: Private Sector Employment					





Inferences:

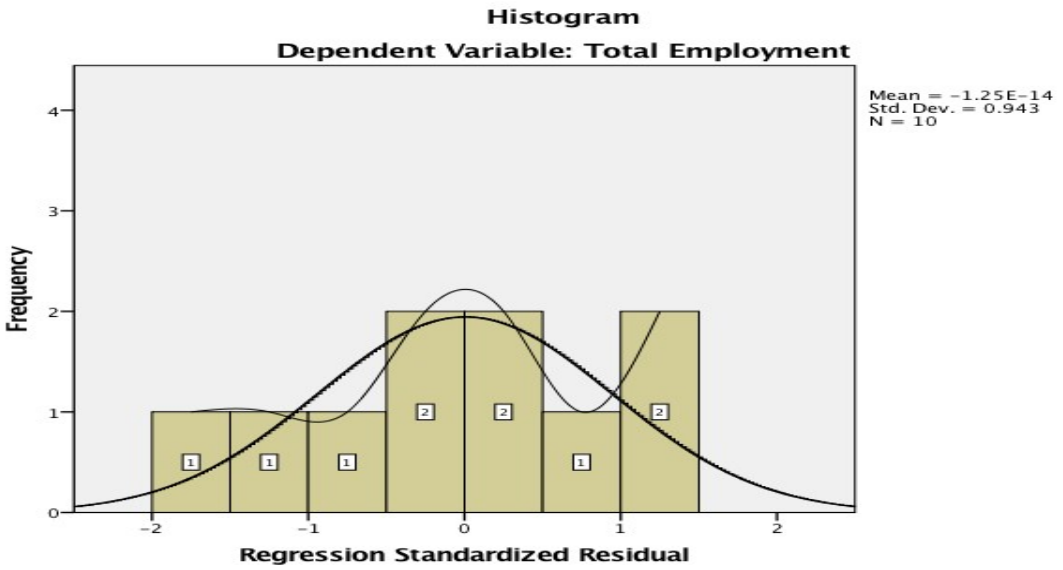
The above analysis is complied by SPSS Software at 0.05 significant level. The probability of statistical of FDI and their impact on Private Sector Employment is 0.000, which is less than 0.05 significant level so the null hypothesis is rejected and result is significant. At the level researcher concluded FDI significantly predicted to that job opportunities in private sector. The researcher collected no. of data for FDI and Private Sector Employment in between 2002 – 2012 and design the framework and find out FDI is the independent variable and their impact on private sector employment is the dependent variable. The significant analysis showing there is positive significant impact of FDI on Private Sector Employment. The researcher also concluded that correlations coefficient showing the relationships between FDI and Private Sector, which is 0.92 it is showing strong relationship between FDI and Private Sector.

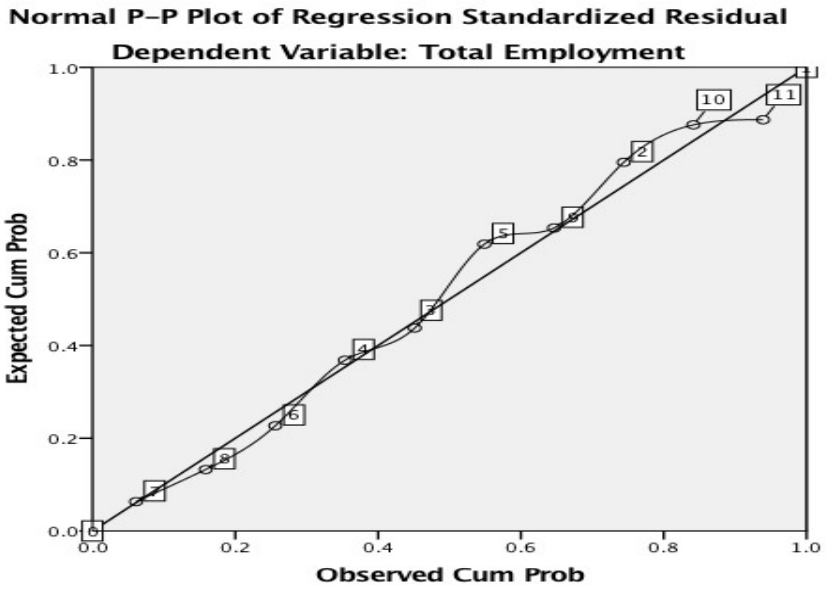
THE IMPACT OF FDI ON TOTAL EMPLOYMENT :

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.997	1	8.997	34.054	.000[b]
	Residual	2.114	8	.264		
	Total	11.111	9			
a. Dependent Variable: Total Employment						
b. Predictors: (Constant), FDI						

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	26.275	.296		88.713	.000
	FDI	5.913E-5	.000	.900	5.836	.000

Collinearity Diagnostics[a]					
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	FDI
1	1	1.836	1.000	.08	.08
	2	.164	3.345	.92	.92
a. Dependent Variable: Total Employment					





Inferences:

The above analysis is complied by SPSS Software at 0.05 significant level. The probability of statistical of FDI and their impact on Total Employment is 0.000, which is less than 0.05 significant level so the null hypothesis is rejected and result is significant. At the level researcher concluded FDI significantly predicted to that job opportunities in public and private sector. The researcher collected no. of data for FDI and Total Employment in between 2002 – 2012 and design the framework and find out FDI is the independent variable and their impact on total employment is the dependent variable. The significant analysis showing there is positive significant impact of FDI on Total Employment. The researcher also concluded that correlations coefficient showing the relationships between FDI and Total Employment, which is 0.92 it is showing strong relationship between FDI and Private Sector.

5. CONCLUSION

The Indian economy mainly contains of 3 sectors: Agricultural sector, Industrial sector and Service sector. Majority of companies dealing with FDI in Indian economy are a part of the service and industrial sector, thus increasing economic growth and producing some amount of employment in the country. Agricultural sector of economy have barely participation of FDI, employment is not expected to increase substantially resulting in the economy growing without any significant improvement. Reduction of unemployment and increasing the level of GDP are some of the major macroeconomic goals of the government. Thus, the government should concentrate on other measures besides FDI to increase employment opportunities and enhance economic growth of the country.

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Long Term Performance of Initial Public Offerings (IPO)

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ABSTRACT

The paper measures the stock performance of companies who made an IPO in the recent past (newly listed companies) and compares the same with the performance of the stock market as a whole. The research objective is to measure the stock performance of newly listed companies over a long term period, independently and also after adjusting for the market performance in the same time interval. The paper also tests the hypothesis that the stock returns of newly listed companies has been at par with the market returns.

The population consists of all Indian companies that raised capital through IPOs. This study randomly selected a sample of 30 companies from the population of companies made an IPO between the period from April 1, 2011 and March 31, 2012.

Performance of a newly listed company is measured by calculating its buy-and-hold abnormal returns (BHAR). The BHAR is the return of a stock if is held for a certain period of time. In this study the period of time is 36 months starting from the month in which the company's shares got listed on the completion of its IPO process.

For a sample of 30 companies, sample mean BHAR of -0.3904, and sample standard deviation of 1.4962, we get a computed t-Statistic of 1.492. With a confidence level of 95 per pent we a p-value, P (T<=t) one tail of 0.0818. As the p-value is greater than the study alpha of 0.05 we are not able reject the null hypothesis that $\mu BHAR = 0$.

The paper concludes that as the BHAR of newly listed companies was 10.27 per cent in comparison with the market's BHAR of 49.31 per cent, the newly listed companies did not do better than the market as represented by the BSE-100.

1 Introduction

Companies need money to fund their growth and expansion plans. Most firm raise these funds privately, however, when the need of the funds is great they seek to raise money through initial public offerings (IPOs). Even firms that raised funds privately are nudged by their private investors to make an IPO so that the shares would get listed on the stock exchange, and the private investors would get an outlet by offering their shares to the public and recovering their investment.

IPOs are of course, not for every company. A company has to comply with a plethora of regulatory and legal provisions, restructure their boards, institute better governance structures and appoint a variety of professional as issue managers. No wonder only very few companies have been successful in raising capital from the public. Out of a total of 912,930 active companies in India as on October 31, 2013 (Government of India, 2013) only 5211 companies have made an IPO (SEBI, 2013), a mere 0.60 per cent.

2 Investors' Dilemma

An investor who wishes to invest in stocks of companies has a dilemma. Should he invest in an established company or in a company that has come out with an IPO? The advantage of investing in an established company is that its business model is time-tested, has a management with team with a proven track record and sufficient information about the company is available. The problem with such company is that the stock price is possibly already reached its peak and there is not much room for growth.

Investing in an IPO, it is believed, has the advantage that the price at which the share is available is possibly low and there is a greater scope for substantial increase in the stock price. The downside of investing in an IPO is that the business-model of the company is not tested, its management team is yet to prove its mettle and scant information is available about the company. This down side risk is ameliorated to a certain extent by the regulators prescribing past-track-record based eligibility criteria for companies to make IPOs and requiring them to provide a large quantity of information.

The present research paper tries to evaluate the long term performance of IPOs vis-à-vis the overall market performance. If it can be shown that the newly listed companies fared better than the market, it would help resolve the investors' dilemma. On the other hand if it can be shown that the IPOs performed worse than the overall market, it would also help the investors to focus on established companies.

3 Research Objective

Many people are apprehensive about investing in equity shares due the perceived high risk. This perception is created due the constant changes in stock prices. However, this volatility is greater in the short term rather than long. Investment in equity shares is expected to generate long term returns.

The present research paper measures the stock performance of companies who made an IPO in the recent past (newly listed companies) and compares the same with the performance of the stock market as a whole.

The research objective is to measure the stock performance of newly listed companies over a long term period, independently and also after adjusting for the market performance in the same time interval. The paper also tests the hypothesis that the stock returns of newly listed companies has been at par with the market returns.

In recent years the share price of many firms fell significantly immediately after their IPO (Alle (2012)). Although, equity investors are supposed to have a longer term investment horizon, many small investors are prone to panic and sell off their shares due to short term hiccups (Neupane and Poshakwale (2012)).

4 Literature Review

The first significant study to measure long run performance based on return of shares was performed by Ritter (1991) and has been cited by numerous research papers and hence formed

the benchmark for literature on IPOs. Ritter (1991) used a sample of 1526 US firms that raised capital thorough IPOs (IPO firms) during the period from 1975-84 and an equal sample of non-IPO firms, matched by industry and size, found that performance of IPO firms in the three-year from making an IPO was significantly lower than non-IPO firms. Ritter calculated returns based on cumulative average adjusted returns (CAR) as well as three year buy-and-hold abnormal returns (BHAR) and found that firms substantially underperformed in the three year post issue period. The matched firms were selected on the basis of size (market capitalisation) within the same industry. However, Ritter (1998) found that selecting matching firms by market price to book price per share ratio is more appropriate. The underpricing of IPOs seems to have received greater attention. Aggarwal et al. (2002) and Su and Fleisher (1997) found that underpricing was rampant in the US during 1981–2000, reaching its peak during the dot-com bubble.

Drobetz, Kammerman and Wälchli (2005) estimated the long run performance of 109 Swiss IPOs from 1983 to 2000 and found that the underperformance after three years was only about 7.5 per cent using a broad market index as the benchmark. It increased to 21 per cent after four years and to 101 per cent after ten years. They also found that the underperformance was eliminated when a capitalization index was used indicating that the underperformance was due to the size of the firms which they claimed were small, and that similar sized firms that did not issue equity performed comparably.

The pricing mechanism and the phenomenon of underpricing in Indian IPOs were analysed by Madhusoodanan and Thiripalraju (1997) and Jegadeesh et al. (1993).

5 Research Methodology

Aspects of research methodology, including research design, population, sampling, unit of analysis, and measurement techniques are discussed in the following paragraphs.

5.1 Research Design

The aim of the study is to determine the long run performance of IPOs. In order to determine the long run performance of IPOs, information on share price history and that of a benchmark is required. The present study focuses on a sample of IPOs made in India on and from April 1, 2011 up to and including the IPOs made until March 31, 2012.

5.2 Population, Sampling and Unit of Analysis

5.2.1 Population

The population consists of all Indian companies that raised capital through IPOs between the period from April 1, 20011 and March 31, 2012. Subsequent to the IPOs the shares of these companies were listed on either the Bombay Stock Exchange (BSE), and/ or the National Stock Exchange (NSE).

5.2.2 Sample

For the purposes of this study the sample of 30 companies was randomly selected from the population of all the companies who raised capital through IPOs and got their shares listed

between the period from April 1, 2011 and March 31, 2012. The end date was chosen as it will provide the required three years of return information.

5.2.3 Unit of Analysis

The unit of analysis for this study is the stock price of companies who raised capital through IPOs and got their shares listed on either the Bombay Stock Exchange (BSE), and/ or the National Stock Exchange (NSE).

5.3 Measurement Techniques

The research study measures, compares and draw conclusions from stock market returns. Two methods are used to measure returns: holding period returns (HPR), and buy and hold abnormal returns (BHAR).

5.3.1 Holding Period Return (HPR)

The primary building block of measuring stock performance is the concept of holding period return (HPR). This measures takes into account the total return from investing in a stock, which includes any change in the market price of the stock (capital appreciation) any dividend declared and paid by the company. The following formula is used to calculate HPR:

$$HPR = \frac{P_1 - P_0 + D}{P_0}$$

Where, *HPR* is the holding period return, P_1 is the stock price at the end of period 1, P_0 is the current price of the shock, and *D* is the dividend paid by the company during the period from 0 to 1.

5.3.2 Mean Buy-and-Hold Abnormal Return (μBHAR)

The buy-and-hold is an investing strategy where the investor acquires a stock and holds it for a period of time. The buy-and-hold return (BHR) for a single stock (*i*) is calculated for the period *T* as follows:

$$BHR_{i,t} = \left(\left(1 + R_{i,1}\right)\left(1 + R_{i,2}\right) \ldots \left(1 + R_{i,T}\right)\right) - 1$$

Which may be rewritten as:

$$\mu BHR_{i,t} = \left(\left(\prod_{t=1}^{T}\left(1 + R_{i,t}\right)\right) - 1\right)$$

Where $R_{i,t}$ is the holding period return of stock *i* at time *t* and *T* is the time period for which the *μBHR* is calculated.

The efficacy of an investment in a stock is judged by how the stock performed vis-à-vis the performance of the stock market as a whole. This is called the buy and hold abnormal return (BHAR). Abnormal return is the rate of return on a stock over and above the rate of return on

all the stocks listed on the stock exchange. In practice, the returns of a broad-based stock market index is used as a benchmark in place of returns on all the stocks listed on the stock exchange.

In order to calculate buy-and-hold abnormal return (BHAR), the return of the benchmark is subtracted from the return of the IPO. The formula to calculate mean BHAR is:

$$\mu BHAR = \frac{1}{N}\sum\left(\left(\overbrace{\prod_{t=1}^{T}(1+R_{i,T})}^{Stock\ Returns}\right)-\left(\overbrace{\prod_{t=1}^{T}(1+R_{m,T})}^{Benchmark\ Returns}\right)\right)$$

Where $R_{i,t}$ is the holding period return of stock i at time t, $R_{m,t}$ is the holding period return of stock i at time t, and T is the time period for which the $\mu BHAR$ is calculated.

Buy-and-hold abnormal returns are frequently used in modern event studies. Fama and French (1992) caution that long-term BHARs are problematic because such returns compound a model's inability to accurately describe short term returns. BHARs can lead to long-term statistically significant abnormal performance even when none are present due to short-term influences. Kothari and Warner (1997) also find that long-horizon buy and hold abnormal returns are significantly right-skewed, although cumulative returns are not.

5.4 Variables and Sources of Data

This section discusses the different variables use in the study:

5.4.1 Closing Stock Price

The closing stock price is reported for all trading days by the stock exchanges. The last traded price is not the closing price as it is possible to manipulate the last trade. The two premier stock exchanges in the country, BSE and NSE use different methodologies to compute the closing prices. The BSE computes the closing price as the weighted average of the last ten trades; the weights being the volume of shares involved in each trade.

The methodology used by NSE is more complicated. Rather, the closing price is determined on the basis of trades in a special 15-minute session held after the close of regular trading session ends at 3:30 pm of a trading day. In the present study we have used the closing price of the stock on the last working day of the month as reported by the BSE.

5.4.2 Monthly Stock Return (MSR)

Monthly stock return is the return generated by the stock over a one-month period. It has been calculated by the following formula:

$$MSR = \left(\frac{CP_t}{CP_{t-1}}\right) - 1$$

Where, MSR is the monthly stock return; CP_t is the closing price of the stock on the last working day of trading in a month t; and CP_{t-1} is the closing price of the stock on the last working day of trading in the previous month ($t-1$).

5.4.3 Monthly Market Returns (MMR)

Conceptually, the monthly stock return is adjusted for returns generated by the stock market as a whole. Practically, the BSE-100 index number is used as a proxy for market returns. The monthly market return has been calculated by the following formula:

$$MMR = \left(\frac{BSE - 100\ Index_t}{BSE - 100\ Index_{t-1}}\right) - 1$$

Where, MSR is the monthly stock return; *BSE-100 Index$_t$* is the closing point of the index on the last working day in a month *t*; and *BSE-100 Index$_{t-1}$* is the closing point of the index on the last working day in the previous month (*t-1).*

5.4.4 Average Buy-and-Hold Return ($\overline{BHR}$)

The buy-and-hold return is the return of a stock if is held for a certain period of time. In this study the period of time is 36 months starting from the month in which the company's shares got listed on the completion of its IPO process. The average BHR of each sample company has been calculated using the following formula:

$$\overline{BHR}_{i,t} = \left(\left(\prod_{t=1}^{36}\left(1 + MSR_{i,t}\right)\right) - 1\right)$$

Where $BHR_{i,t}$ is the average buy-and-hold return of sample company *i* for the month *t*; $MSR_{i,t}$ is the holding period return of stock *i* for the month *t.*

5.4.5 Average Buy-and-Hold Abnormal Return ($\boxed{BHAR}$)

The buy-and-hold abnormal return is the return of a stock if is held for a certain period of time over and above the return on BSE-100 index in the same time period. In this study the period of time is 36 months starting from the month in which the company's shares got listed on the completion of its IPO process. The average BHAR of each sample company has been calculated using the following formula:

$$\overline{BHAR} = \frac{1}{N}\sum\left(\left(\overbrace{\prod_{t=1}^{36}\left(1 + MSR_{i,T}\right)}^{Stock\ Returns}\right) - \left(\overbrace{\prod_{t=1}^{36}\left(1 + MMR_{m,T}\right)}^{Benchmark\ Returns}\right)\right)$$

6 Hypothesis

To achieve the objective this study we test the hypothesis that average buy-and-hold abnormal returns of the shares of newly listed companies is same as that of the BSE-100 index. In other words,

$$H_0: \mu BHAR = 0$$
$$H_A: \mu BHAR < 0$$

This hypothesis is tested using the t-statistic with confidence level of 95 per cent (α of 0.05). The t-statistic is used because the population standard deviation (σ) is unknown and it is assumed that the population BHAR is normally distributed.

7 Results and Analysis

The study randomly selected 30 companies which raised capital through IPOs during the financial year 2011-12 and 2012-13. The details of these companies including their date of issue and the size of the issue is presented in Table 1.

The stock returns of the sample companies is presented in Table 2. Of the 30 sample companies 18 of them had negative buy-and-hold returns and 26 of them had negative buy-and-hold abnormal returns.

The range of buy-and-hold returns (BHR) was from a low of negative 98.90 per cent (Prakash Constrowell Limited) to a high of 713.71 per cent (National Buildings Construction Corporation Limited). The range of buy-and-hold abnormal returns (BHAR) was from a low of negative 156.07 per cent (Prakash Constrowell Limited) to a high of 655.76 per cent (National Buildings Construction Corporation Limited). Only four of the sample companies had positive BHAR (Brooks Laboratories Limited, VMS Industries Limited, Tree House Education & Accessories Limited, and National Buildings Construction Corporation Limited).

Table 3 presents the descriptive statistics of the dataset. The average buy-and-hold returns (BHR) of the sample companies was 10.27 per cent; as against the same of BSE-100 index during the corresponding period of 49.32 per cent. . The average buy-and-hold abnormal returns (BHAR) of the sample companies was negative 39.04 per cent.

For a sample of 30 companies, sample mean of negative 0.3904, and sample standard deviation of 1.4962, we get a computed t-Statistic of 1.492. With a confidence level of 95 per pent we a p-value, P (T<=t) one tail of 0.0818. As the p-value is greater than the study alpha of 0.05 we are not able reject the null hypothesis that $\mu BHAR = 0$.

8 Conclusions

From the foregoing it can be concluded that although the market gave an average return of 49.31 per cent, and the average return of newly listed companies was 10.27 per cent, statistically, with a confidence level of 95 per cent it can be concluded that the newly listed companies did not do better than the market as represented by the BSE-100.

Further, the scope of the present study will be extended to account for the size of the IPO and the company, the sector in which the company operates and the number of times the IPO was over-subscribed.

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Table 1: Details of Sample Companies

Sr	*Company*	*Symbol*	*Issue Date*	*Listing Date*
1	SHILPI CABLE TECHNOLOGIES LIMITED	SHILPI	22-03-2011	08-04-2011
2	MUTHOOT FINANCE LIMITED	MUTHOOTFIN	18-04-2011	06-05-2011
3	PARAMOUNT PRINTPACKAGING LIMITED	PARAPRINT	20-04-2011	09-05-2011
4	FUTURE VENTURES INDIA LIMITED	FCEL	25-04-2011	10-05-2011
5	SERVALAKSHMI PAPER LIMITED	SERVALL	27-04-2011	12-05-2011
6	INNOVENTIVE INDUSTRIES LIMITED	INNOIND	26-04-2011	13-05-2011
7	SANGHVI FORGING AND ENGINEERING LTD	SANGHVIFOR	04-05-2011	23-05-2011
8	VMS INDUSTRIES LIMITED	VMS	30-05-2011	14-06-2011
9	TIMBOR HOME LIMITED	TIMBOR	30-05-2011	22-06-2011
10	BIRLA PACIFIC MEDSPA LIMITED	BIRLAPAC	20-06-2011	07-07-2011
11	RUSHIL DECOR LIMITED	RUSHIL	20-06-2011	07-07-2011
12	BHARATIYA GLOBAL INFOMEDIA LIMITED	BGLOBAL	11-07-2011	28-07-2011
13	INVENTURE GROWTH AND SECURITIES LTD	INVENTURE	20-07-2011	04-08-2011
14	L&T FINANCE HOLDINGS LIMITED	L&TFH	27-07-2011	12-08-2011
15	TREE HOUSE EDUCATION & ACCESSORIES LIMITED	TREEHOUSE	10-08-2011	26-08-2011
16	BROOKS LABORATORIES LIMITED	BROOKS	16-08-2011	05-09-2011
17	TD POWER SYSTEMS LIMITED	TDPOWERSYS	24-08-2011	08-09-2011
18	SRS LIMITED	SRSLTD	23-08-2011	16-09-2011
19	PG ELECTROPLAST LIMITED	PGEL	07-09-2011	26-09-2011
20	PRAKASH CONSTROWELL LTD	PRAKASHCON	19-09-2011	04-10-2011
21	RDB RASAYANS LIMITED	RDBRL	21-09-2011	07-10-2011
22	ONELIFE CAPITAL ADVISORS LIMITED	ONELIFECAP	28-09-2011	17-10-2011
23	FLEXITUFF INTERNATIONAL LIMITED	FLEXITUFF	29-09-2011	19-10-2011
24	VASWANI INDUSTRIES LIMITED	VASWANI	29-04-2011	24-10-2011
25	C. MAHENDRA EXPORTS LIMITED	CMAHENDRA	31-12-2011	01-11-2011
26	MULTI COMMODITY EXCHANGE OF INDIA LIMITED	MCX	22-02-2012	09-03-2012
27	NATIONAL BUILDINGS CONSTRUCTION CORPORATION LIMITED	NBCC	22-03-2012	12-04-2012
28	MT EDUCARE LIMITED	MTEDUCARE	27-03-2012	12-04-2012
29	TRIBHOVANDAS BHIMJI ZAVERI LIMITED	TBZ	24-04-2012	09-05-2012
30	CREDIT ANALYSIS AND RESEARCH LIMITED	CARE	07-12-2012	26-12-2012

Table 2: Stock Returns of Sample Companies

Sr	*Company*	*Average Buy-and-Hold Return (BHR)*	*Average Buy-and-Hold Market Return (BSE-100)*	*Average Buy-and-Hold Abnormal Return (BHAR)*
1	SHILPI CABLE TECHNOLOGIES LIMITED	-0.21577	0.15876	-0.37453
2	MUTHOOT FINANCE LIMITED	0.11379	0.30275	-0.18896

3	PARAMOUNT PRINTPACKAGING LIMITED	-0.96147	0.30275	-1.26422
4	FUTURE VENTURES INDIA LIMITED	-0.01472	0.30275	-0.31748
5	SERVALAKSHMI PAPER LIMITED	-0.77014	0.30275	-1.07289
6	INNOVENTIVE INDUSTRIES LIMITED	-0.80568	0.30275	-1.10843
7	SANGHVI FORGING AND ENGINEERING LTD	-0.68261	0.30275	-0.98536
8	VMS INDUSTRIES LIMITED	1.70455	0.36164	1.34290
9	TIMBOR HOME LIMITED	-0.76659	0.36164	-1.12824
10	BIRLA PACIFIC MEDSPA LIMITED	-0.97411	0.41000	-1.38412
11	RUSHIL DECOR LIMITED	-0.65816	0.41000	-1.06816
12	BHARATIYA GLOBAL INFOMEDIA LIMITED	-0.81728	0.41000	-1.22729
13	INVENTURE GROWTH AND SECURITIES LTD	-0.92487	0.58366	-1.50853
14	L&T FINANCE HOLDINGS LIMITED	0.32729	0.58366	-0.25637
15	TREE HOUSE EDUCATION & ACCESSORIES LIMITED	2.09009	0.58366	1.50643
16	BROOKS LABORATORIES LIMITED	0.77849	0.60453	0.17396
17	TD POWER SYSTEMS LIMITED	0.30675	0.60453	-0.29778
18	SRS LIMITED	-0.28829	0.60453	-0.89282
19	PG ELECTROPLAST LIMITED	-0.68242	0.60453	-1.28695
20	PRAKASH CONSTROWELL LTD	-0.98894	0.57175	-1.56068
21	RDB RASAYANS LIMITED	0.21975	0.57175	-0.35199
22	ONELIFE CAPITAL ADVISORS LIMITED	-0.11588	0.57175	-0.68763
23	FLEXITUFF INTERNATIONAL LIMITED	0.08050	0.57175	-0.49124
24	VASWANI INDUSTRIES LIMITED	-0.73357	0.57175	-1.30532
25	C. MAHENDRA EXPORTS LIMITED	0.16505	0.71126	-0.54621
26	MULTI COMMODITY EXCHANGE OF INDIA LIMITED	-0.11550	0.61926	-0.73475
27	NATIONAL BUILDINGS CONSTRUCTION CORPORATION LIMITED	7.13714	0.57952	6.55762
28	MT EDUCARE LIMITED	-0.06811	0.57952	-0.64763
29	TRIBHOVANDAS BHIMJI ZAVERI LIMITED	0.32381	0.73013	-0.40632
30	CREDIT ANALYSIS AND RESEARCH LIMITED	0.41780	0.61759	-0.19979

Table 3: Descriptive Statistics

Statistics	Average Buy-and-Hold Return (BHR)	Average Buy-and-Hold Market Return (BSE-100)	Average Buy-and-Hold Abnormal Return (BHAR)
Mean	0.1027	0.4931	-0.3904
Standard Error	0.2782	0.0271	0.2732
Median	-0.1157	0.5717	-0.6676
Mode	N/A	0.3028	N/A
Standard Deviation	1.5239	0.1485	1.4962

Sample Variance	2.3223	0.0221	2.2385
Kurtosis	16.1719	-0.8836	16.6457
Skewness	3.6603	-0.5180	3.7407
Range	8.1261	0.5714	8.1183
Minimum	-0.9889	0.1588	-1.5607
Maximum	7.1371	0.7301	6.5576
Count	30	30	30
Confidence Level (95.0%)	0.5690	0.0555	0.5587

Table 4: Inferential Statistics

	Buy-and-Hold Return (BHAR)
Mean	-0.3904
Standard Error	0.2731
Median	-0.6676
Mode	#N/A
Standard Deviation	1.4961
Sample Variance	2.2385
Hypothesized Mean Difference	0.0000
Observation	30
Degrees of Freedom (df)	29
t Statistic (Computed)	-1.4293
P(T<=t) one-tail	0.0818
t Critical one-tail	1.6991
P(T<=t) two-tail	0.1636
t Critical two-tail	2.0452

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Risk tolerance of investors and its dependency on demographics

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ABSTRACT

Investment and financial risk goes hand in hand. Every investment tool is exposed to some risk, which in turn results in financial loss to investors. Financial Risk Tolerance refers to investor's attitude towards investment's return volatility that he/she is ready to bear. Risk tolerance plays an important role in each investor's portfolio decisions. It shows the willingness to take financial risk. There are many variables which can guide an individual's risk profile.

This study was conducted to determine whether variables – Gender, Age, Income, Education, occupation, marital status, no. of dependents, no. of earning members in the family and net assets could be used individually or in combination to both differentiate among levels of risk tolerance and classify individuals into risk tolerance categories.

For the purpose of the study primary data was collected with the help of questionnaire from 406 investors based in Indore city. And the statistical tool - Multiple Discriminant analysis was applied to separate, discriminate, and classify individuals into risk tolerance categories using respondents' demographic factors. A comparison of multivariate vectors, followed by discriminating variables and on the basis of group means and standard deviations, univariate analysis and formulation of standard connonical discriminate function coefficients, pooling within group correlations and classification and validation of results was done.

Based on the findings from discriminate analysis test it was observed that demographic characteristics were significant in differentiating among levels of risk tolerance and three variables- Education, Gender and Income were found most significant out of nine variables used for the study. The classification results indicate 62.2% correctly classified cases and a Hit ratio of 59.3% was obtained while validation process. And so the study concludes three variables playing a major role in risk classification of individuals which can be of great use for investment advisors and policy makers.

Introduction

Risk is uncertainty of the income / capital appreciation or loss of both. It is defined as a situation; where there is possibility of the expected event not happening as planned, partially or fully, leading to frustration of the objective with which the event was planned. Therefore, risk means a negative variance from plan.

All investments are risky, whether in stock & capital market or banking & financial sector, real estate, bullion, gold etc. The degree of risk however varies on the basis of the features of the assets, investments, the mode of investment, or the issuer of the security etc. even the so called risk less assets like bank deposits carry some cost and time realization on proceeds or in conversion into cash.

Risk can be caused by many factors; such as one might have made wrong decision of where to invest in, the timing of investment might be wrong, creditworthiness of the issuer may be objectionable, maturity or length of investment does not match with the time when the returns are required, Uncontrollable events, national & international events affecting

global markets etc. But all depends upon how much risk an individual can tolerate, the level of volatility an investor could bear. Risk tolerance as defined by Cordell 2002, mean a combination of Risk attitude ie. how much risk one is willing to take, and Risk Capacity ie. how much risk one can afford to take. We here by the medium of this research are more concerned about the factors which guide and individuals attitude towards risk. Specifically the demographic factors such as Age, Gender, Education, Occupation, Income, Marital status, No of dependents, No of earning members in the family and Net worth.

The following demographic factors are defined in order to clarify why these characteristics continue to be considered effective in differentiating among levels of investor risk tolerance. The list of demographic factors discussed for the purpose of the thesis is limited to just nine variables. Demographic factors are not limited to the number nine. It's a wide area to be discussed. I have just picked up few of them and limited the analysis to just nine variables. They are discussed below:-

a. GENDER - Gender (ie. Male or Female) is considered an important classification factor in order to classify investors into risk tolerance categories, because more men than women fits to the personality trait termed as "thrill seeker" or "sensation seeker" (Roszkowski et al., 1993).

By birth itself boy child & girl child are treated in a different manner. Boys tend to be associated more with physical activities and girls are assumed to be tender, soft, shy and gentle. There is also a prevalent belief in our culture that men should, and do take greater risks than women (Slovic, 1966). This generated a consensus among managers & researchers that gender is an effective differentiating and governing factor for investors risk tolerance.

b. AGE- Age is basically taken as a reference point, by investment managers, of the time remaining with the client to meet its financial goals & objectives and to recover financial losses. And it is widely known that older individuals have less time to recover losses than younger individuals and as such, older individuals will have lower risk tolerances.

c. MARITAL STATUS- Marital status ie. married, single, divorced, widow is also considered as an effective factor in distinguishing among levels of investor risk, since a few years. Primarily it is believed that single individuals have less responsibility and have less to loose, and so can accept greater risk compared to married individuals who possess responsibilities for themselves and dependents. Secondly, it is also known that married individuals are more susceptible to social risk, which is defines as potential loss of esteem in the eyes of colleagues & peers, if a loss is incurred (Roszkowski et al. 1993).

d. OCCUPATION- Occupation implies an activity in which someone engages for pay. Investment managers believe that high ranking Occupational status is related to higher levels of investor risk tolerance (Roszkowski et al. 1993). On the other hand low profile workers possess low risk tolerance. Although occupation's direct relation with risk tolerance can't be established, it can just be concluded that higher income is associated with high occupational rankings which in turn results in high risk tolerance. But since it is a separate demographic factor we have to account for it individually and study it in terms of permanent jobs ie. Public sector, and non-permanent jobs ie private sector. Permanency ie. Job security leads to high risk tolerance & non permanency leads to low risk tolerance.

The investors who earn their income on their own are called self-employed. Investment managers assumes that self-employment status automatically leads to higher levels of risk taking and they will choose riskier investments and accept increased investment volatility as compared to people who work for others on a straight salary (Mac Crimmon & Wehrung, 1986).

e. INCOME- According to Mac Crimmon & Wehrung (1986) higher income individuals tends to take greater risks than individuals with lower incomes. Investment managers have concluded that increasing income levels are associated with access to more

immediate resources (O'Neil, 1996) results in increased levels of income lead to increased levels of risk tolerance.

f. EDUCATION- Higher education has been found to encourage risk taking (Mac Crimmon & Wehrung, 1986). Increased levels of education open the door for knowledge and information which removes the barriers from the investors mind. When they are more educated, they can't be fooled around, and can take their own decisions. And so, Investment managers assume that increased levels of education are associated with increased levels of risk tolerance.

g. NUMBER OF DEPENDENTS – As the dependency on bread earner of the family increases his risk tolerance capacity decreases. Because of more dependents the salary income will be exploited in the family affairs only and so less liquidity will be available for investments. And this less amount will be invested in less risky and assured return options.

h. NUMBER OF EARNING MEMBERS – As the number of earning members in the family increases, the responsibility gets divided and risks & burden shared. And so we can say that risk tolerance increases as the number of earning members in the family increases.

i. TOTAL ASSETS – the net worth of an individual shares the same relation with risk as it was the case with income of the individual. The net assets whether earned or inherited increases the risk tolerance if investors. As he can get the loss compensated by existing high asset balance.

In short these demographic factors, directly or indirectly, do play a role in determining the investors risk tolerance. But all the factors are not equally important; they do not carry same discriminating power. The next section helps us in figuring out which factor(s) play a major role in categorizing respondents into risk tolerance categories.

Research Methodology

Research question - The purpose of this study is to determine whether the demographic factors ie. Gender, age, marital status, occupation, income, education, number of dependents, number of earning members in the family and net assets could be used individually or in combination to both differentiate among levels of Investor Risk Tolerance and classify individuals into risk - tolerance categories.

Hypothesis

The following hypotheses were formulated:-

H_0 (1.1) - The mean vectors associated with the three categories of investor risk tolerance are similar to one another.

H_0 (1.2) –The mean proportion of all nine demographics individually of the respondents is equal through the three risk tolerance categories.

H_0 (1.3) – Subsequent Classification results will be no better than classification by randomization. That is, the probability of assigning a respondent into risk tolerance category, given respondent's demographic characteristics, will be no better than randomly assigning a respondent into a risk tolerance category.

Area of Survey- The area of survey was Indore city from which data was collected through questionnaire method for the study period. The questionnaire was administered to 500 respondents.

For filling out the questionnaire the target population was divided between Retired, Self Employed, Salaried, Professionals.

The questionnaire was filled by the investors who fell in the Income Tax bracket & had their yearly income more than Rs. 250000. The target respondents for Salaried class were employees from different educational institutes, Government offices and Private concerns namely Banks and NBFC's. For Business Class the approach was limited to small business owners' shopkeepers. For Professionals Doctors, Lawyers and Chartered Accountants only, were approached.

Sampling Method – The study employed Non Probabilistic Judgmental and Snowball Sampling techniques.

Sample Size – Initially a size of 500 investors was decided, but due to non response only 406 questionnaires were recollected. And so the final sample size is of 406 investors.

Tool for data collection and data analysis

The study is based on primary data collection by communicating with the respondents with the help of a structured questionnaire. Investors were also interviewed to find out the possible reasons for their response.

The first part aimed at collecting the demographic details of the investors. Through this part the information regarding gender, age, marital status, education, occupation, yearly income, number of earning member, number of dependents, and net worth of the respondent were gathered.

The next part was to assess the attitudes towards risk by investors. Such attitudes are often inferred by examining outcomes that are responses to various inputs and stimuli. A neutral question is first posed to a respondent; following this a series of statements containing hypothetical but realistic situations were presented to the same respondent. The approach to the problem of self assessment of risk-taking by the investor by examining responses to vignette conditioned on the presence of self perception of risk, social safety nets, information availability and expectations regarding macro-economic condition, windfall gains and inheritance that stipulates investment of a particular kind. These questions had undergone a reliability analysis, and resulted in high consistency. The questions were weighted from 1 to 4 for alternatives. The degree of a respondent's risk tolerance was calculated by adding the weights of the answers. Those who scored a total between 0-19 were assumed to be low/no risk tolerant investors. Those who scored between 20-27 were average/medium risk tolerant investors and in between 28-40 were in high risk category (Al-Ajmi 2011). This division of scores in three categories was obtained by quartile analysis. And further to categorize individuals into risk categories and figure out the differentiaing variables Discriminant analysis was performed.

Analysis of Data and results

The analysis in this section is reported in following manner:-

a) Comparison of Multivariate Vectors Among Levels of Risk Tolerance,

b) Resolution of Discriminating Variables: Group Means and standard deviations on each variable for each group,

c) Significance test of Univariate equality of group means,

d) Standardized canonical discriminant function coefficients, Eigen values, Wilk's Lamda

e) Pooled within-group correlations between canonical discriminant function and discriminating variables

f) A classification of results.

g) Assess the validity of discriminant analysis results

a) Comparison of Multivariate Vectors Among Levels of Risk Tolerance

First of all we will test that the mean vectors of the high, average, and no risk-tolerance categories were equal (ie Hypothesis H_0 1.1). This hypothesis was tested using Wilk's Lambda Statistic. Wilk's Lambda was calculated to be 0.729, was significant at 1%. And so we determined that the independent variables do discriminate among levels of risk tolerance and so the three groups were not same. This lead to rejection of our first hypothesis of similar means of three levels of investor risks tolerance.

b) Resolution of Discriminating Variables

As we have determined that the three categories of investor risk tolerance are different from each other, now we need to figure out the differentiating demographic variables which categorizes investors into risk tolerance categories (High, Average and Low/No). Table 1 provides the means and standard deviations of the three levels of investor risk tolerance on the various independent variables. This data was helpful in primary determinations of which variables distinguished among three categories of risk tolerance, although it does not provide significance test results. For e.g. 78% of respondents in the high risk-tolerance category were men, compared to 68% in the average risk-tolerance category, and 53% in the no risk-tolerance category.

Table 1: Group means and Standard Deviations of Classifying Variables

Variable*	High Risk Tolerance		Average Risk Tolerance		Low/No Risk Tolerance	
	Mean	SD	Mean	SD	Mean	SD
Gender						
Male	**0.7790**	0.1808	0.6788	0.1824	0.5294	0.2178
Female	0.2200	0.1170	0.3211	0.2045	**0.4705**	0.2809
Age						
22-30	**0.3139**	0.1396	0.2706	0.2145	0.1667	0.2261
31-45	0.2441	0.1886	0.2247	0.2168	**0.2843**	0.1713
46-60	**0.4186**	0.1814	0.2064	0.1791	0.1568	0.1047
60-Above	0.0232	0.707	0.2981	0.1813	**0.3921**	0.2259
Marital Status						
Married	0.6976	0.1900	**0.7750**	0.2013	0.7254	0.1989
Divorced+Widow	0.0465	0.1414	0.0091	0.3536	**0.1176**	0.9850

Single	0.2588	0.1299	**0.5529**	0.2012	0.1882	0.2265
Education						
Hr. Sec	0.0230	0.2121	0.0366	0.2605	**0.0392**	0.263
Graduation	0.2090	0.1043	0.2201	0.2231	**0.5196**	0.2521
Post Graduation	0.3139	0.1847	**0.5504**	0.1967	0.2843	0.1814
Professional	**0.4534**	0.1693	0.1926	0.1715	0.1568	0.1857
Occupation						
Self-Employed	**0.3720**	0.1680	0.2060	0.1984	0.2352	0.1586
Salaried	**0.2906**	0.1993	0.2431	0.2024	0.2156	0.1893
Professional	**0.3255**	0.1750	0.2522	0.2277	0.1960	0.2849
Retired	00000	00000	0.2981	0.1813	**0.3520**	0.2240
Income						
2.5lac – 5.0lac	0.500	0.1684	0.4587	0.2167	**0.7843**	0.2649
5.0lac – 8.0lac	0.3139	0.1701	**0.3990**	0.1922	0.0882	0.1323
8.0lac - Above	**0.1860**	0.1928	0.1422	0.1927	0.1274	0.1601
Earning members						
1	0.4883	0.2003	0.5229	0.1939	**0.5490**	0.2518
2	**0.3837**	0.1509	0.3577	0.2095	0.3823	0.1744
3	**0.1046**	0.8330	0.0733	0.2125	0.0686	0.1215
4	0.0233	0.1414	**0.0458**	0.2601	00000	00000
Dependents						
0	0.1279	0.1601	**0.1467**	0.2095	0.1078	0.1120
1	0.1395	0.1215	0.4174	0.1799	**0.5784**	0.2632
2	**0.4883**	0.1877	0.3073	0.2062	0.1862	0.1969
3	**0.1860**	0.1580	0.0688	0.2326	0.0784	0.1852
4	0.0581	0.2550	**0.0596**	0.2259	0.0490	0.1871
Total Assets						
Less than 1.7lac	0.1744	0.1350	0.1422	0.1768	**0.1862**	0.1357
1.7lac – 4.5lac	**0.3255**	0.2193	0.1422	0.2156	0.0784	0.1953
4.5lac – 8.0lac	0.0465	0.1701	0.0504	0.2204	**0.3333**	0.9910
8.0lac – 15.0lac	0.3364	0.1633	**0.5504**	0.2272	0.2844	0.2293
15.0lac - Above	**0.1172**	0.1524	0.1146	0.1912	0.1168	0.2514

*For dichotomous variables, the mean is the proportion of cases with a value of 1.00.

c) Univariate test statistic for Significance of equality of group means

Univariate test statistics were generated for the purpose of measuring the significance of the independent variables in differentiating among the three levels of risk tolerance Table 2. We have hypothesized that the group means among risk-tolerance levels would be equal. But F test results indicated that the following demographic characteristics were significant in differentiating among levels of risk tolerance: Gender, Age, Education, Occupation, Income, and Total Assets; their means differed significantly. Three demographic characteristics, namely Marital Status, Number of earning members in the family, and number of dependents were not significant. On the basis of these F values we have sufficient statistical data to reject the H_0 (1.2) for 6 demographic variables Gender, Age, Education, Occupation, Income, and Total Assets. And fail to reject H_0 (1.2) for the variables Marital Status, Number of earning members in the family, and number of dependents which means that their mean proportion across the three risk tolerance categories would be equal.

Table 2: Univariate Test Statistic- Tests of Equality of Group Means

	Wilks' Lambda	F	df1	df2	Sig.
Gender	.952	7.862	2	312	.000
Age	.964	5.792	2	312	.003
Marital status	.995	.823	2	312	.440
Education	.912	15.064	2	312	.000
Occupation	.932	11.327	2	312	.000
Yearly income	.950	8.195	2	312	.000
Earning members	.994	.927	2	312	.397
Dependents	.950	.017	2	312	.050
Total assets	.981	8.277	2	312	.000

The mean vector scores (Table 1) and Univariate test statistics (Table 2) when studied in combination with one another proposed that proportionately Males were more likely to be categorized as having a high or average risk tolerance. Females were more likely to be categorized as having low/no risk tolerance. In relation to Occupation Self employed, Salaried, and professionals were found to be in High risk tolerant category, and retired to be in low/no risk tolerant category. None of the Married single or divorced + widow were in high risk category. Divorced + widow were in low/no risk tolerant category whereas others were in Average risk category. The respondents with mean age between 22-30 and 46-60 were in high category and those with 31-45 and above 60 were in low/no risk tolerance category. Respondents with higher education exhibited more risk tolerant capacity and those with low education were in low/no risk tolerant group. It was the same case with Income also. Respondents with low income were in low/no risk tolerance category, vice versa.

Six out of nine independent variables were significant in Univariate analysis, but Univariate analysis alone did not provide enough evidence to determine which demographic factors could be used, either individually or in combination, to differentiate among risk-tolerance levels. The univariate statistics (Table 2), which were similar to one-way analysis of variance calculations, indicated only that mean vector differences were present. Using the data presented in Table 1 & 2, it was possible to draw generalizations about the trend in mean vector scores, but it was not possible to state definitively that a trend was consistent across all categories. And that is why Discriminant Analysis was performed.

d) Standardized canonical discriminant function coefficients

The Eigen Values (Table 3) represented the between group variability accounted by first Canonical structure. The values were 0.289 and accounted for 81.8% variation by first Canonical structure. The second canonical structure .064 accounted for 18.2% of between group variability. Because the Eigen Value is large for first canonical structure it was considered as of prime importance for the analysis.

The variables that shared the most variation with the first and second canonical structures were found to define what attribute the structure represented. Standardized canonical discriminant function coefficients were used to determine the importance of each variable in optimizing the separation of the three levels of risk tolerance. The signs of the

coefficients, which are similar to standardized coefficients in a multiple regression analysis, relate to group centroids and can be ignored for the purposes of the research (Grable 1997). The results (Table 4) indicated that scores on Canonical 1 were scores on an attribute that was fundamentally comprised of gender, education and yearly income (coefficients of .495, .522, and .348, respectively). The second canonical structure, Canonical 2, defined basically by the remaining variables. The values of the canonical correlations (i.e., the degree of association between the discriminant functions and the three levels of risk tolerance which can range from 0 to 1) were .473 and .246, respectively (Table 3). These values were statistically significant at the .0001 level.

Table 3: Canonical Correlation Test of Significance

Function	Eigen value	% of Variance	Canonical Correlation	Wilks' Lambda	Chi-square	df	Sig.
1	.289[a]	81.8	.473	.729	97.354	18	.000
2	.064[a]	18.2	.246	.939	19.230	8	.014

a. First 2 canonical discriminant functions were used in the analysis.

Table 4: Standardized Canonical Discriminant Function Coefficients

	Function	
	1	2
Gender	-.495	-.218
Age	-.210	-.102
Marital status	.284	-.052
Education	.522	.137
Occupation	-.301	.469
Yearly income	.348	.418
Earning members	.116	.345
Dependents	.346	-.447
Total assets	-.022	.350

e) Pooled within-group correlations between canonical discriminant function and discriminating variables

The results and interpretations presented above relating to the standardized canonical coefficients were confirmed using correlations taking into account within group differences in mean vectors. The results could be further confirmed, by the pooled within-group correlations between the discriminant function and each of the variables, which provides structured coefficients which can also be interpreted like beta weights or scores in a factor analysis. These data were useful in determining which variables closely approximated the discriminating power of the total function (Bailey & Unnithan, 1994). As indicated in Table 5, Education, gender, Yearly Income, and Age were the most successful factors when differentiating among membership in one of the three levels of risk tolerance. And those basically with high values ie. Education .575, Gender .402, and Yearly income .346 suggests

that investor risk tolerance may primarily be a function of attained educational level, gender and Income.

Table 5: Pooled Within-Group Correlations between Canonical Discriminant Function and Discriminant Function and Discriminating Variables

Variable	Function	
	1	2
Education	.575*	.139
Gender	-.402*	-.241
Yearly income	-.346*	.197
Age	.135*	.010
Marital status	-.425	.565*
Total assets	-.052	.537*
Dependents	.357	.496*
Occupation	.362	-.487*
Earning members	.104	.209*

* Largest absolute correlation between each variable and any discriminant function

f) A Classification of results

Research hypothesis 1.3 stated that the Subsequent classification results of the discriminant analysis would be no better than classification by randomization. That is, the probability of assigning a respondent into a risk-tolerance category, given the respondent's demographic characteristics, would be no better than randomly assigning a respondent into a risk-tolerance category. For this a classification matrix was prepared by the help of SPSS while performing discriminant analysis. For this purpose the whole data set was divided into two samples in a ratio of 77.60:22.4 constituting 315 and 91 respondents respectively, in the very first step of Discriminant Analysis. The first sample is known as Analysis sample used for estimation of the Discriminant function and the other sample is called the validation sample which is reserved for validating the discriminant function. Table 6 provides the classification of results showing that out of 73 actual subjects in the low risk tolerance category, the model was able to classify 32 or 43.8% correctly; of the 167 subjects in the average risk tolerance category the model was able to classify 133 or 79.6% correctly; and of 75 subjects in the high risk tolerance category the model was able to classify 31 or 41.3% correctly; And for the Cross validation the figures comes out to be 42.5%, 76.6% and 40% respectively for low, Average and High risk categories.

Table 6: Classification Results [a,b,c]

				Predicted Group Membership			
			riskcat2	low	medium	high	Total
Cases Selected	Original	Count	low	32	38	3	73
			medium	14	133	20	167
			high	2	42	31	75
		%	low	43.8	52.1	4.1	100.0
			medium	8.4	79.6	12.0	100.0
			high	2.7	56.0	41.3	100.0
	Cross-validated[a]	Count	low	31	39	3	73
			medium	17	128	22	167
			high	2	43	30	75
		%	low	42.5	53.4	4.1	100.0
			medium	10.2	76.6	13.2	100.0
			high	2.7	57.3	40.0	100.0
Cases Not Selected	Original	Count	low	11	16	2	29
			medium	7	42	2	51
			high	2	8	1	11
		%	low	37.9	55.2	6.9	100.0
			medium	13.7	82.4	3.9	100.0
			high	18.2	72.7	9.1	100.0

a.62.2% of selected original grouped cases correctly classified.

b.59.3% of unselected original grouped cases correctly classified.

c.60.0% of selected cross-validated grouped cases correctly classified.

Table 7: Error Count estimates for Risk Tolerance levels

	Low/No Risk	Average Risk	High Risk	Total
Rate	.5620	.2040	.5870	.3770
Actual Priors	.2320	.5300	.2380	1.000
Random Priors	.3333	.3333	.3333	1.000

Table **7** summarizes the classification error rates of the discriminant equations. The equations were statistically significant. And the classification success rate was 62.2%, ie. Greater than 50%. And only 37.70% cases were mis-classified. And so the success rate was good enough to assess the validity of discriminant analysis results.

g) Assess the validity of discriminant analysis results

The Classification results based on the analysis sample indicate that 62.2% cases were correctly classified. Leave one out cross validation classifies 60.0% of the cases. When the classification analysis was conducted on the independent holdout sample of Table 4.80 a hit ratio of 59.3% was obtained. And if we assume the three groups of equal size, by chance alone one can get a hit ratio of 33.3%. An improvement over chance greater than 25% will be 41.2%. And if we divide groups on the basis of actual priors the chance comes out to be $[\{(0.232)^2+ (0.530)^2 + (0.238)^2\}*1.25*100] = 48.92\%$. And the hit ratio obtained by our calculation is 59.3%, which is far ahead the above two values, indicating satisfactory validity.

And so we can conclude that the variables: Education, Gender and Income play a major role in categorizing respondents into risk tolerance categories.

Conclusion

Several respondent demographics were found to be statistically significant in differentiating among levels of risk tolerance ie Gender, Age, Education, Occupation, Income, and Total Assets. Three demographic characteristics, namely Marital Status, Number of earning members in the family, and number of dependents were not significant. Education, Gender and Yearly Income were found to be the most discriminating factors to categorize individuals into risk tolerance categories of high medium and low risk by standard canonical function coefficients, and pooled within group correlations. Analysis revealed that the probability of assigning a respondent into a risk-tolerance category, given the respondent's demographic characteristics, would be no better than randomly assigning a respondent into a risk-tolerance category and the classification procedure was efficient and practically effective. The achieved classification procedure offered a 59.3% improvement over chance which is above the minimum cut off point of 50 %. This indicated that the use of demographic variables to classify individuals into risk tolerance categories would provide managers with sufficient discriminating power.

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Value-based performance measures: Evidence from Indian firm using FCF and EVA

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ABSTRACT

There is a shift in focus from traditional accounting based performance measures to the new value based performance measures. With the rising focus on value based performance measures which are derived from long term goal of wealth maximization as opposed to short term approach of profit maximization, EVA and FCF are promising indicators. Many past researches have shown that value based performance indicators (especially EVA) are superior to traditional indicators like EPS, ROE, ROA etc. Traditional indicators do not capture value creation and since they are accounting based, they can be manipulated by the managers. Therefore using them as firms' performance measure is not in the best interest of the shareholders. The purpose of this study is to understand the various value-based performance measures and empirically verify the conceptual equivalence of Free Cash Flow (FCF) and Economic Value Added (EVA). For this, a sample of 30 firms listed in BSE SENSEX is taken and their FCF and EVA are calculated for the period of 5 years, from 2011 to 2015. The results of this calculation are analyzed using correlation and regression analysis. The descriptive analysis shows that there is a strong correlation between FCF and EVA. The regression analysis also shows that EVA and FCF are positively related which means that both EVA and FCF gives similar results regarding firms' performance. The discounting of appropriately defined cash flows (FCF) is conceptually equivalent to discounting economic profits (EVA) for performance and decision making process. This study has empirically tested the conceptual equivalence of the two measures.

Keywords: *Economic Value Added (EVA); Free Cash Flow (FCF); BSE; Performance; NOPAT*

1. INTRODUCTION

The paper discusses about the free-cash-flows (FCF) and economic value added(EVA) concepts and their mathematical equivalence. FCF is calculated by discounting appropriately cash flows and EVA is calculated by discounting appropriately defined economic profits. The concept of net operating profit after tax (NOPAT), found by adding after-tax interest payments to net profit after taxes, is central to both approaches, but there the computational similarities end. The FCF approach focuses on the periodic total cash flows obtained by deducting total net investment and adding net debt issuance to net operating cash flow, whereas the EVA approach requires defining the periodic total investment in the firm**.** In a project valuation context, both FCF and EVA are conceptually equivalent to NPV.

Free Cash Flow is important because it allows a company to pursue opportunities that enhance shareholder value. FCF represents the cash that a company is able to generate after laying out the money required to maintain or expand its asset base. Without cash, it's tough to develop new products, make acquisitions, pay dividends and reduce debt.

Economic Value Added evaluates profit performance of a company and project not only by deduction of direct cost like interest, but also capital cost. Thus, a company is now able to bring financial views for development of corporate strategy and salary of executive officers and employees as well with capital cost. EVA has great advantage that it does not show measurements by percentage point, unlike ROE and ROA, but with amount that investors are familiar with. Investors are able to understand the corporate value at a glance, and are able to see if their profit is above the expected investors return or not.

The purpose of this report is to learn how FCF and EVA are actually calculated and empirically check whether both the approaches are actually mathematically equivalent or not. So data has been taken for the 30 firms listed in BSE SENSEX and FCF and EVA values are calculated for last 5 years.

2. LITERATURE REVIEW

Financial Management has evolved over time shifting its focus from the traditional short term approach of profit maximization to modern long term approach of wealth maximization i.e. maximizing shareholder's wealth. Shareholders aim to maximize the returns on their investments and for that they use financial data of firms to assess its current performance and predict future performance.

Chenn and Dodd (1997) highlighted that there is no single accounting measure that accounts for the variability of shareholder's wealth. They suggested that information from Economic Value Added (EVA) helps in explaining stock returns (as a good accounting measures used to assess firm performance should). Traditionally performance was measured using Net Operating Profit after Tax (NOPAT), Earnings per Share (EPS), Return on Equity (ROE), and Return on Assets (ROA) etc. Using these measures to assess the firm's performance in not in the best interest of shareholders because these measures do not capture value creation. EVA and other value based financial management have been preferred as performance indicators since then.

Stewart (1991) stated that "Earnings, earnings per share and earnings growth are misleading measures of corporate performance", "The best practical periodic performance measure is EVA" and "EVA stands well out from the crowd as the single best measures of value creation on continuous basis". Costigan and Lovata (2002) claims EVA reduces agency cost. Maditinos et al. (2006) suggested EVA is strongly associated with stock returns. Fergeuson et al. (2005) concluded that EVA improves stock performance. Lefkowitz (1999) and Fingan (1991) concluded that there is a high correlation between EVA and Market Value Added (MVA) as compared to other performance measures like cash flows, EPS, capital growth and ROE.

Mann and Sicherman (1991) studied announcement of seasoned issues of common equity during years 1982, 1983 and 1984. The equities were selected from the Investment Dealer's Digest of Corporate Financing. The equity of banks, bank holding companies, insurance companies, public utilities, limited partnerships, real estate investment trusts, and foreign-based firms industries and organizational forms was excluded from the sample. The study concluded that equity issues results in increase in Free Cash Flow (FCF) available to managers and that these non-bonded funds carry agency costs and presents evidence that shareholders do expect misuse of this FCF and condition their response to the firm's acquisition history.

Shrieves and Wachowicz (2001) investigated the relationship between EVA, Free Cash Flow (FCF), and traditional Net Present Value (NPV) methods from a valuation aspect. Beginning with cash budget identity they showed that for valuation and decision making purposes, with some accounting adjustments, discounting clearly defined cash flows with FCF approach is theoretically and logically equivalent to discounting clearly defined economic profits under EVA approach. The difference between the two approaches are computational that is the FCF approach focuses on periodic total cash flow whereas EVA requires clearly defined periodic total investment. Subatnieks (2005) empirically studied and calculated FCF of Latvian enterprises and also concluded the conceptual equivalence of EVA, FCF, and NPV.

Kaviani (2013) analyzed 10 companies representing the Automotive Industry of Iran Stock Exchange for a period of 5 years from 2005-2009 to test the hypothesis that there is significant relationship between EVA and created value from Free Cash Flow to Firm and Equity. The research concludes that EVA can serve investors and managers well to interpret and predict FCF.

There has not been an agreement on a single best performance measure in the researches. For example, O'Byrne (1996) suggested that earnings measures have stronger association with share returns compared to EVA. Goetzmann and Garstka (1999) reported long term performance of a firm is related to earnings and that EPS does a better job at explaining differences across companies and for predicting future performance. Turvey et al. (2000) examined a sample of 17 publicly traded food companies in Canada and could not find any correlation between EVA and MVA. Gunther, Landrock and Muche (2000) studied the German stock market and could not prove that value based measures outperform traditional accounting based measures. Worthington and West (2001), using pooled time-series and cross-sectional data on 110 Australian companies over the period 1992-1998, proved that earnings are more strongly associated to returns than FCF and EVA.

But Sharma and Kumar (2010) argue that, in developed countries, there is less number of studies that conclude that EVA is not a better indicator of firm performance compared to traditional performance measurement tools. They suggested "There is strong need for research over a longer time frame to allow greater empirical certainty on the status of EVA as a corporate performance measure".

3. DATA COLLECTION

For the purpose of the study, only secondary data have been used. The data has been collected from Capitaline Databasesmaintained by Centre for Monitoring Indian Economy (CMIE). It provides data from firms' financial reports and stock exchanges. The financial data is updated annually whereas the shareholding details and share price data is updated quarterly and daily respectively.

The data of 30 companies listed inBSE SENSEX (Bombay Stock Exchange Sensitive Index) for the period of five years, from 2011 to 2015, has been used for the study. The BSE SENSEX, also called BSE30 or simply SENSEX is a free-float market-weighted stock market index of 30 well-established and financially sound companies across key sectors listed on Bombay Stock Exchange. The data collected includes profit before tax (PBT), tax, interest, depreciation, total net investment, total debt, total shareholder funds, and capital employed.

4. METHODOLOGY

For the analysis and comparison of FCF and EVA, statistical tools like descriptive statistics and regression analysis have been used. Descriptive analysis is done for annual net operating profit after tax (NOPAT), FCF and EVA.

To evaluate the effect of FCF on EVA, we develop a regression model with EVA as dependent variable and FCF as independent variable. The regression is done separately for individual years from 2011 to 2015 for the 30 companies listed in BSE SENSEX. The data collected is used to calculate required variables using the following relationships:

$$NOPAT = NPAT + interest(1-t)$$

Where,

NOPAT: Net Operating Profit after Tax

NPAT: Net Profit after Tax

t: Tax rate; calculated as the fraction of PBT (profit before tax) paid as tax.

$$EVA = NOPAT - Capital\ employed(WACC)$$

WACC is the Weighted Average Cost of Capital and is calculated as follows

$$WACC = k_d w_d + k_e w_e$$

Where,

k_d: cost of debt

k_e: cost of equity

w_d: weight of debt; calculated as debt capital/capital invested

w_e: weight of equity; calculated as equity share capital/capital invested

And finally,

$$FCF = NOPAT + depriciation - total\ net\ investment$$

The following regression model is used:

$$EVA = \beta_0 + \beta_1 FCF + \varepsilon$$

Where,

β_0: intercept

β_1: coefficient of FCF

ε: error term

5. EMPERICAL RESULTS

Certain statistical tools were used to analyze the collected data of the sample companies and the results are condensed to tabular form and presented below along with the analysis and interpretation of certain variables.

First, we summarize descriptive statistics of FCF and EVA for previous five years. The results are tabulated below. The mean, median standard deviation, standard error and Maximum-Minimum values for 30 companies from BSE SENSEX have been calculated for each year from 2011 to 2015. The data presented is in ten million rupees. Graphical representations of FCF and EVA are also shown for better understanding of the readers. We can see that minimum mean FCF and EVA are in year 2015 and maximum in year 2011.

Year		2011	2012	2013	2014	2015
FCF	Mean	-17390.85	-19216.40	-22078.89	-24523.54	-32718.81
	Median	-1654.05	-888.08	-1631.00	-1870.93	-1699.57
	Std. Deviation	50734.47	53964.02	59257.08	65409.92	82131.61
	Std. error	9262.80	9852.44	10818.81	11942.16	14995.11
	Maximum	23721.52	34832.05	28035.88	26332.11	19078.86
	Minimum	-245550.68	-246143.28	-271812.71	-310067.46	-402561.87
EVA	Mean	-3636.18	-4250.26	-4373.61	-4781.08	-5056.15
	Median	-1461.51	-1978.48	-1771.87	-2931.63	-2236.86
	Std. Deviation	5443.47	6042.84	6216.41	6088.73	8189.21
	Std. error	993.84	1103.27	1134.96	1111.65	1495.14
	Maximum	-36.46	-65.66	18.47	2343.07	1801.35
	Minimum	-26259.60	-28440.37	-30018.27	-27799.31	-40770.77

Table 1: Descriptive Analysis

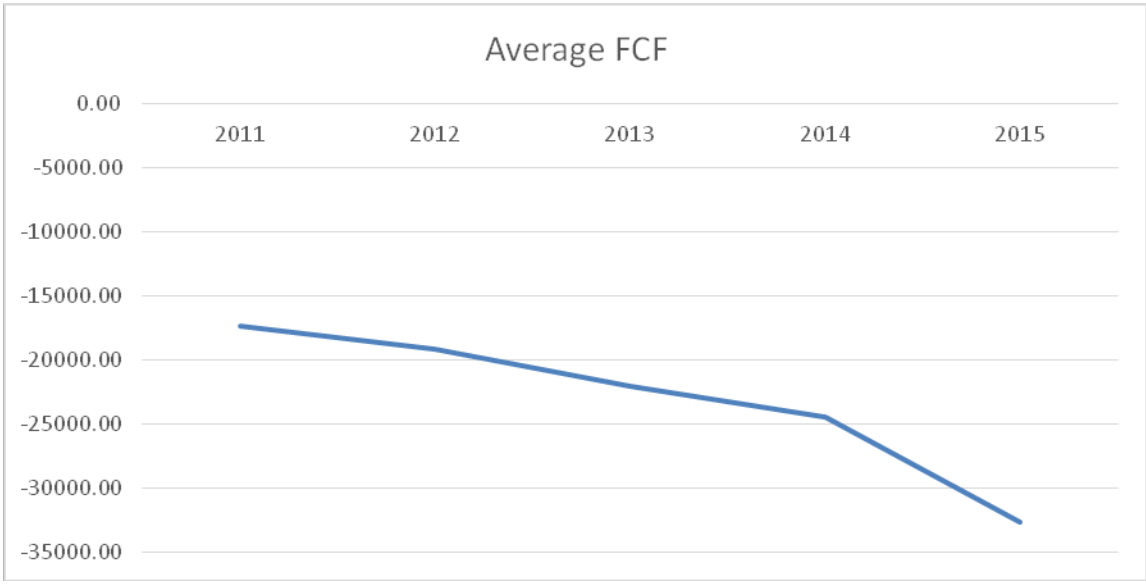

Figure 1: Change in Average FCF with Time

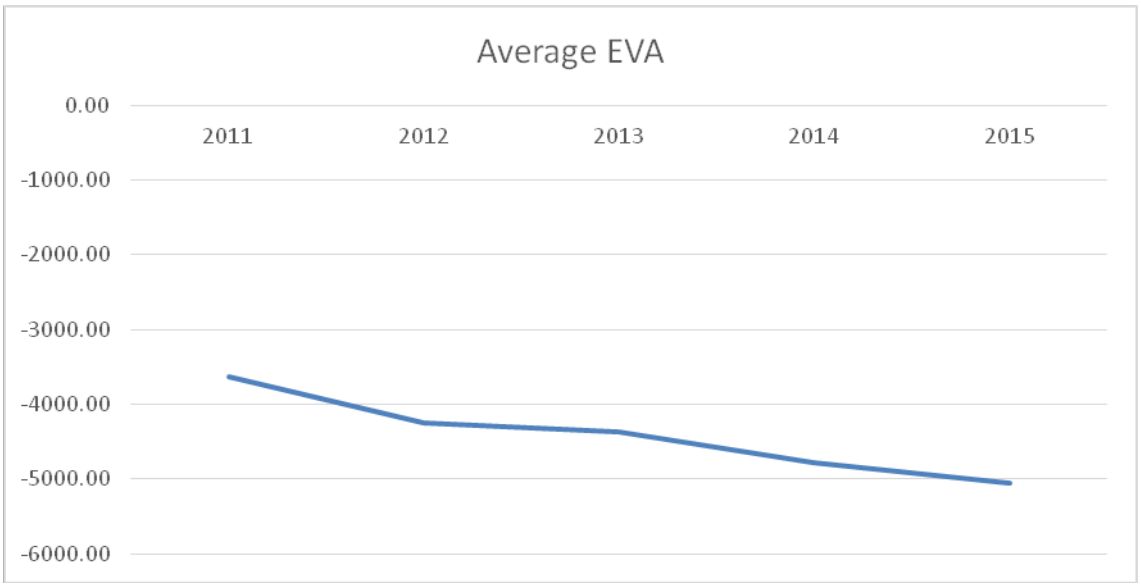

Figure 2: Change in Average EVA with Time

5.1. STATISTICAL ANALYSIS

This section discusses how the two variables, FCF and EVA, are correlated. Correlation has been calculated for every year from 2011 to 2015 for 30 companies included in BSE SENSEX. It is found that FCF and EVA exhibits strong positive correlation with each other (as can be seen in the Table 2).

The strong correlation between EVA and FCF suggests that with increase in one increases the other and vice versa. The correlation is strongest in year 2011 and weakest in 2014. The average correlation over the 5 years is 0.798.

Year	Covariance	Correlation
2011	583625400.5	0.8976
2012	317558158.9	0.8249
2013	283906051.6	0.7973
2014	227474684	0.7216
2015	199847319.9	0.7486

Table 2: Correlation between EVA and FCF

5.2. REGRESSION ANALYSIS

This section discusses the relationship between the FCF and EVA of the 30 companies included in BSE SENSEX from year 2011 to 2015. The following model has been used for linear regression between the two variables:

$$EVA = \beta_0 + \beta_1 FCF + \varepsilon$$

Hypothesis:

$$H_0: \beta_1 \neq 0$$

$$H_A: \beta_1 = 0$$

Regression has been carried out independently for each year for 30 data points pertaining to the 30 companies of the sample.

Regression results for the 5 years (presented below) show that EVA and FCF are positively related to one another and these results are highly significant as null hypothesis is not rejected even at 99.5 % confidence interval.

This positive relationship comes from the fact that both are positively related to NOPAT.

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-2127.7273	723.5507	-2.9407	0.0065
FCF	0.0895	0.0083	10.7777	0.0000

Regression table for year 2015

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-2898.1174	684.5167	-4.2338	0.0002
FCF	0.0768	0.0099	7.7204	0.0000

Regression table for year 2014

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-2526.9133	745.5598	-3.3893	0.0021
FCF	0.0836	0.0120	6.9896	0.0000

Regression table for year 2013

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-2697.4447	826.7050	-3.2629	0.0029
FCF	0.0808	0.0147	5.5158	0.0000

Regression table for year 2012

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-2239.3773	710.2009	-3.1532	0.0038
FCF	0.0803	0.0134	5.9743	0.0000

Regression table for year 2011

6. CONCLUSION

With the rising focus on value based performance measures which are derived from long term goal of wealth maximization as opposed to short term approach of profit maximization, EVA and FCF are promising indicators. Many past researches have shown that value based performance indicators (especially EVA) are superior to traditional indicators like EPS, ROE, ROA etc. Traditional indicators do not capture value creation and since they are accounting based, they can be manipulated by the managers. Therefore using them as firms' performance measure is not in the best interest of the shareholders.

The discounting of appropriately defined cash flows (FCF) is conceptually equivalent to discounting economic profits (EVA) for performance and decision making process. This study has empirically tested the conceptual equivalence of the two measures. The high correlation and the regression analysis suggest that both EVA and FCF give similar results.

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Revitalising rural economies in India

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ABSTRACT

Mahatma Gandhi said that India lives in its villages. The fact that urban population constituted merely 11% of the total Indian population in the early decades of the 20th century gave power to his grassroots Swadeshi movement. From an economic point of view, the Swadeshi philosophy envisaged self-reliance for villages and empowerment so that they could generate their own livelihood, have the skill-sets to manufacture their own products, farm their own lands, and live in harmony with the environment. Gandhi's social movements were as much a call for the freedom of India as for holistic development of the nation.

India still lives in its villages—the ICE 360 Survey 2014 estimates that there are nearly 5.97 million villages and an overwhelming 57% of these have a population size less than 1,000. A huge 63% rural households are dependent on the meagre incomes that farm-related activities generate. Growth in rural wages, which averaged 18% in the last few years, dropped sharply to 5% in September last year.

These developments are not just impacting rural Indians, but the economic well-being of the nation as well. The ICE 360 Survey 2014 covered 300 villages randomly selected from 73 districts distributed in 21 major states, and collected indicators related to village economy and development. Let's consider some of the development indicators from the survey that give a glimpse into the current status of rural India (Bharat) and its ability to address issues of income generation, access to public utilities, ease of mobility, education and health services.

INTRODUCTION

Mahatma Gandhi famously said that India lives in its villages. The fact that urban population constituted merely 11% of the total Indian population in the early decades of the 20th century gave power to his grassroots Swadeshi movement. One that envisioned an India which did not merely replace imperialist rule with self-rule, but also energised the national economy and culture by revitalising its villages. From economic point of view, the Swadeshi philosophy envisaged self-reliance for villages and empowerment so that they could generate their own livelihood, have the skill-sets to manufacture their own products, farm their own lands, and live in harmony with the environment. Gandhi's social movements were as much a call for the freedom of India as for holistic development of the nation – a battle cry against illiteracy and poverty, and everything that shackled the growth of rural economy.

Gandhi's vision for holistic development of rural India is relevant even today. India still lives in its villages – the ICE 360 Survey 2014 estimates that there are nearly 5.97 million villages and an overwhelming 57% of these have a population size less than 1,000. While urban societies continue to grow and provide tremendous impetus for India's economic growth, the significance of a vibrant and healthy rural economy cannot be undermined. Especially in the context of declining agricultural productivity and distressed rural households, which continue to eke out a livelihood from agriculture. A huge 63% rural households are dependent on the meagre income that farm-related activities generate. Growth in rural wages, which averaged 18% in the last few years, dropped sharply to 5 % in September 2014.

These developments are not impacting rural Indians, but the economic well-being of the nation as well.

ICE 360 SURVEY

The ICE 360 Survey 2014 covered 300 villages randomly selected from 73 districts distributed in 21 major states, and collected indicators related to village economy and development. Let's consider some of the development indicators from the survey that gave a glimpse into the current status of rural India (Bharat) and its ability to address issues of income generation, access to public utilities, ease of mobility, education and health service.

How rural development varies with village size

Size of village (population)						
	<1000	1000-1999	1999-4999	5000-9999	>=1000	TOTAL
% distribution of Indian Villages	56.7	23.3	16.1	3.1	0.8	100
Distribution of village by Major source of irrigation (%)						
Canal	7.3	17.0	28.9	19.9	14.5	13.5
Tube well	28.4	48.8	44.6	65.0	63.9	37.2
Well	46.7	9.7	10.6	6.3	13.8	30.7
Others (such as ponds, tanks etc.)	17.6	24.5	15.8	8.8	77.8	18.6
Total	100	100	100	100	100	100
Distribution of villages by major point of sale of agriculture produce used by majority of farmers (%)						
Retailers	45.6	34.3	24.0	19.9	32.8	38.7
Wholesale Traders	15.2	34.7	29.5	40.0	35.5	22.9
Village Mandis	22.6	13.5	19.4	22.7	7.8	19.9
Government Mandis	6.7	10.2	17.1	2.7	12.0	9.1
Others	9.8	7.3	10.0	14.8	11.9	9.4
Total	100	100	100	100	100	100
PDS/fair price shop**	29	54	73	70	89	44
Health & Education (Shae of villages' easily access to facilities – within village or within 1 km) (%)						
Govt. Secondary School	25	53	50	55	63	36
Govt. Vocational or technical centre	4	23	21	35	47	13
Primary Health Centre	6	11	13	29	61	10
Medical Shop	1	3	12	39	45	5

Cooperatives, processing units, consumers etc. Share of villages' easily access to facilities, within village or within 1 km.
Source: ICE 360^0 Survey (October 2014) from People Research on India's Consumer Economy (PRICE)

ROAD AND PUBLIC TRANSPORT

Linkages between good road networks and economic development are well-established. Transportation plays a multifaceted role in enhancing incomes and well-being, as it is vital for marketing and efficient distribution of agricultural produce, mobility of people and material resources, and contributes towards access to educational, healthcare and financial services. Therefore, rural areas with low standards of living are most likely to be ones with poor road and transportation linkages.

Small villages, in terms of population size (less than 1,000), are the ones that are relatively poor and backward. It's not surprising that these are also the ones that have poor road connectivity: only 35% small villages (with population size of 1,000-5,000) have access to pucca roads within a kilometre radius compared to 70% large villages (population size of more than 10,000). A majority of large villages are connected with all-weather roads compared to

64% small villages. The average distance from the village to the nearest railway station is about 15 km for large villages and 35 km for small villages.

BASIC AMENITIES

According to the World Bank, rural electrification is fundamental for economic development. It affects the welfare of rural households as it reduces time-consuming household chores. Assured electricity supply leads to the development of local agriculture-based industries such as rice and wheat milling, production of oil from oilseeds, repair and welding of agricultural implements, etc. which can supplement the incomes of families dependent on farm incomes. The quality of energy supply has a major impact on economic activities, a fact that is often ignored by the government in its drive to increase rural electrification without any thought to the quality of power that is being supplied. Even though a majority of the villages surveyed have electric connections, they only receive about 10-12 hours of power and just 44% households are satisfied with the quality/quantity of electricity they receive.

The major source of drinking water across all village-sizes is either hand-pump or tube-well. Only 30% households reported they have access to piped water. Firewood (51%) followed by dung cakes (20%) are major cooking fuel sources across all village types. Only 17% villages use LPG and, of these, 28% are households living in large villages compared to 15% in small ones.

PUBLIC SERVICES

Since agriculture-based activities form a huge chunk of income for rural households, access to banks and mandis is integral for smooth functioning of the rural economy. The presence of public distribution shops (PDS)—which are the major source of subsidised food items and kerosene—is also a key indicator of a village's status on the welfare continuum.

Where do Indian farmers sell their produce? Significantly, 40% villages sell their farm produce to retailers. A little less than a quarter (23%) of Indian villages can do business with wholesale traders and only 20% sell directly in the mandis. The average distance to the nearest commercial bank is 10 km. About 44% villages have PDS shops; of these, only 30% small villages boast of PDS shops while 89% large villages can access them inside village boundaries.

EDUCATION AND HEALTH

The drive towards increasing literacy has had significant impact on access to educational facilities—particularly at the primary level—in the wake of the Sarva Shiksha Abhiyan. However, the quality of education continues to be a major concern. Most villages have access to middle level school within a radius of 1 kilometre. But access to higher levels of education is more prominent in large villages: nearly 60% of such villages have secondary and higher secondary schools compared to just 20% in small villages.

On the healthcare front, while campaigns such as polio and smallpox eradication have resulted in major successes, and significant progress has been achieved in the areas of infant and maternal mortality, universal healthcare is still out of reach for most rural Indians. Issues about inefficient and poor quality of healthcare services, and the high cost, continue to pose major challenges.

As has been observed with other amenities, large villages benefit from access to better health facilities compared to their cousins in small villages. Nearly 60% large villages have primary

health centres against just 6% in small villages. Similarly, nearly half of large villages have a pharmacy or a chemist shop while only 11% in the small ones have them.

Clearly, rural development is a non-linear and highly-contextual process. While various government programmes such as Pradhan Mantri Adarsh Gram Yojana, Sansad Adarsh Gram Yojana, Smart Village (Andhra Pradesh), the Provision of Urban Amenities to Rural Areas (PURA) model and many others are steps in the right direction, there is a need to pool resources and collective wisdom to achieve the targeted results. Corporate and NGO best practices can be garnered to give rural development a much-needed fillip and also achieve Gandhi's vision of an empowered and self-sustaining rural India.

On May 16, India announced the results of the world's largest democratic exercise, with more than 550 million people voting in what was an overwhelming victory for the Bharatiya Janata Party (BJP). The elections have been largely viewed as a mandate on addressing issues such as India's faltering economy, rising inflation, corruption, and overall policy paralysis at the center. As Prime Minister Narendra Modi takes the helm this week, he faces a multitude of challenges that need to be addressed to revitalize the country's lagging economic growth, including banking reforms, inadequate infrastructure, and energy constraints. To better understand the key economic policy questions facing India's new government, NBR interviewed Ajay Shriram, President of the Confederation of Indian Industry (CII) and Chairman and Senior Managing Director of DCM Shriram Limited. He discusses the country's economic outlook, industry's priorities in engaging with the new Modi government, and opportunities to strengthen U.S.-India ties.

India's GDP growth rate has dropped over the past few years, affecting the country's ability to generate employment for the over 13 million people entering the workforce every year. What might it take for India's economy to get back on track?

From an all-time high of 9.6% economic growth in 2006–7, India has slid to 4.5% in 2012–13. Several factors have been responsible for this slide, including the global economic downturn triggered by the 2008 recession, a high current account deficit, high inflation, and structural bottlenecks.

However, the fundamentals of the Indian economy remain as strong as ever. According to a recent World Bank study, India has now displaced Japan as the world's third-largest economy. Studies also indicate that India will be the world's largest consumer market by 2030. Savings and investment rates are still over 30% of GDP, and foreign exchange reserves are in good shape.

To get back on track, our reform agenda needs to be reinvigorated, pursued, and followed through on. Through bold leadership, strong policy decisions, and effective implementation, we believe that India can return to its high growth trajectory.

What do you see as the primary challenges and opportunities for the new government in its first 6–12 months that will affect economic growth?

The new Indian government will have to recognize the impatience among today's youth to achieve a better, brighter future. Our young people are experiencing the fruits of globalization first hand. The fact that India now has 100 million Facebook accounts—more than that in the United States—is symbolic of this deep-seated change where young people are increasingly connected and yearning for good jobs, a decent livelihood, and a prosperous future. Thus, for the new government, creating well-paying jobs for India's youth will be the number-one priority, which will, in turn, require bold action to initiate, institute, and implement reforms.

At the same time, India's youth population is also a great source of innovation and dynamism in our economy. The trend towards entrepreneurship is a great example of this movement. Fostering a policy and economic ecosystem conducive to business start-ups could help create thousands of jobs in India. Much-needed education and skill development programs, if implemented well, can be the strongest fuel for India's economic engine.

What is on industry's wish list for engagement with the new government?

A strong economic revival package and effective implementation of policies by the new government could help create as many as 150 million jobs in the next ten years. CII's short term agenda for the new government includes measures such as the following:

- Introduction of a goods and services tax.
- Containment of subsidies and fiscal consolidation.
- Monetary easing through a reduction in the repo rate by 100 basis points.
- Maintenance of a competitive exchange rate.
- Fast-tracking stalled projects and increasing public capital investments.
- Timely implementation of the Delhi-Mumbai Industrial Corridor and national investment and manufacturing zones.
- Establishment of mechanisms to review and monitor projects at the state level.
- Formation of an inter-ministerial group to resolve issues in mining and raw material securitization.
- Creation of an institutional mechanism to renegotiate the terms of concession in public-private partnership (PPP) contracts to salvage stranded investments.
- Expansion of e-governance and technology-based initiatives.
- The use of time-bound approvals in cases of delays beyond the prescribed limit
- Restructuring of labour laws to introduce fixed-term employment for short-term assignments.

At CII, we believe that industry should take the lead in identifying problems and devising strategies for solutions. While certain policy and regulatory measures need to come from the government, CII has pledged to do its part in jumpstarting key sectors of the economy. Some of the priority areas in which we are moving full steam ahead include agriculture, education, manufacturing, services, skill development, higher education, labour laws, and

entrepreneurship. Our essential focus is to target avenues where Indian industry's interventions can support government initiatives and policies.

Washington has recently taken a number of steps that seem to indicate an interest in fostering dialogue with the incoming Indian government. Notably, the U.S. Trade Representative (USTR) announced in its Special 301 Report examining intellectual property (IP) protections that India remains on its priority watch list, rather than being downgraded, and that the USTR will conduct an out-of-cycle review in the fall to assess progress on IP concerns under the new government. What are some of the ways in which the United States might work with the Modi government on these issues? Are there opportunities for Indian stakeholders, particularly industry, to participate in the process?

CII is relieved that despite calls for a downgrade from certain organizations, the USTR did not designate India as a "priority foreign country." We commend this move as a sign of better understanding between the two countries and have strongly recommended that all outstanding issues, including differences on intellectual property rights (IPR), be resolved through dialogue and engagement. The United States and India must preserve the spirit of the bilateral strategic partnership that has been painstakingly forged over the years by both countries. India has taken many steps to strengthen its innovation enabling environment in keeping with its national priorities, including declaring 2010-20 as the "Decade of Innovation." India's patent laws are fully compatible with the WTO's requirements and we maintain that India has merely made use of the flexibilities accorded by the Doha Declaration. We recognize that it is in our interest to have an innovation enabling environment as Indian industry's innovation capabilities are also increasing.

CII has for many years made the promotion of IPR a key area of intervention for industry. We believe the only way to sensitize the market is through awareness and capacity-building programs. To support this endeavour, CII has collaborated with the U.S. Patent and Trademark Office and conducted over 40 workshops for industry in India that enable sharing of global best practices. These efforts have focused on IPR protection as well as enforcement. Supporting efforts of the government in promoting a culture of IPR recognition and respect, CII also worked with the Ministry of Micro, Small and Medium Enterprises in a flagship initiative. The initiative established Intellectual Property Facilitation Centres in three cities in India—Indore, Gandhinagar, and Mysore—with the objective of guiding small companies to understand, identify, and manage IPR for competitive advantage. The idea is to boost IPR culture in India through systematic awareness and training. Much more needs to be done to integrate this culture into corporate strategy and operations.

With the new political dispensation, we hope to see stronger collaboration between India and the United States on a range of issues, including on IPR. There is a real window of opportunity for companies on both sides to come together and engage proactively on this issue: a new set of leaders taking centre stage, a new sentiment among industry with the stock exchange touching record-breaking highs, new expectations of economic revival and international engagement, a new upcoming reform agenda, and a new budget are only a few of the things to look forward to. It is thus very opportune that the United States is the partner country for the

next edition of the India-U.S. Technology Summit that CII is organizing during November 18–19, 2014, in New Delhi, in collaboration with India's Department of Science and Technology. The summit will provide an opportunity for collaborative dialogue and concrete engagement between government and industry.

In addition to parliamentary elections, India also recently held elections in a number of key states. How might there be fresh opportunity to engage at the state and local levels to foster economic growth and development?

Today, the real action in India is at the state level. Many Indian states have been growing at a rapid pace, with states like Tamil Nadu, Maharashtra, Madhya Pradesh, and Gujarat leading the way. At the same time, states with low levels of development such as Orissa, Jharkhand, and Bihar have also been registering high levels of growth, which is a heartening development. At the end of the day, sound policies and good governance drive growth.

States that have created a reasonable and predictable business climate are seeing an inflow of investment from both domestic and foreign firms. There is also increasing competition among states for investment, which is another positive development. For instance, progressive states are now hosting their own international investment summits: Kerala held its inaugural summit

"Emerging Kerala" in 2012, and Madhya Pradesh organizes a biennial "Global Investors Summit" in Indore. CII partnered with a number of states in northern India that joined hands in promoting the "Invest North" conclave to showcase their advantages and opportunities.

Companies in India recognize these opportunities and have been engaging with state governments on a systematic basis. CII today has 64 offices across India, and we work with the state as well as central governments at every level to promote policies that can enable industry to invest and create jobs. Most states in India already recognize that growth is impossible without the active participation of industry; sustaining this dialogue and engagement is thus very critical for CII.

Do you have anything else to add?

Even while it may seem clichéd, the U.S.-India partnership is indeed a defining, indispensable, and important partnership for the 21st century. We are optimistic about rebuilding the recently strained relationship and refocusing on prospects for future collaboration. Greater engagement in technology, energy, and education holds tremendous promise for business and industry. For instance, technology transfer agreements and coproduction agreements in defence could spell the next frontier of cooperation at the corporate level or in public private partnerships. With India focused on modernizing its defence infrastructure, this is by no means a small opportunity. In energy, U.S. exports of shale gas could help India fulfill its energy requirements, where energy security and access remain critical issues. Industry involvement in curriculum development and building educational partnerships can be potent in strengthening the global talent pool and bridging the gap between education and employability.

It is also important to note that Indian industry is increasing its investments and creating thousands of jobs in the United States. They are setting up manufacturing facilities in the

United States, as Welspun Tubular has done in Little Rock, Arkansas; investing in R&D, as Dr. Reddy's Laboratories do in Shreveport, Louisiana; and providing IT training programs for veterans and people with disabilities, as Wipro does in Atlanta, Georgia—thereby adding value to the U.S. economy in myriad ways. The economic relationship is thus increasingly becoming a mutually beneficial, two-way street.

BUDGET FOR RURAL INDIA*

(*Source: NABARD)

This budget is largely aimed at rural India to make sound economic sense. There are lot of goodies for the rural sector analyses.

i. Kisan Vikas Patras: This is revived and should be used only for rural infrastructure possibly through RIDF being managed by NABARD for which Rs. 25, 000 crores has been allocated.

ii. Skill India: concentrates on training rural and urban youth in traditional skills which help the rurban housing industry and should be able to give a boost to the skills needed for the entire housing sector and a boost to rural employment.

iii. Pradhan Mantri Vikas Yojana: Rs. 1000 crore is expected to help irrigate rain-fed areas and in view of the possibilities of drought / rain-deficient year is a timely tool for enhancing rain water harvesting systems as was done in Gujarat. This amount must be boosted with area-specific donations.

iv. Swatantra Bharat Abhiyan: This provides for ensuing sanitation by 2019 and is meant for the rural areas and will help reduce diseases and contamination of water sources in rural areas. Sewage or rural treatment plants are needed along with toilets for all homes.

v. Deendhayal Upadhyay Gram Jyoti Yojana: Rs. 500 crore is needed to replicate the Gujarat model of rural electrification for all of rural India is a welcome scheme if linked to solar lamps/electrification projects and the renewable energy schemes. II KVA feeder lines for agricultural pump sets or solar energy pumps can reduce the number of inefficient diesel pump sets in rural India which is a sheer waste of resources.

vi. MGNREGA: Rs. 34, 000 crore is effective safety-net for the rural poor and is effectively oriented for asset creation and will be aiding agriculture and allied activities. This should give boost to the entire agriculture sector as 56% of farms are still rain-fed.

vii. National Rural Livelihood Mission (Ajeevika): Is extended to another 100 districts and will enable Women SHGs to get loans at 4% on prompt repayment. This is not a welcome step as it will destroy SHG sector which should not be subsided as SHGs principles are diluted. This should be directed towards creating micro-enterprises in rural areas and can be used as a risk mitigation fund for micro-enterprises started by women.

ix. Rural Housing Scheme: (by NHB) This gets an amount of Rs. 8000 crore for rural housing and generates employment for rural youth.

x. Water shed Development Programme (Neeranchanl Programme): This is launched with an outlay of Rs, 2412 crore. Most of the models used failed. The Wadi Scheme (Tribal

Development Fund) has been successful as has been the KFW model of watershed development, both by NABARD.

xi. The Backward Region Grant Fund: This is being launched in 272 backward districts (except Delhi and Goa) for building basic infrastructure in backward rural areas.

xii. National Rural Drinking Water Programme: Rs. 3600 crore is ensured for rural drinking water.

xiii. Education for rural girls: Providing free bicycles, lunches will attract more girls to schools.

AGRICULTURAL SECTOR

i. Research Activities: Research activities carried out by Agricultural Universities, IARI, ICAR etc. should be monitored.

ii. Creating 100 Mobile Soil testing labs: Farmers should be provided with soil health cards which are valid for one year. This will reduce use of fertilizers. Usage of organic manure should be encouraged.

iii. Rs. 8 lakh crore is set as **target for agriculture credit** which farmers can use for crop loans.

iv. Interest Rate: Interest rate is 4% and some states has subsidised it further.

v. Warehouse Infrastructure Fund: Rs. 5000 crore is allotted for building small warehouses in villages which could be used by the farmers to store in scientific basis and used to reduce wastage. Extra warehousing facilities should be provided to Orissa, MP, Assam, Chhattisgarh to avoid wastage while storing and could enable the farmers to sell at higher prices.

vi. Productivity Issues: With only 15 percent of credit going for agricultural going for asset creation in agricultural and allied activities, it is no wonder agricultural productivity remains poor as compared to China, Vietnam, Thailand, Costa Rica etc. Rs. 5000 crore which is provided for this project is inadequate.

vii. Rural Infrastructure: The National Highways Authority is provided with Rs. 37, 880 crores to build up better roads so as to reduce transport bottlenecks which hamper perishable farm produce. Railways and internal transport systems are being upgraded which are good for rural India.

viii. Solar Pump Sets: 1 lakh solar pumps should be installed and Rs. 400 crore has been earmarked for this as subsidies.

ix. Development of Agri-Biotechnology: The biotechnology clusters in Bengaluru and Faridabad are urgently needed to boost agricultural productivity using less land. As farm sizes becomes smaller due to sub-division of land and diversion of land for urbanisation and industrialisation.

RURAL DEVELOPMENT-ACHIEVEMENTS BY CSIR

- Swaraj – India first indigenours tractor to facilitate mechanised agriculture.

- Value addition through post-harvest technologies like essential oil/menthol production.
- Cheapest water purification technology including terracotta purification disc, portable arsenic detection kit, ultrapore membrane-based purifiers for removing virus and bacteria.
- Over 365 technologies passed on to the rural masses through publications, training sessions etc.
- Construction of around 30, 000 dwelling units cost-effective construction technologies.
- Different osmosis plant for desalination in Andaman & Nicobar islands, Gujarat, Rajasthan and Tamil Nadu.

It needs to be mentioned here that in a collaborative project jointly initiated by the Andhra Pradesh Government and Council of Scientific and Industrial Research in Karim Nagar, Central Food and Technological Research Institute, Mysore played a key role in establishing small-scale agro-based industries in that district for better livelihoods of the rural communities and promote the setting up and modification of existing rice mills units at Mulkanoor for better yields.

Rural Development is the main pillar of Nation's Development. Inspite of rapid urbanisation, a large section of our population still lives in the villages. Secondly, rural India has lagged behind in development because of many historical factors. Though, the 11th Plan began in very favourable circumstances with the economy having grown at the rate of 7.7 % per year in the Xth Plan period, there still exists a big challenge to correct the development imbalances and to accord due priority to development in rural areas. Ministry of Rural Development is implementing a number of programmes aimed at sustainable holistic development in rural areas. The thrust of these programmes is on all round economic and social transformation in rural areas, through a multi-pronged strategy, aiming to reach out to the most disadvantaged sections of the society.

RURAL DEVELOPMENT – REVIEW OF XTH FIVE YEAR PLAN

- The approved outlay for Xth Five Year Plan was Rs. 1, 41, 320 lakh. An expenditure incurred during the plan period was Rs. 30, 580.31 lakh in 2002-03, Rs. 33, 234 lakhs in 2003-04, Rs. 69, 610.07 lakhs in 2004-05 and Rs. 70, 299.70 lakhs in 2005-06.
- Approved outlay for Annual Plan 2006-07 for various schemes/programmes was Rs. 92, 070.39 lakh against which an expenditure of Rs. 1, 01, 168.63 lakhs is anticipated.
- Target of constructing 2.83 lakhs houses was fixed. Against this target, 3.10 lakh houses were constructed under Awas Yojana. During Xth Plan period 2.11 lakh families have been benefitted under Swarna Jayanti Gram Swarojgar Yojana. Out of this, 1.23 lakh beneficiaries i.e about 58% are from SC/ST category. Under Integrated Wasteland 89 Development programme, 82 projects were sanctioned for 3.93 lakh hectare of land. Out of this, 1.50 lakh hectares land was treated.
- During Plan Period, 1446 Micro Water Sheds were sanctioned and 4.28 lakh hectares land has been treated. In Sampoorna Grameen Rojgar Yojana, the GOI has allocated 17.28 lakh MT of food grains out of which 15.04 lakh MT food grains have been

utilized. 6.95 lakh works were sanctioned out of which 6.25 lakh were completed and 176.23 laky mandis were generated.

- Under PMGSY 13, 500 kms roads were completed. In Rashtriya Sam Vikas Yojana, 12, 504 works were sanctioned. Out of this, 11, 496 works were completed. Under DPIP, 41, 978 common interest groups of 2.84 lakh families were benefitted during the plan period. M.P. Rural Livelihood project is under implementation in 827 villages of 8 districts. Under this scheme 4, 000 families were benefitted during the Xth Plan Period.
- The state has been frontrunner in implementation of NREGS. Nearly 1500 lakh mandis have been generated under Madhya Pradesh Grameen Rojgar Guarantee Yojana.

TARGET AND STRATEGY OF THE XITH FIVE YEAR PLAN (2007-2012)

- Adequate provision has been made for the state share in continuing Centrally Sponsored Schems like Swarna Jayanti Gram Swarozgar Yojana (SAGSY), Indira Awas Yojana (IAY), Integrated Waste Land Development Programme (IWDP), Drought Prone Area Programme (DPAP), Mid-day Meal Scheme, DRDA Administration and National Rural Employment Guarantee Scheme (NREGS).
- Besides these, World Bank aided DPAP project is being implemented in 14 districts for the last 6 years. Support for this will continue under the second phase of the scheme in the XIth Plan. Similarly, M. P. Rural Livelihood Programme (MPRLP) is being implemented with the help of Department of International Development (DFID). Water and Land Management Institute (WALMI), DRDA Administration Yojana, Gokul Gram and and Godan Yojana and community development programme are proposed to be continued into the XIth Plan.
- Besides these, the State Government is supporting 5 new schemes namely, State Rural Road Connectivity Scheme, C.M. Rural Housing 90 Scheme, Master Plan Scheme, SGSY Scheme, Training IEC Scheme and Sutradhar Scheme.
- As a successor to Rashtriya Sum Vikas Yojana (RSVY), Backward Regional Grant Fund (BRGF) scheme will be implemented in 24 of the 48 districts.
- State of MP has been the frontrunner in implementation of this scheme. NREGS was launched in 18 districts of M.P. from 02.02.06. The central share of the scheme is 90%. The objective of the scheme is to provide a minimum of 100 days unskilled employment to adult members of rural families. 44.19 lakh families have registered, out of which 44.10 lakh families have been provided job cards.
- During the financial year, 1, 48, 229 works have been sanctioned up to 31.12.06, out of which 74, 185 works have been completed and 74, 044 works are in progress. Of the total sanctioned works, 1, 11, 327 works are of water conservation, while 22, 593 are of rural connectivity. In this scheme, a provision of Rs. 282.29 crores and Rs. 1998.82 crores has been provided for the annual plan 2007-08 and 2007-2012.
- The target mandis for the year 2007-08 is 2600 lakhs and for the XIth Five Year Plan, it is 17, 300 lakh mandis.

Table 1: XIth Plan allocation under various schemes/programmes

S. No.	Scheme/Programme	Proposed out lay XIth Five Year (2007-2012) (Lakh Rs.)
1.	SJGSY	29656.12
2.	SGRY	18016.64
3.	DPIP9SS (EAP) / EAPII Phase	23158.72
4	Rural roads	50000.00
5	Indira Avas Yojana	27766.71
6	IWDP	10598.56
7	DRDA	6012.36
8	DPAP	21294.84
9	Gramin Ajivika Pariyaojna	22480.00
10	National Rural Rojgar Gurantee Scheme	199881.85
11	MP Rojgar Gurantee Council	3800.00
12	Mid day meal	69.462.00
13	BRGF	225695.00
14	Community Development	29265.20
15	Walmi	1250.00
16	Raod maintenance	2030.00
17	State rural road Connectivity	8647.60
18	CM Awas Yojana (Apna Ghar)	6200.00
19	State SGSY	1800.00
20	Training	50.00
21	Master Plan	1363.00
22	Sutradhar scheme	50.00
23	Gokul Gram adhosanrachan	5000.00
24	Godan Yojana	1000.00
Grand Total		**7,64,478.50**

Source: Ministry of Rural Development

Table 2: Scheme-wise XIth Five Year Plan

Sl. No.	Scheme/Programme	Unit	Proposed target XIth Five Year (2007-2012)
1.	SJGSY	No. of beneficiaries in lakhs	4.52
2.	SGRY	Lakhs employment	900
3.	DPIP(SS with WB support)	No. of groups in lakhs	2.05
4	Rural roads (PMGSY)	Kms.	20000
5	Indira Avas Yojana	No. of houses in lakhs	4.44
6	Gramin Ajivika Pariyaojna	No. of household in lakhs	3.20
7	National Rural Rojgar Gurantee Scheme	Lakhs mandays	17300
8	Mid day meal	Students in lakhs	466.35

9	BRGF	No. of workers	20000
10	Raod maintenance	Kms.	20000
11	M.P. Rural Livelihood Project	No. of families	320000

Source: Ministry of Rural Development

NEW SCHEMES PROPSED UNDER THE XITH PLAN

Some new schemes viz., State Rural Road Connectivity, State Rural Housing, State SGSY, Training, Master Plan and Stradhar are proposed for XIth Five Year Plan period. The provision made under new schemes for 2007-12 is Rs. 18, 110.60 lakhs and for 2007-08 is Rs. 6, 720.00 lakhs. Scheme-wise activities have been described briefly as follows:

- State Rural Connectivity: Under PMGSY, the construction of all weather roads is not permitted if the villages are less than 500 meter away from the main route/road. Such left out roads and bridges will be covered and connected under the scheme with state support. During annual plan 2007-08, a provision of Rs. 25 crores has been made to construct such missing links.
- MUKHYA MANTRI AWAS YOJANA: Inspite of the scheme being under Bharat Nirman, as against nearly 38 lakh houseless families in the state, annual allocation under Indira Awas Yojana is only about 46, 000. At this rate, it will take about nine decades to fulfil the existing need. The State Government has decided to flag off the Chief Minister Rural Housing Scheme. The main objectives of the scheme is to provide housing to the houseless SC/ST families. During annual plan 2007-08, a provision of Rs. 32 crores has been provided for constructing 12, 800 houses.
- STATE SGSY: To strengthen the SHG movement, it has been decided to constitute SHG Federations on the basis of activity and the geographical location. Rs. 5 crores and Rs. 18 crores haven been proposed for Annual Plan 2007-08 and XIth Five Year Plan 2007-12 respectively.
- TRAINING IEC SCHEME: A New Scheme will be initiated from 2007-08 for the training on project implementation and its monitoring. For this scheme, during 2007-08, Rs. 0.1 crore is proposed.
- WORKING PLAN FOR WATER STORAGE: It is a plan on the basis of a survey of the catchment areas and flow of water direction. On the basis of watershed specificities, identification and cost estimation of the probable water harvesting structures is done. On the basis of this study, the master plans have been prepared for all the districts of the State. On the basis of the master plan, works of nature of pond deepening and renovation, check dam construction and other watershed activity will be taken up in a planned and systematic manner in 14 districts not covered by NREGS and BRGF. For the implementation of works, according to the Master Plan, an outlay of Rs. 5 crores is proposed for the 2007-08.
- SUTRADHAR YOJANA: The establishment of the kiosks has been planned to facilitate access in rural areas to electronic communication and information and government schemes and programmes. These kiosks will facilitate provisioning of up to date information about Centre/State Government organisations and schemes. For this scheme, Rs. 0.1 crore is proposed for the annual plan 2007-08. An outlay of Rs. 7, 17,

783.60 lakh for the XIth Five Year Plan is proposed. Out of this, Rs. 18, 110.60 lakh is proposed under new state schemes. An outlay of Rs. 1, 29, 196.60 lakh is proposed for Annual Plan 2007-08, 0f which Rs. 6720.00 lakh has been allocated for new schemes.

NON-FARM OCCUPATION IN RURAL INDIA

Table 1: Non-Agricultural establishments and employment in rural India in 1998 and 2005

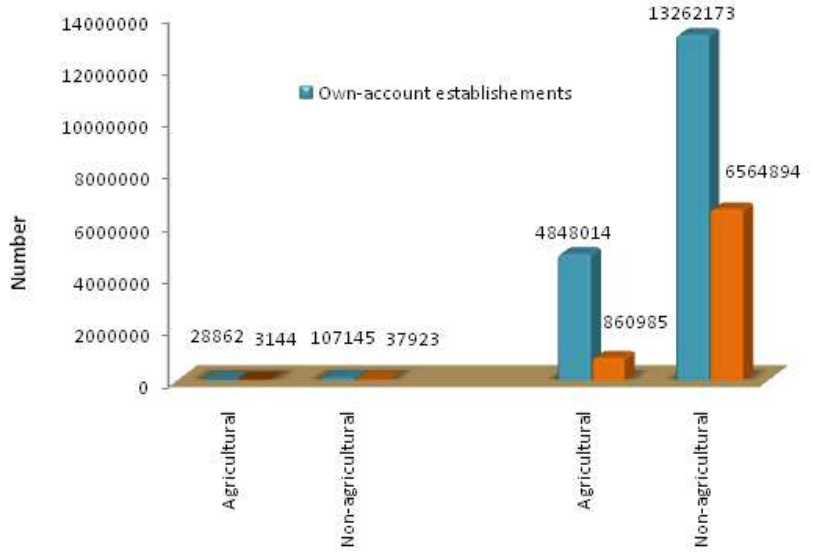
Own account establishments				Establishments with hired workers				
No. of establishments	Employment			No. of establishments	Employment			
	Total	Female	Child		Total	Hired	Female	Child
Economic Census 1998								
107145	158121	30112	6002	37923	179557	156085	38522	4707
	(1.5)	(19.0)	(3.8)		(4.7)	(86.9)	(21.5)	(2.6)
Economic Census 2005								
13262173	17302128	3216655	326967	6564894	24592025	21122316	5981652	700709
	(1.3)	(18.6)	(1.9)		(3.8)	(85.9)	(24.3)	(2.9)

Note: Figures are in absolute number. Figures in single and double brackets indicate average number of persons per establishment and percentage of female/hired worker to total employment respectively.

Source: Economic Census All-India Report (2005), Govt. of India, Ministry of Statistics and Programme Implementation.

Figure 1: Distribution of enterprises in rural India during 1998 and 2005

Source: Economic Census All-India Report (2005), Govt. of India, Ministry of Statistics and Programme Implementation.



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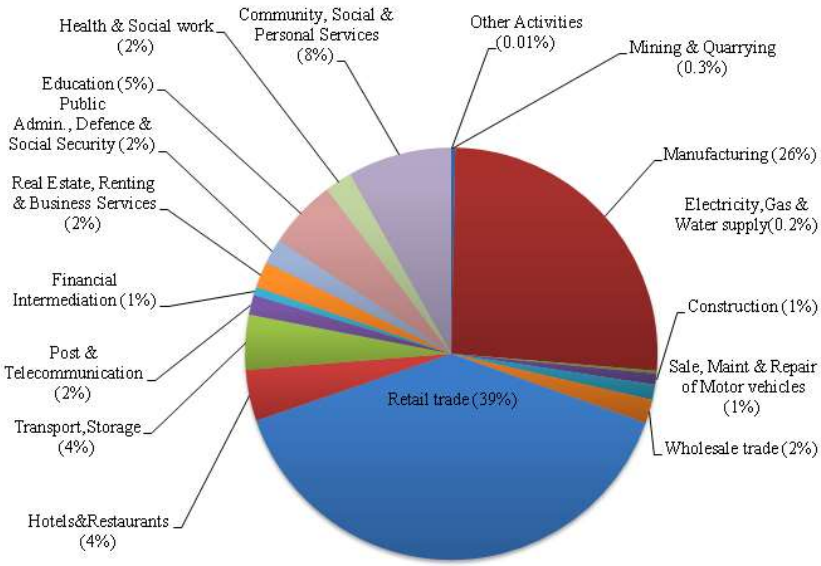

Figure 2: Distribution of non-agricultural establishments in rural India during 2005

Source: Economic Census All-India Report (2005), Govt. of India, Ministry of Statistics and Programme Implementation.

CONCLUSIONS

Efforts are needed to identify appropriate and effective institutional vehicles for development of non-farm sector policy and interventions for creating employment opportunities. Many strategies and programmes to promote RNFE have been formulated in various countries. China's labour-intensive township and village enterprises (TVEs), for example, often described as the "engine of growth" behind that country's remarkable growth during the past decades represents the vanguard in China's new capitalism. The TVEs are hybrid institutions generally usual alliances between TVE entrepreneurs and local government officials (acting in the capacity of "owners" of TVE enterprises). In this regard, the role of government is crucial, especially in the provision of necessary infrastructure and other support services in the country. It is also vital to improve the marketing links between the village entrepreneurs and the larger business firms located in the towns/cities. Such strategic alliances or partnerships can contribute to the sustainability of small village and tiny enterprises in the rural areas. Other important considerations that need to be focused on may include human resource development, financial/credit facilities, research and development and women's participation with a view to making the activities self-sustaining in the changing competitive environment.

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Stylized patterns of implied volatility in India: a case study of Currency Options

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ABSTRACT

The aim of this study is to examine the "volatility smile", implied volatility and term structure of European foreign exchange options/currency options in USDINR. The implied volatility over strike price, time-to-expiration and moneyness has a stochastic character. Hence it violates the critical assumption of the Black–Scholes option pricing model which would be proved in this research work. This research is an extension of a previous work in the options market but the fact that currency option market is relatively young in Indian scenario and some latest series of changes in the Indian currency options market makes the research work significant. Time-to-maturity, moneyness and liquidity of the strikes are the main determinants of implied volatility. Hence the research is carried out by representing estimates of implied volatility by simple Ordinary Least Squares (OLS) operations over the historical data of these three main traits. The historical data for options provides proof of the presence of a classical U-shaped volatility smile for the currency options/FX options in Indian scenario. It also showed evidence that the "volatility smile", which pertains to 30-day options, does exist and also that implied volatility is comparatively much higher for the shorter maturity options and it decreases as the time-to-expiration increases. The results lead us to believe that in-the-money calls and out-of-the-money puts are of higher volatility than at-the-money options. The firm presence of volatility smile help us formulate many other conclusions. Studying the stylized patterns of implied volatility would help the volatility traders understand about the pricing of in-the-money and out-of-the-money options in the market, and provide an estimate of volatility for the pricing of future options.

Keywords: *Moneyness, Term-structure, Time-to-expiration, Implied volatility, Volatility smile, Volatility surface, Skew.*

1. Introduction

Implied volatility, in the options market, has been observed to vary with differing strikes and time-to-expiration values, which violates the core assumption of the Black–Scholes (BS) option pricing model of constant underlying volatility. In the BS model, the value of European options on foreign exchange is typically calculated by assuming that the interest rate follows a log-normal process. In 1983, Garman and Kohl Hagen extended the BS model to cope with the presence of two interest rates for both the currencies traded on the foreign exchange. Hence, to proceed with calculating the implied volatility, the BS model is inverted numerically in such a way that implied volatility becomes equal to the market price and the observed option price is taken into account. In the process, due to the stochastic nature of the implied volatility, a series of stylized patterns of implied volatility have emerged, such as the "volatility smile", term-structure and volatility surfaces. The implied volatility varies according to time-to-expiration and strikes. Hence, a popular volatility smile or smirk curve is observed when the implied volatilities are plotted against various strikes or degrees of moneyness. Similarly, term structure of implied

volatility is obtained by plotting implied that volatility against time-to-maturity. The volatility smile observed in the market indicates that deep-in-the-money and deep-out-of-the-money options are priced higher than the fair price derived from the BS option pricing model; the persistence of a volatility smile is common in the currency options market.

There is a significant amount of work (Chandra, 2012; Dash and Mahakud, 2012; Kumar and Pandey,2013;Shaikh and Padhi,2013,2014)that deals with the market efficiency, stock returns and capital flow, investor sentiment and the information content of option prices but not much work has been done so far in the study of stylized patterns of implied volatility of currency options in the Indian derivatives market. This is an attempt to fill extend the research done in case of NSE Nifty options by Shaikh and Padhi (2014).

Several factors has motivated us to carry out this work. Previous studies in this regard were based on less liquid equity options market trading and smaller database while this study is done on foreign exchange options, which is the deepest, largest and the most liquid markets for any kind of options, and with recent data with larger data points (data for the year 20013-14 with 23120 observations).Also foreign exchange trading accounts for about 70% of the total equity, debt and cash trading in India which makes this study even more important. The study provides evidence of the existence of the volatility smile in the Indian market of options, as it prevails in the European and the American markets.

The study aims to present the stylized patterns of implied volatility based on the currency options traded on foreign exchange in Indian scenario. The study demonstrates the stylized nature of implied volatility across both moneyness level and time-to-expiration, based on the call and put options data. Earlier studies have explored the pricing capabilities and anomalies in the BS pricing model in currency options. Even then, the pricing of foreign exchange optionsbased on the Black and Scholes (1973) model has become the most celebrated currency options pricing model among trading practitioners and academics. The violation of the constant volatility and log-normality assumption has given rise to the volatility smile/smirk/skew in options market for derivatives all worldover which led us to enquire if it exists in the currency options in the foreign exchange.

Research works in the past (Petko S. Kalev,2013; Adrain,2013;Stephen Feigwleski,2003;) worked on the intra-daily data of currency options on foreign exchange to calculate the implied volatility and to establish its term structure and its relationship with moneyness and time-to-expiration. Their study also indicated that implementing volatility smile in the pricing model improved the accuracy of the predictions. These researches also showed that higher the level of one currency in the currency option and the stronger its uptrend, the more positive is its skew; and the higher the level of the other currency and the stronger its recent uptrend, the more positive is its skew.

Past attempts have been made to indicate a persisted volatility smile in the equity options market (MacBeth and Merville, 1979; Lauterbach and Schultz, 1990; Tompkins, 2001) due to an inverse relationship between implied volatility and the degree of moneyness. This study is also an attempt in this direction of establishing the inverse relationship in the currency options segment. The volatility smile or skew occurs in the options market due to leverage effects, a causal relationship between stocks and other facts, wealth effects, crashophobia and the existence of a

risk premium(Rubinstein, 1998 and London,2005). Similarly, in the currency options market, it can be speculated that the volatility smile occurs due to market expect trend and hedging, and higher demand of IV by the sellers.

Thestylizedpatternsofimpliedvolatilityasthefunctionofdegreeofmoneynessand time-to-expiration emerged as the "smile" or/and the "sneer". The study for the persistency of the smile for the exchange traded options (OEX)options market started a long time ago, beforethemajorstockmarketcrashof1987. But since currency options in India were introduced in the late 2010, not much effort has been made in the pricing patterns and volatility in the Indian scenario.

Stylized patterns of implied volatility are the outcome of the violation of the core assumption of the constant volatility of underlying stock (Peña et al., 2001; Lim et al., 2002; Engström, 2002; Duque and Paxson, 1994; and Duque and Lopes, 2003).

The popular stylized patterns referred to as the volatility smile/skew, the smirk/sneer, the "wry grin" or "reverse grin", "term-structure" and "volatility surfaces of implied volatility" have been identified empirically on the counterpart of the stochastic nature of implied volatility. The important determinants of implied volatility are strike price, the degree of moneyness, time-to-expiration and, moreover, options liquidity and pay-off.

This study aims to deal with the stylized patterns of implied volatility based on various determinants for the NSE currency options traded on the foreign exchange from January 2013 to December2014. The study uses a simple ordinary least squares (OLS) regression model to analyze the determinants of impliedvolatility such as the degree of moneyness, time-to-expiration, liquidity and pay-offs. The observations showed in this research work indicate the persistency of the smile curve and the presence of smirks or sneers for the time-to-expiration cycle. The main findings of the study show that deep-in-the-money and deep-out-of-the-money options have higher implied volatilities than at-the-money options. The practical implication of the study is that it can help volatility traders to price in-the-money and out-of-the-money options across the time-to-expiration.

2. Data sources and description

The trading in currency options on National Stock Exchange (NSE) of India began from October 2010. The options traded are of the USDINR type. A currency option is basically a contract that grants the holder the right, but not the obligation, to buy or sell currency at a specified exchange rate during a specified period of time. For this right, a premium is paid to the broker, which will vary depending on the number of contracts purchased. The instrument type is referred to as an OPTCUR USDINR and can be of both Call European (CE) and Put European (PE) type. We analyzed 3 different period type options, one monthly, two monthly and three monthly, or in other words, options traded in near months, middle months and far months. Hence, at any particular point in time at least three-year tenure options contracts are available. The options expire in the last week of the month on a Thursday. Consequently, new strikes on call and put are introduced followed by near-month contracts. The strikes price intervals are of 50-and100-point bases.National Securities Clearing Corporation Limited (NSCCL) is the clearing and settlement

agency for all deals executed on the Currency Derivatives segment including currency options. Bid – ask spread is around 0.0025 INR.

The theoretical prices of options are determined using the BS model, in which the risk-free interest rate is Mumbai Inter Bank Offered Rate (MIBOR). Currency options trades at the National Stock Exchange of India is ranked first among exchanges across the world in terms of volume traded and number of trades, and third in terms of traded value (WFE, 2011). The currency options contract data has been downloaded from the NSE Website for the period startingonJanuary1, 2013 and ending on December 31, 2014. The database consists of the dates of the introduction of options, their expiration dates, strike prices, options prices (closing value), contracts and spot prices. At the outset, we have 75,131 call options and an equal number of put options (i.e. total options =75,131 + 75,131 = 150,262) for all types of contract. In total, for the current study, after preprocessing and filtering, we have 11,940 call options and 11,180 of put options (i.e. total options = 11,940 + 11,180 = 23,120) for all types of contract including contract options with a tenure of one, two, three months and half yearly. We filtered the options with zero contracts and deleted them from the dataset. The implied volatility has been estimated for these actively traded options using the BS options pricing model. In particular, we reduced the total number of options that exhibited a very small (undefined) implied volatility. The study takes into account the larger size of the dataset compared to previous work on the Indian currency options scenario. The sample period consists of two years with 23,120 data points, which is a sufficient enough statistical criterion base to generate reliable results.

3. Empirical model

Our first step was to analyze the stylized patterns of implied volatility as the function of strike price, moneyness, time-to-maturity, and activeness of options (liquidity). Thestudyidentifiestheimportantdeterminantsofimpliedvolatilitybasedonprevious empirical work in the options market and to understand its similarity in case of the currency options traded on the foreign exchange. Symbolically (TableI and II):

$$\sigma_{impt} = f(K_t, MNS_t, T_t^{exp}, D_t^{OpType}, MNS_t T_t^{(T-t)}, CON_t, D_t^{pay\_off})$$

$$\sigma_{impt} = \delta_0 + \delta^{MNS} MNS_t + \delta^{(T-t)} T_t^{(t-1)} + + \delta^{OpType} D_t^{Optype} + \delta^{MNS.(T-t)} MNS_t^{(t-1)} * T_t^{(T-t)} \quad (1)$$

$$+ \delta^{CON} CON_t + \delta^{pay\text{-}off} D_t^{pay\text{-}off} + AR(p) + \varepsilon_t$$

3.1. Summary statistics

Thissectionsummarizesthestylizedpatternsofimpliedvolatilityduetodeterminants such as degree of moneyness, time-to-expiration and the liquidity of options, and it uncoversthestylizedpatternsofimpliedvolatilitysuchasthevolatilitysmileorskew, term-structure and volatility surfaces for the OPTCUR USDINR type currency options. Table III summarizes the descriptive statistics of implied volatility, presented in three different panels according to moneyness, time-to-expiration and contracts.

Table I. Variable description

Variables	Description
$K_{t=}$	denotes the strike or exercise price at time t with various time-to-expiration.K represents the strike price of a given underlying, and implied volatility varies according to strike price.

	The degree of moneyness is defined interms of K
MNS_t =	is the level of degree of moneyness, measured as: $MNS_t = (S_t - K_t)/K_t$
$T_t^{(T-t)}$ =	is the time-to-expiration or day-to-maturity at time t from the date of introduction of strikes. The implied volatility has been approximated based on the life of the option (i.e. from the day of its introduction). The implied volatility varies as time-to-expiration decreases (i.e. expiration of one month, near-month, far-month, long-term contracts and so on). Hence, the implied volatility is obtained for each observed option price based on the exact day of calculation (i.e. the trading day)
D_t^{OpType} =	is the dummy variable, which assumes 1 if the options type is call, otherwise 0 is assumed
$MNS_tT_t^{(T-t)}$ =	is the interaction variable consisting of the degree of moneyness and time-to-expiration. This variable captures the joint effects of moneyness and the life of options. The main rationale for adding an interaction variable is to determine one of the stylized patterns of implied volatility known as "volatility surfaces". The reason is that implied volatility varies according to moneyness and time-to-expiration, and produces the volatility surfaces, also known as three-dimensional volatility surfaces
$D_t^{pay\_off}$ =	is the dummy variable for pay-off on the call and put options experienced at time t, $D_t^{pay\text{-}off}$ =1(0), S-K > 0, in-the-money call (out-of-the-money put) = 0(1), S-K< 0, out-of-the-money call (in-the-money put)
CON_t =	is the variable showing the number of contracts available at time t, with strikes K_t and with different maturities. The present study attempts to explain how implied volatility behaves for high liquid strikes and less liquid strikes. Consequently, we consider the number of contracts for each call and put strikes as one proxy for liquidity
AR(p) =	is an autoregressive term introduced to resolve the problem of autocorrelation
ε_t =	is the classical white noise error term and is normally distributed with mean zero and variance one
δ_0	is the intercept term that captures the impact of other determinants of implied volatility
σ_{impt} =	is the implied volatility calculated at time t, here: σ_{impt} = (K, S, T, C, P, r). In our regression model, σ_{impt} is the dependent variable, which is the function of various factors such as: time-to-expiration, degree of moneyness, number of contracts, etc. We invert the BS options pricing model to approximate implied volatility using the method of bisection. In our empirical model, the dependent variable is implied volatility, and this is the volatility when an input in the BS model gives the market price of an option. The implied volatility for all observed prices of options appears to be positive and ranges between 5 and 500 percent. In our OLS model, the potential determinants of implied volatility (as regressor) can assume any (negative/positive) sign, because equation (1) is a mean equation (not a variance equation).

Table II. Empirical interpretation of estimates

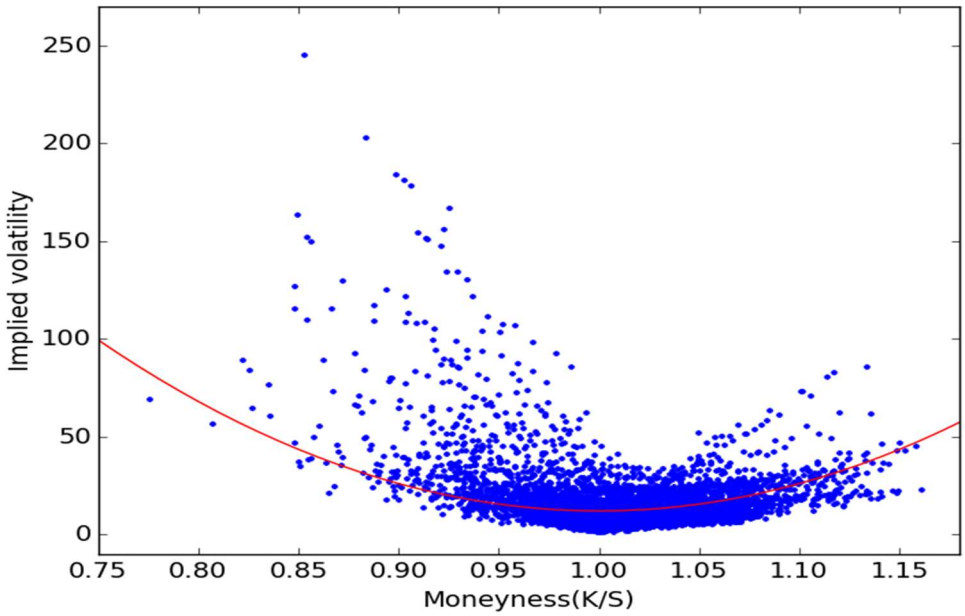
Slopes/ estimates	Slope sign and Interpretations	
	+ ve	- ve
δ^{MNS}	This slope measures the impact degree of moneyness on the implied volatility, and provides empirical evidence for the persistence of the volatility smile or/and skew. Moneyness can be defined as either K/S or S/K, and there is interpretation accordingly for in-the-money call and put options (out-of-the-money).	
	The negative significant slope indicates the difference between (S-K) is smaller; the resulting implied volatility remains higher	The positive significant slope signifies that deep-in-the-money and deep-out-of-the-money options have higher impliedvolatility than the at-the-money option
$\delta^{(T-t)}$	This slope measures the term-structure of implied volatility as a function of time-to-expiration	
	The negative significant slope explains that for short maturities options contracts (say one-, two, three-months), the implied volatility appeared to be higher	The positive significant slope shows that for longer maturities options contracts (say semi-annual or annual) volatility remains somewhat higher and constant
δ^{OpType}	This slope measures the impact of the type of option on the implied volatility level at one particular point in time	

	The negative significant slope implies that put options yield higher volatility than call options	The positive significant slope reveals that for the same strike and time-toexpiration, the call option gives higher volatility than the put option
$\delta^{MNS * (T-t)}$	Shows the combined impact of time-to-expiration and degree of moneyness. This slope provides some insight into the pattern of implied volatility surfaces	
	The negative significant slope clarifies that the options with shorter maturities and same degree of moneyness result in higher volatility	The positive significant slope signifies that the options with longer maturities and same degree of moneyness result in lower volatility
δ^{CON}	This slope measures the level of implied volatility based on the liquidity of the options contract at a particular point of time	
	The negative significant slope suggests that implied volatility appears to be higher for the less liquid options and lower for the highly liquid options	The positive significant slope indicates implied volatility will be lower for the less liquid options and higher for the highly liquid options
$\delta^{pay-off}$	This measures the magnitude of degree of moneyness of call and put options on the resulting implied volatility	
.	The negative significant slope indicates that in-the-money call options yield higher volatility than out-of-the-money call options	The positive significant slope shows that out-of-the-money put options yield lower volatility than the in-the-money put options

To start off with the average implied volatility across the moneyness, time-to-expiration and options contracts, we came across the fact that the implied volatility is reasonably variable according to the degree of moneyness and time-to-expiration. This is a complete contradiction of the fundamental assumption of the BS model, which assumes constant volatility across different strikes and time-to-expiration. More particularly, we can conclude that the persistence of either smile or skew is the outcome of the stochastic nature of implied volatility. It is seen clearly (Table I) that implied volatility for deep-in-the-money and deep-out-of-the-money options is higher than the at-the-money options. These kinds of statistical properties of implied volatility draw the volatility smile or skew curve as it is noticed in Figures 1-2. Figure 1 represents the volatility smile curve for the entire data point set, while Figure 2 plots the smile curve for one-month, near-month and far-month currency options, and does so separately for call and put options. These figures definitely indicate that, like Nifty options, currency options possess volatility smiles too, but the smile curve varies according to time-to-expiration. The volatility smile is more pronounced in the one- and near-month options, while the smile fades away as time-to-expiration approaches the longer term. The non-appearance of smiles for the longer-term options is known as the "volatility smirk" or/and "volatility sneer". In particular,the persistence of the volatility smile explains that the deepest-in-the-money call (K/S <0.90, deepest-out-of-the-money put) and deepest-out-of-the-money put (K/S >1.20, 1.10-1.20, deepest-in-the-money call) assumes higher volatility than the at-the-money options (0.98-1.02). The standard deviation of various degrees of moneyness also supports the volatility smile pattern. Panel B addresses another determinant of implied volatility. For short maturity options, implied volatility remains higher than those that mature after longer intervals. One can observe the average implied volatility for one month (≤30 days) is higher than their counterparts of 31-60 and 61-90. The graph that results from the plotting of the implied volatility as a function of time-to-expiration is called the term-structure of implied volatility (Figure 3). Figure 3 clearly explains that on one particular date (spot market), implied volatility assumes its highest value and keeps on falling as the time-to-expiration increases. The standard deviation of the near-month options contract is quite high (3.96) when compared with two-month and far-month. The third determinant of implied volatility is the observed trading volume in the options market. Generally, it is believed that strikes with higher trading volume (more contracts) yield moderate volatility. The average

implied volatility across the various ranges of contracts does not vary so significantly. The average implied volatility for options contracts 1-5,000 appears to be 13.286 per cent, while it slightly decreases with the increase in the contracts.

Figure 1. *Volatility smile (whole data points)*



The average implied volatility across different degrees of moneyness and time-to-expiration is represented in table IV. The most important observation to make from this table is to identify the patterns of implied volatility surfaces. The plot of implied volatility against the degree of moneyness and time-to-expiration yield is a three-dimensional graph that represents the implied volatility surfaces (Figure 4). The average implied volatility for deep-in-the-money and deep-out-of-the-money options contracts appears to be higher for short maturity options, but it decreases for the longer-term options. These kinds of characteristics are mainly attributable to the implied volatility surfaces (Figure5).

Table III: Summary Statistics

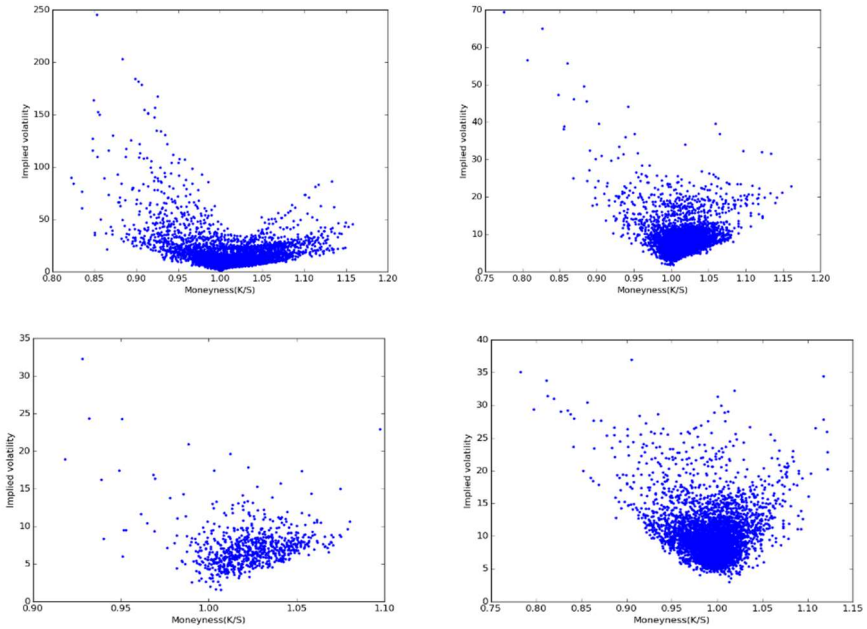
	Implied volatility and moneyness (K/S)				
Statistics	<0.90	*0.90-0.98*	*0.98-1.02*	*1.02-1.10*	*>1.10*
Panel A: Moneyness					
Mean	47.30	17.12	9.35	12.35	31.45
Maximum	245.13	181.43	85.71	81.33	116.47
Minimum	12.82	4.51	1.09	3.26	12.16
SD	35.98	14.32	4.84	7.26	16.73
Numbers	185	4528	11565	6689	153

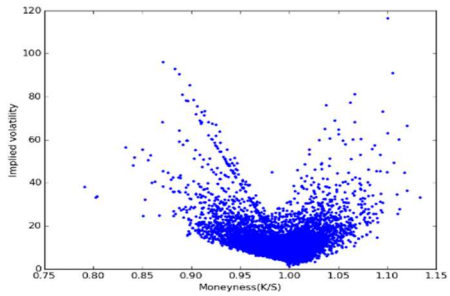
Implied volatility and Time-to-maturity

Statistics	<30	*31-60*	*61-90*	*91-180*
Panel B: Time-to-maturity				
Mean	13.66	9.35	8.11	7.38
Maximum	245.13	55.62	32.30	23.92
Minimum	1.09	1.61	1.53	1.98
SD	11.60	3.97	3.40	3.40
Numbers	15611	6327	878	304

	Implied volatility and Number of contracts						
Statistics	1-5,000	*5,000-10,000*	*10,000-15,000*	*15,000-20,000*	*20,000-50,000*	*50,000-100,000*	*>100,000*
Panel C: Liquidity							
Mean	13.29	11.16	10.51	9.81	9.73	9.04	8.91
Maximum	245.13	178.26	151.62	73.41	66.08	59.02	30.73
Minimum	1.53	1.39	1.90	1.93	1.16	1.30	1.09
SD	11.29	8.23	7.47	5.49	5.29	4.59	3.48
Numbers	15349	1899	1108	735	2229	1057	743

Figure 2. *Volatility smile (one-, two and three-month contracts) for call and put options*





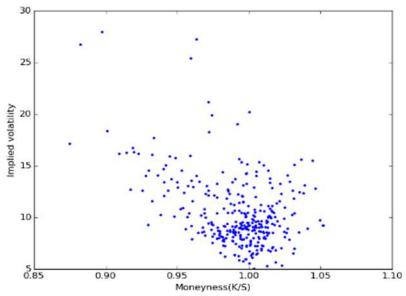
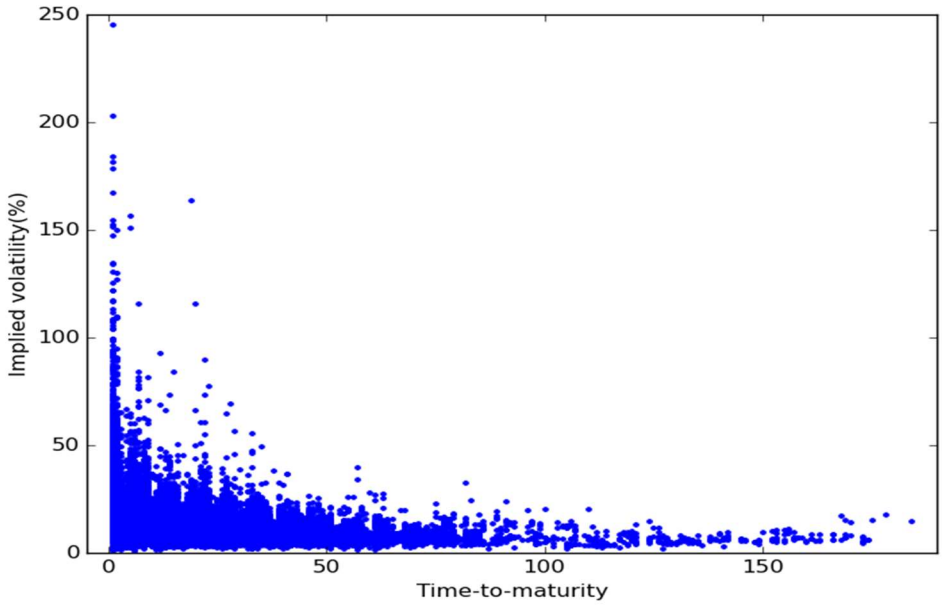


Table IV: Average implied volatility

	Time-to-maturity				
Moneyness	< =30	31-60	61-90	91-180	Total
<0.90	50.92403	25.28763	21.92687988	22.1378905789*	185
0.90-0.98	18.63337	11.79312	12.99108461	12.63809204	4528
0.98-1.02	9.906289	8.466191	7.394179738	6.854846913	11565
1.02-1.10	14.20584	9.517346	7.707460659	6.164318178	6689
>1.10	33.45746	21.18088	18.12457843*	17.8964022341*	153
Total	15611	6327	878	304	23120

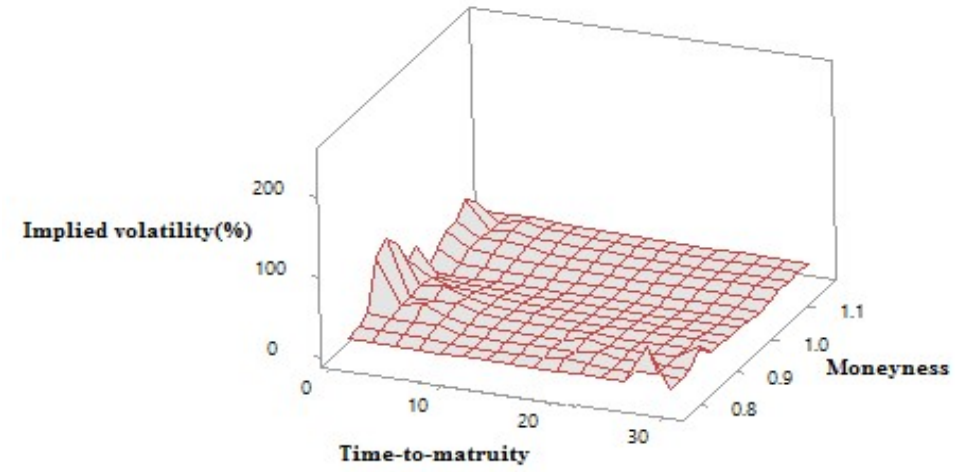
**Approximated values due to lack of data*

Figure 3. *Term structure of Implied volatility*



4. Empirical results and discussion

Here we will discuss how various determinants affected the implied volatility through empirical analysis. The regression equation (1), mentioned in the data sources and description section, has been estimated and its variants are reported in Tables V-VII. The estimation output for equation (1) has been reported according to degree of moneyness, time-to-expiration and options liquidity. OLS regression of equation (1) by taking into account the type of option and overall regression is reported in Table V. Tables VI and VII have been reported to obtain robust results on the determinants of implied volatility. In addition, the standard errors calculated for each coefficient are consistent with heteroscedasticity and the auto correlation of Newey and West. The adjusted $R^2$and Durbin-Watson(DW)-stat has been reported for each class of regressions. The minimum value of adjusted R2 was recorded as 0.022 (for contract numbers 50,000-100,000) and the highest was 0.24 (for contracts numbered 1-5,000). Although, the Durbin-Watson test statistic values did indicate slight positive auto-correlation for the call and put options analysis, but its value for the analysis based on number of contracts showed no serious auto-correlation. Moreover, the F-stat appears to be highly statistically significant for each OLS regression



4.1. Determinants of implied volatility

The primary objective of this study is to analyze the persistence of the volatility smile or/and skew in the currency options segment of foreign exchange in Indian scenario. This estimation is a proof of that persistence. The study proved to be accurate because of the rich options data available with different spans of time-to-expiration and high liquidity of options contracts. The observed value of degree of moneyness (δMNS) estimate for the whole sample is 123.78(positive, t-stat= 46.62,significantat1percentlevel).The positive significant slope implies persistency of the volatility smile. This can be the initial empirical evidence concerning the asymmetric relationship between degree of moneyness and implied volatility. The outcomes are consistent with the notion discussed earlier that deep-in-the-money and deep-out-of-the-money options have higher implied volatility than the at-the-money options. The results are quite similar to outcomes of implied volatility analysis in the exchange traded options in India. The slope coefficient of moneyness variable (δMNS) for at-the-money options appears tobesmallerthanthedeep-in-the-moneyanddeep-out-of-the-money options. It is apparent from the

results that implied volatility varies across the strikes, which violates the BS options pricing model. Due to the violation of these assumptions , the volatility smile (Figures1-2) persists in the currency options segment, just as it was observed to doing the NSE listed equity options in the literature mentioned earlier. The presence of a smile/skew is an indication of the mispricing of the options (Verma, 2002) and of the violation of the put–call parity theorem, which allows possible arbitrage opportunities to the arbitragers.

The implied volatility, as the function of time-to-expiration, yields the term-structure of implied volatility. The empirical work presented earlier shows negative correlations between implied volatility and time-to-expiration. Table V reports that the slope of time-to-expiration as -0.16 which is significant at the 1 per cent level. The analysis based on the time-to-expiration classification shows negative correlation for one-month and two month contracts, while positive, near zero, slopes for far-months and half yearly class. This implies that the shorter the time-to-expiration is, the higher will be the implied volatility and the longer the time-to-expiration is, the lower is the implied volatility (Figure 4)..

After all the analysis and deductions, we can quote that the stylized patterns of implied volatility occur in the currency option segment too like it does in the equity options market. And that too happens because of the effects forced by the determinants such as degree of moneyness, time-to-expiration, liquidity, type of options and pay-off. The Indian currency options segment produces the volatility smile, and there is also a persistence of term-structure of implied volatility and volatility surfaces. The presence of the volatility smile indicates that the pricing of options with stochastic volatility, and, moreover, the implied volatility of in-the-money options and out-of-the-money options is higher than that for at-the-money options.

5. Summary and Conclusion

The objective behind carrying out this study was to determine whether stylized patterns of implied volatility exist in the currency options segment in the Indian scenario, like it does in the exchange traded options. For this, OPTCUR type USDINR options data for the period January 2013 to December 2014 was taken from the NSE database and analyzed.

The potential determinants of implied volatility are: degree of moneyness, time-to-expiration and the liquidity of strikes. The empirical work has been expressed in a simple OLS framework and presents the estimation results according to moneyness, time-to-expiration and liquidity of options. Firm evidence was discovered from the analysis for the persistency of the volatility smile or/and skew in the Indian currency option segment. Looking at the initial evidence, the volatility smile is more pronounced for the near-month contracts, and a sneer/skew is attributable to the longer-term contracts. Based on the empirical findings, one can say that in-the-money and out-of-the-money options produce higher implied volatility than do at-the-money options. The practical implication to be taken from this study could be the fact which was uncovered that volatility traders demand more options with short maturity, their continuous buying behavior results in high pressure on the underlying and allows more premiums to be charged on call and put options. Hence, the resulting volatility parameter of the BS model yields a high value of implied volatility for the short maturity options contracts. An advantage of studying implied volatility for currency option segment is that it informs about how in-the-money and out-of-the-money options are priced in the foreign exchange, and provides an estimate of volatility for the pricing of future options.

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Industry 4.0 - a fourth industrial revolution: An Overview of Literature

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ABSTRACT

In the studies of project management, one of the main reasons authors found out for IT projects failures was the complexity of the scope of the project. Based on the literature survey it was observed that Project manager needs to understand the latest trends in technology changes. One such critical technology change is IoT (internet of things) and correspondingly a new Industrial revolution is coming up – Industry 4.0- which going to change the way companies are doing manufacturing and inherent impact on IT and IT projects

There has been a sea change in the way today companies are manufacturing goods. These processes have changed significantly since the early days of the steam engine and Henry Ford's assembly line. After Ford's mechanization and the first digitalization of industrial productions in the 1970s, currently a fourth industrial revolution (commonly referred to as Industry 4.0) is taking place. Industry 4.0 propagates a vision where recent developments in information technology are expected to enable entirely new forms of cooperative engineering and manufacturing.

This paper is an attempt to explore this aspect of technology.

Keywords—Project Management, Challenges in project Management, Internet of things (IoT), Industry 4.0

I. INTRODUCTION

In Industries many projects are undertaken for execution for a specific purpose. CHAOS Manifesto, an annual report from The Standish Group that examines trends in software project success, repeatedly reports worrying statistics for the IT project industry. The 2011 edition of the CHAOS report found that 37% of all projects succeeded in that they were delivered on time, within budget, with all required features and functions. 42% of projects were challenged in that they were delivered late, went over budget, and/or were delivered with less than the requested features and functions. The remaining 21% were considered a complete failure due to cancellation prior to delivery or were never used post completion. It has been estimated that the financial burden of IT project failure in the U.S. alone amounts to over $1 trillion. On a

global scale, that figure rises to an estimated yet equally astonishing $6.2 trillion. [3]. In another research conducted by PMI, it was observed that $ 135 mUSD at risk for every $1 bUSD spent on project which is approximately 13.5%. [4].

So with this background, authors made a study about the main factors which are deciding factors for the success of a given project. Details have been discussed in their paper "Analysis of Project Management issues in Information Technology Industry: An Overview of Literature". As per this study main factors which affects project's success are:

Sr no	***Independent Variable***
1	Stakeholder Management
2	Baseline definition (Scope, Schedule, Cost & Quality)
3	Communication Management
4	Human resources and their skillset
5	Risk and Issue management
6	Project control methodology

One of the sub factors which comes under Baseline definition is complex nature of the project itself and the other factor is Human resources and their skillset. IT companies should be ready for the fast changes which are happening in the way business is being driven. And accordingly they have to train employees and hire employees from the market to suit the ever changing environment.

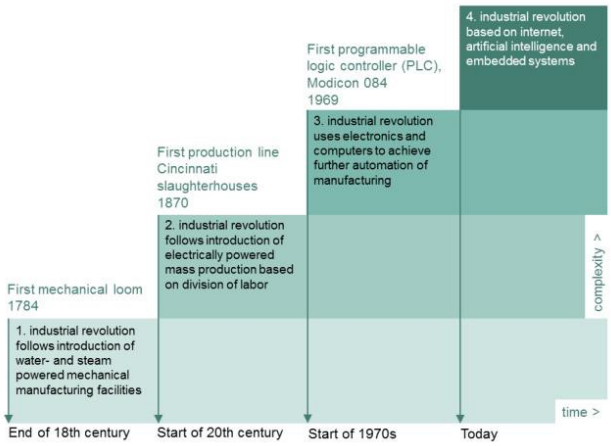
In this paper concept of Industry 4.0 has been elaborated and an attempt has been made to figure out which are the technologies which IT companies should be aware of and should gear up and train their employees to make such projects successful.

Authors studied many articles published and few point of views (PoVs) of some of the consulting firms from IT industry.

II. INDUSTRY 4.0 – CONCEPT

A. Background : Earlier Industrial revelotuion

Many authors have tried to define Industry 4.0, many of the authors have articulated it as 4th Industrial revolution. In this context , in their article "Strategic guidance towards Industry 4.0 – a three-stage process model" [39] authors Selim Erol, Andreas Schumacher, Wilfried Sihn, have described the past 3 industrial revolutions and the 4th Industrial revolution that is happening now viz Industry 4.0. Below diagram from their article depicts this background.

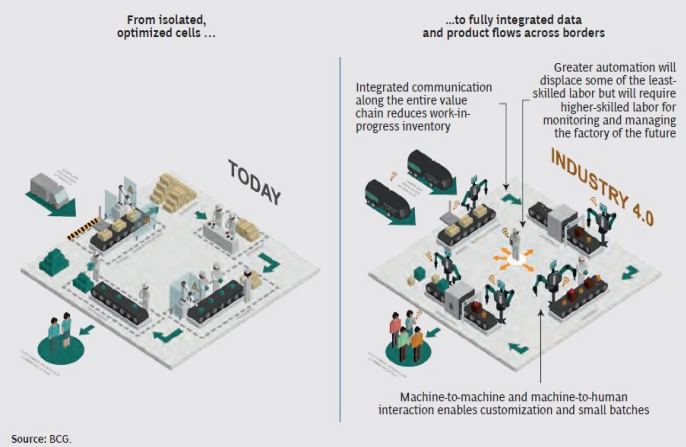


Authors mentions that the first revolution started due to James Watt's research on steam and steam engines. Around start of 20th century the steam engines were replaced by electric power which changed the manufacturing industry. Further leap was taken when computers started controlling machines like CNC machines. Now 4th revolution is happening with help of IoT, embedded systems and artificial Intelligence. Now machines will be talking to each other and take self-corrective decisions etc.

B. ***What is Industry 4.0***

In their article Irl´an Grangel-Gonz´alez_, Lavdim Halilaj_, G¨okhan Coskun, S¨oren Auer, Diego Collarana_, Michael Hoffmeistery have tried to define Industry 4.0 (I4.0) [43]. As per them it is a term coined in Germany to refer to the fourth industrial revolution. This is understood as the application of concepts such as Internet of Things (IoS), Cyber-physical Systems (CPS), the Internet of Services (IoS) and data-driven architectures in the real industry. With approximately the similar meaning, in North America, the term Industrial Internet has been created. This term is very similar to I4.0, but the application is broader than industrial production. Other areas are included, for instance, smart electrical grids.

As per quote of Dr.Wegener of Siemens mentioned in the article "Industry 4.0 : Industry Opportunities and challenges of the industrial internet" by PwC company's PoVs [40]: The essence of the Industry 4.0 vision, the "Internet of Things", is the ubiquitous connection of people, things and machines. This connection is intended to produce a variety of new goods and services. Products, means of transport or tools are expected to "negotiate" within a virtual marketplace regarding which production elements could best accomplish the next production step. This would create a seamless link between the virtual world and the physical objects within the real world.



Above diagram is explained in BCG's PoV "Industry 4.0: The future of productivity and Growth in manufacturing Industries" [41]. It has been discussed in the PoV that industry will move from isolated, optimized cells to fully integrated data and product flows across borders. BGC envision that thro Industry 4.0, it will be possible to have machine to machine and machine to human interaction which will enable more customization and smaller batches – may be with 1 as lot size. They have also mentioned that very low WIP (Work In progress) can be achieved. The flip side, report mentions, is that greater automation will displaced some of the least skilled labor but will create opportunities in higher skilled labor.

In their PoV by PWC, it has been observed that companies are expecting more than 18% of productivity over next five years. Companies expect that rise in the revenue by 2% to 3% per year which means more than Euro 30 b only if we consider German economy. Third benefit for customer or end clients is the significant value add thro tailor-made solution.

III. CHALLENGES AND WAY FORWARD

A. Challenges

It is evident that there are benefits for moving on Industry 4.0 path but this journey is not easy. There are many challenges which companies have to face. One of the challenges is investment. As per PwC PoV, companies are expecting to invest 50% of their planned capital investment in Industry 4.0 which is approx. Euro 40 b per year.

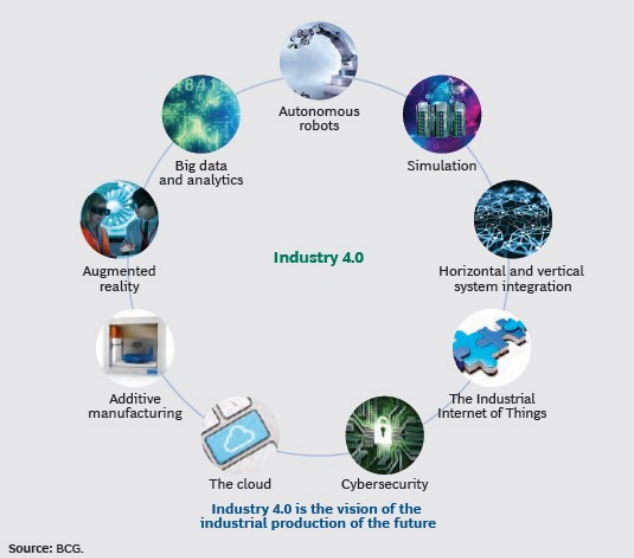
Some of the challenges which experts are foreseeing and which has been mentioned on Wikipedia are as below:

- IT security issues, which are greatly aggravated by the inherent need to open up those previously closed production shops
- Reliability and stability needed for critical machine-to-machine communication (M2M), including very short and stable latency times

- Need to maintain the integrity of production processes
- Need to avoid any IT snags, those would cause expensive production outages
- Need to protect industrial knowhow (contained also in the control files for the industrial automation gear)
- Lack of adequate skill-sets to expedite the march towards fourth industrial revolution
- Threat of redundancy of the corporate IT department
- General reluctance to change by stakeholders

B. ***Technologies involved:***

To implement Industry 4.0 technology is going to play a key role. Without technology backbone Industry 4.0 will not be successful. As per the BCG's PoV below are the key technology levers.



As per BCG's study there are 9 technologies which are essential for Industry 4.0. Some of the unique or new technologies are

Additive Manufacturing: This includes 3-D printing which companies are using for Prototyping and modelling to produce individual components e.g. Aerospace companies are using additive manufacturing to apply new design that reduces aircraft weight lowering their expenses for raw materials.

Augmented Reality: This supports a variety of services, such as selecting parts in warehouse and sending repair instructions over mobile devices e.g. workers may receive repair

instructions on how to replace a particular part as they are looking at actual system needing repair.

IV. SUMMARY

In this paper we tried to elaborate the new technologies like Industry 4.0 are taking shapes and corresponding challenges and technologies involved. IT companies should be aware of such changes happening around and keep their knowledge updated on the latest technology area. IT Companies should understand the complete picture of the situation and not just the part of the project on which their teams are working on. Training is one lever they should use to keep the employees well equipped to face the complexity of the projects. These factors are very critical to make the IT projects successful.

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An Analysis Report of Ontologies in Knowledge Engineering (KE) for Knowledge Management System

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ABSTRACT

In this research paper, the researcher identified the ontologies are the key assets, unstructured and structured information, data and semantic information. The researcher pointed out the ontologies which are used to integrate information from various sources and formulate constraints, improves the user access to the information, and on to the knowledge specifically focus on working with large, distributed and heterogeneous ontologies. The researcher also specify the ontologies and is significant contribution towards the knowledge engineering at the user access layer, presentation layer, and information layer which are feasible for generating the knowledge and valuable information in IT base competency building.

KEYWORDS: KE, KM, KMS, DKE, ONTOLOGIES

I.INTRODUCTION

The early years of knowledge engineering were dogged by problems. Knowledge engineers found that acquiring enough high-quality knowledge to build a robust and useful system was a very long and expensive activity. As such, knowledge acquisition was identified as the bottleneck in building an expert system. This led to knowledge acquisition becoming a major research field within knowledge engineering. The aim of knowledge acquisition is to develop methods and tools that make the arduous task of capturing and validating an expert's knowledge as efficient and effective as possible. Experts tend to be important and busy people; hence it is vital that the methods used minimize the time each expert spends off the job taking part in knowledge acquisition sessions.

In the early eighties the development of a KBS has been seen as a transfer process of human knowledge into an implemented knowledge base. This transfer was based on the assumption that the knowledge which is required by the KBS already exists and just has to be collected and implemented. Most often, the required knowledge was obtained by interviewing experts on how they solve specific tasks. Typically this knowledge was implemented in some kind of production rules which were executed by an associated rule interpreter.

Knowledge Engineering (KE) is similar to that of Software Engineering: turning the process of constructing KBSs from an art into an engineering discipline. This requires the analysis of the building and maintenance process itself and the development of appropriate methods, languages, and tools specialized for developing KBSs.
Data &Knowledge Engineering (DKE) stimulates the exchange of ideas and interaction between these two related fields of interest. DKE reaches a world-wide audience of researchers, designers, managers and users. The major aim of the journal is to identify, investigate and analyze the underlying principles in the design and effective use of these systems. DKE achieves this aim by publishing original research results, technical advances and news items concerning data engineering, knowledge engineering, and the interface of these two fields. DKE covers the following topics:

1. Representation and Manipulation of Data & Knowledge: Conceptual data models. Knowledge representation techniques. Data/knowledge manipulation languages and techniques.
2. Architectures of database, expert, or knowledge-based systems: New architectures for database / knowledge base / expert systems, design and implementation techniques, languages and user interfaces, distributed architectures.
3. Construction of data/knowledge bases: Data / knowledge base design methodologies and tools, data/knowledge acquisition methods, integrity/security/maintenance issues.
4. Applications, case studies, and management issues: Data administration issues, knowledge engineering practice, office and engineering applications.
5. Tools for specifying and developing Data and Knowledge Bases using tools based on Linguistics or Human Machine Interface principles.
6. Communication aspects involved in implementing, designing and using KBSs in Cyberspace. Plus... conference reports, calendar of events, book reviews etc.

Knowledge is defined (Oxford English Dictionary) variously as (i) expertise, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject, (ii) what is known in a particular field or in total; facts and information or (iii) awareness or familiarity gained by experience of a fact or situation. Knowledge acquisition involves complex cognitive

Processes: perception, learning, communication, association and reasoning. The term knowledge is also used to mean the confident understanding of a subject with the ability to use it for a specific purpose. By definition, knowledge can be divided into two kinds: tacit and explicit knowledge.

Tacit knowledge is knowledge that people carry in their minds and is, therefore, difficult to access. Tacit knowledge is considered more valuable because it provides context for people, places, ideas, and experiences. Effective transfer of tacit knowledge generally requires extensive personal contact and trust .Tacit knowledge is not easily shared. Tacit knowledge consists often of habits and culture that we do not recognize by ourselves.

On the other hand Knowledge that is easy to communicate is called explicit knowledge. The process of transforming tacit knowledge into explicit knowledge is known as codification or articulation. Explicit knowledge is knowledge that has been or can be articulated, codified, and

stored in certain media. The most common forms of explicit knowledge are manuals, documents and procedures.

II. LITERATURE REVIEW

This paper gives an overview about the development of the field of Knowledge Engineering over the last 15 years. We discuss the paradigm shift from a transfer view to a modeling view and describe two approaches which considerably shaped research in Knowledge Engineering: Role limiting Methods and Generic Tasks. To illustrate various concepts and methods which evolved in the last years we describe three modeling frameworks: Common KADS, MIKE, and PROTÉGÉ-II. This description is supplemented by discussing some important methodological developments in more detail: specification languages for knowledge-based systems, problem-solving methods, and ontologies. We conclude with outlining the relationship of Knowledge Engineering to Software Engineering, Information Integration and Knowledge Management **(P.P. Chen, 2014).**

D.S.Darai et al.(2010) describe thebasic concept of Knowledge Engineering is an important concept in recent years. Knowledge Engineering is the aspect of system engineering which addresses uncertain process requirements by emphasizing the acquisition of knowledge about a process and representing this knowledge in a Knowledge-based System. The purpose of this paper is to discuss how to use the basic principles of knowledge engineering to solve the real world problems

Rudi and Stefan Decker was in the past primary concerned with building and developing knowledge-based systems, an objective which puts Knowledge Engineering in a niche of the world-wide research efforts - at best. This has changed dramatically: Knowledge Engineering is now a key technology in the upcoming knowledge society. Companies are recognizing knowledge as their key assets, which have to be exploited and protected in a fast changing, global and competitive economy. This situation has led to the application of Knowledge Engineering techniques in Knowledge Management. The demand for more efficient (business to) business processes requires the interconnection and interoperation of different information systems. But information integration is not an algorithmic task that is easy to solve: much knowledge is required to resolve the semantic differences of data residing in two information systems. Thus Knowledge Engineering has become a major technique for information integration. And, last but not least the fast growing World Wide Web generates an ever increasing demand for more efficient knowledge exploitation and creation techniques. Here again Knowledge Engineering technologies may become the key technology for solving the problem.

Tiago Stegun Vaquero et.al gives the overview of the Knowledge Engineering for Planning and Scheduling (KEPS) area in the light of a prospective design process of planning application models. The main discussion is based on the fact that KE is better introduced in the planning world through the design process, more than through the planning techniques. Thus, we examine the fundamental steps in the design process of AI planning domain models considering techniques and methods that have appeared in the research literature. We analyze design phases that have not been received much attention in practical planning literature.

N. Milton et al., (2006) worked on knowledge engineering projects deal with a wide range of domains within organizational and academic contexts. A number of elicitation techniques are used to acquire knowledge from experts. Most of these techniques originated within psychology but have been developed by knowledge engineers to become more structured, efficient and systematic. Until now, nobody has tried to re-apply these modified techniques back into psychology. This paper describes work that addresses this matter. It focuses on the psychological knowledge possessed by all people that enables them to deal with everyday problems and make life decisions. We refer to this as 'personal knowledge'. To take a knowledge engineering approach to personal knowledge,
The researcher investigated the use of knowledge elicitation techniques to capture personal knowledge. We describe an empirical study involving ten participants and 80 knowledge acquisition sessions that assessed eight elicitation techniques in this context. The results revealed that each of the techniques showed promise at efficiently capturing and structuring aspects of an individual's personal knowledge. A content analysis of the acquired knowledge led to the construction of a meta-model (a primitive ontology) of personal knowledge and to the design for a new methodology for psychological research. From the perspective of psychology, the paper shows that knowledge engineering methods can be of value to psychologists. From the perspective of knowledge engineering and the wider computer science community, the paper shows that empirical methods used by psychologists can benefit the development and evaluation of ontologies and elicitation techniques.

Peter McBurney et al.,(2005) analyzed the key developments in knowledge representation and engineering over the last two decades has been the development of theories of argumentation, that is, of theories and frameworks able to deal sensibly with conflicting information, preferences, and goals. The next paper, by Marcelo Falappa, Alejandro Garcia, Gabriele Kern-Isberner and Guillermo Simari, considers the relationships between argumentation and belief revision (Falappa et al., 2011). As the authors demonstrate, this relationship has evolved and continues to do so. Aspects of knowledge representation are also relevant to the next paper, by Yolanda Gil, which discusses how the Semantic Web has altered research in knowledge acquisition (Gil, 2011). Distributing knowledge acquisition across many users raises issues of trust and provenance of crowd-sourced information, and of conflict and inconsistency of data, and these issues create significant research and deployment challenges for the field.

Thomas Riechert et al., described an ubiquitous medium for communication, publication and research, already significantly influenced the way historians work, the capabilities of the Web as a direct medium for collaboration in historic research are not much explored. We report about the application of an adaptive, semantics-based knowledge engineering approach for the development of a prosopographical knowledge base on the Web - the Catalogus Professorum Lipsiensis. In order to enable historians to collect structure and publish prosper-graphical knowledge ontology was developed and knowledge engineering facilities based on the semantic data wiki OntoWiki were implemented. The resulting knowledge base contains information about more than 14.000 entities and is tightly interlinked with the emerging Web of Data. For access and exploration by other historians a number of access interfaces were developed, such as a visual SPARQL query builder, a relationship finder and a Linked Data interface.

Guus Schreiber and Lora Aroyo (2008) were written from the perspective of application developers in one particular field, and should be understood in this context. However, we strongly belief that only through creating "data points" by building and using realistic Semantic Web applications, we, as a research community, can move the Semantic Web field above the level of an academic exercise. When we (the "we" here refers to the team of people listed in the acknowledgments) constructed the demonstrator and submitted it to the Semantic Web Challenge, we got comments like "oh, but this is the traditional Semantic Web system". Yes, that's true. But the problem is that hardly anybody has, as yet, actually built this "traditional Semantic Web system", at least not with a stable and enduring user community.

Wenke Lee and Salvatore J. Stolfo developing a data mining (i.e., knowledge discovery) framework, MADAM ID, for Mining Audit Data for Automated Models for Intrusion Detection [LSM98, LSM99b, LSM99a]. The 1998 DARPA Intrusion Detection Evaluation showed that the models produced by MADAM ID performed comparably well with the best purely knowledge-engineered systems. Although our data mining techniques have shown great potentials, it is important recognize the critical roles that domain knowledge, and thus knowledge engineering, play in the process of building ID models. In this paper, we examine why domain knowledge is required in the data mining process, and suggest how to combine knowledge discovery and knowledge engineering to build IDSs. In summary, despite the advantages of using data mining approaches to build intrusion detection models, domain knowledge needs to be properly incorporated. Combining knowledge discovery and knowledge engineering techniques will produce more accurate and efficient intrusion detection models.

Stefan Edelkamp and Tilman Mehler presented the architecture and the abilities of the ModPlan Workbench; an interacive knowledge acquisition and engineering tool for AI planning. It provides automated domain analysis tools together with PDDL learning capabilities. Integrated optimal and suboptimal planning technology extends state-of-the-art technology. With the tool, domain experts assist solving hard combinatorial problems. Approximate or incremental solutions provided by the system are supervised. Intermediate results are accessible to improve domain modeling and to tune exploration in generating enhanced plans, which, in turn, can be bootstrapped for domain description inference.

III. CONCEPTUAL FRAMEWORK OF THE RESEARCH STUDY

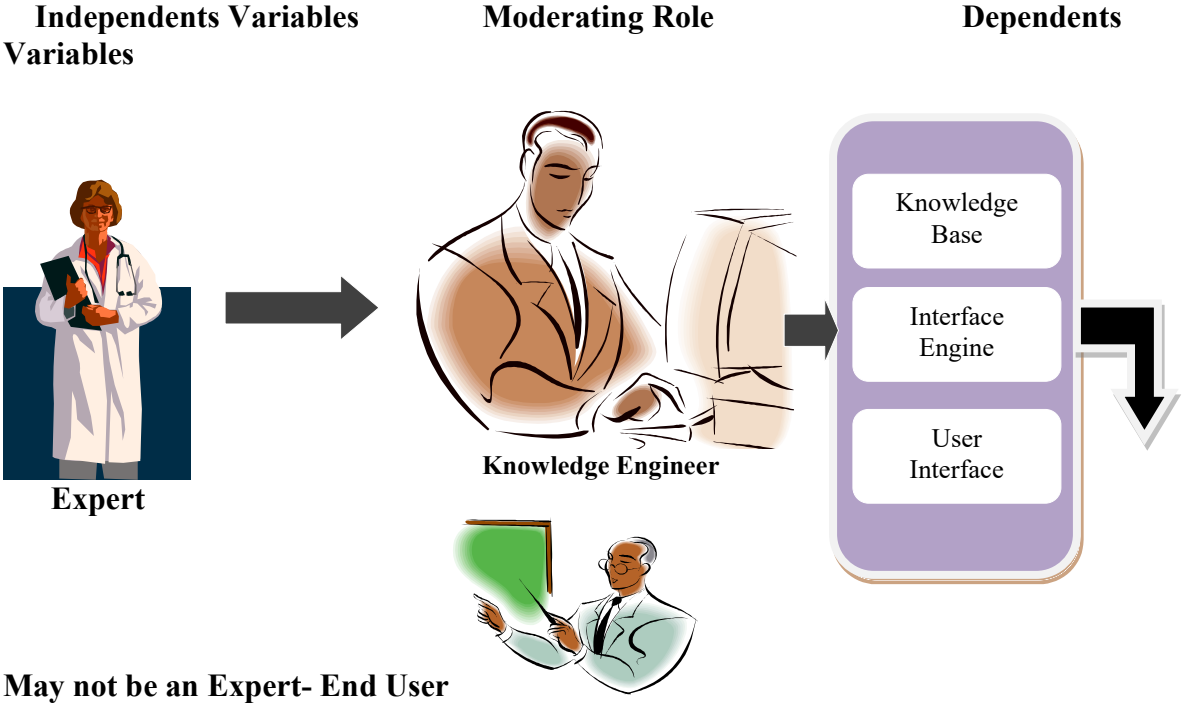


Fig.3.1: Conceptual of Framework of the Research Study

The conceptual framework of the research study is based on the knowledge creation components and its significant contribution towards the knowledge management. The expert person usually required the refined knowledge and their expertise to implement their conceptual view to solve the real life problem. In real life, the data is collection of facts, the information is organized as data and facts about the task domain. Data, information, and past experience combined together are termed as knowledge.

We analyze design phases that have not been received much attention in practical planning literature. are as follows:

1. Requirements Specification: the elicitation, analysis, and validation of requirements, potentially using a semiformal approach and viewpoint analysis **(Somerville and Sawyer 1997).**
2. Knowledge Modeling: the abstraction, modeling and reuse of the domain definition and the basic relationships within the planning problem.
3. Model Analysis: verification and validation of the domain model and the planning problem, as well as model enhancement.
4. Deploying Model to Planner: translation of the problem specification into a communication language understood by automated planners.
5. Plan Synthesis: interaction with one or more automated planning systems to create potential solutions to the planning problem.
6. Plan Analysis and Post-Design: analysis of the generated plans according to some metrics. New insights may be generated and added to the requirements as part of the overall, iterative design process.

In the earliest "cowboy" days of expert systems there was little or no formal process for the creation of the software. Researchers just sat down with domain experts and started programming, often developing the required tools (e.g. inference engines) at the same time as the applications themselves. As expert systems moved from academic prototypes to deployed business systems it was realized that a methodology was required to bring predictability and control to the process of building the software. There were essentially two approaches that were attempted:

1. Use conventional software development methodologies
2. Develop special methodologies tuned to the requirements of building expert systems.

Many of the early expert systems were developed by large consulting and system integration firms such as Andersen Consulting. These firms already had well tested conventional waterfall methodologies (e.g. Method for Andersen) that they trained all their staff in and that were virtually always used to develop software for their clients. One trend in early expert systems development was to simply apply these waterfall methods to expert systems development.

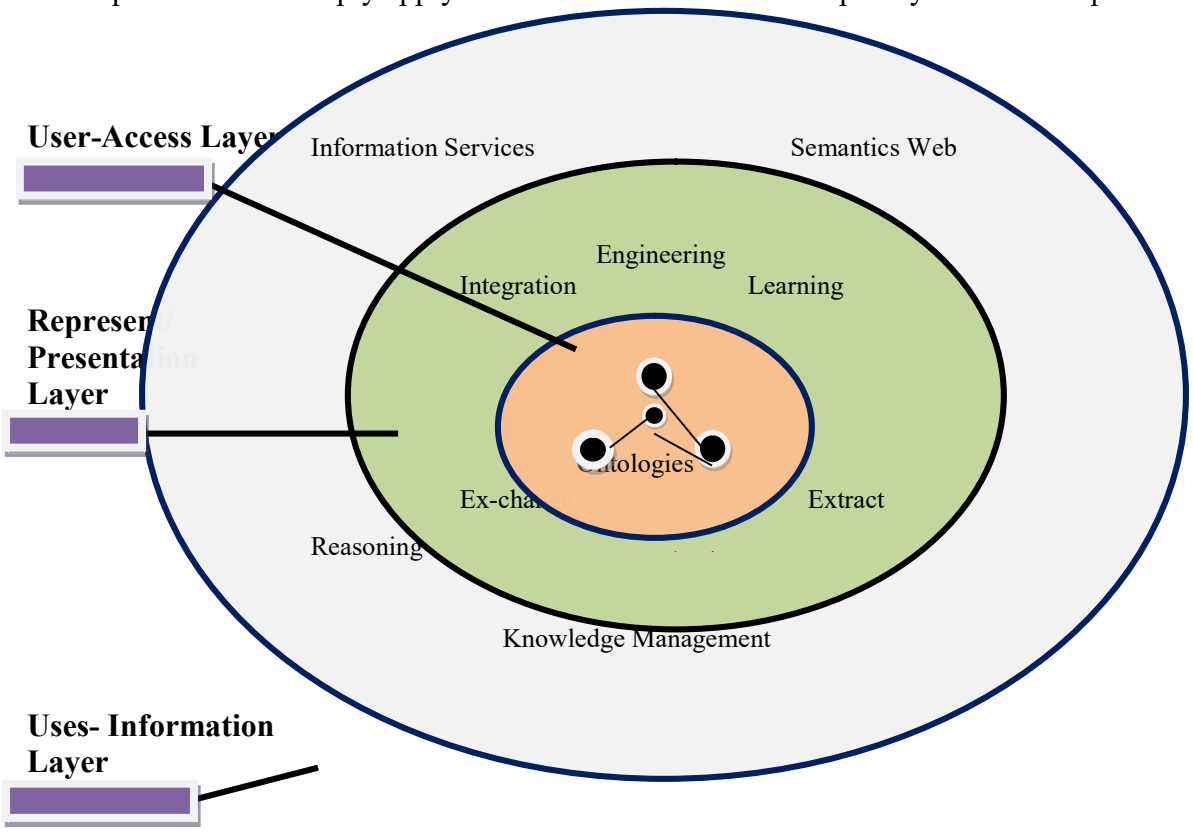


Fig 3.2: Basic Model and Applications

The research analyzed the basic model and application of semantics model of the knowledge management. The ontologies are the heart of knowledge engineering for providing the method and tools for knowledge integration, learning, exchange, extract his raw facts from the external

sources of the computer system and also provides the reuse/ adaptive process for generating and managing the knowledge. These all are the middle layer in the basic model of knowledge engineering approach. The external model of the information services, reasoning, semantics webs, and knowledge management to the ends users who are requesting the knowledge engineering services.

IV. STATISTICAL ANALYSIS

Correlation Matrix[a]

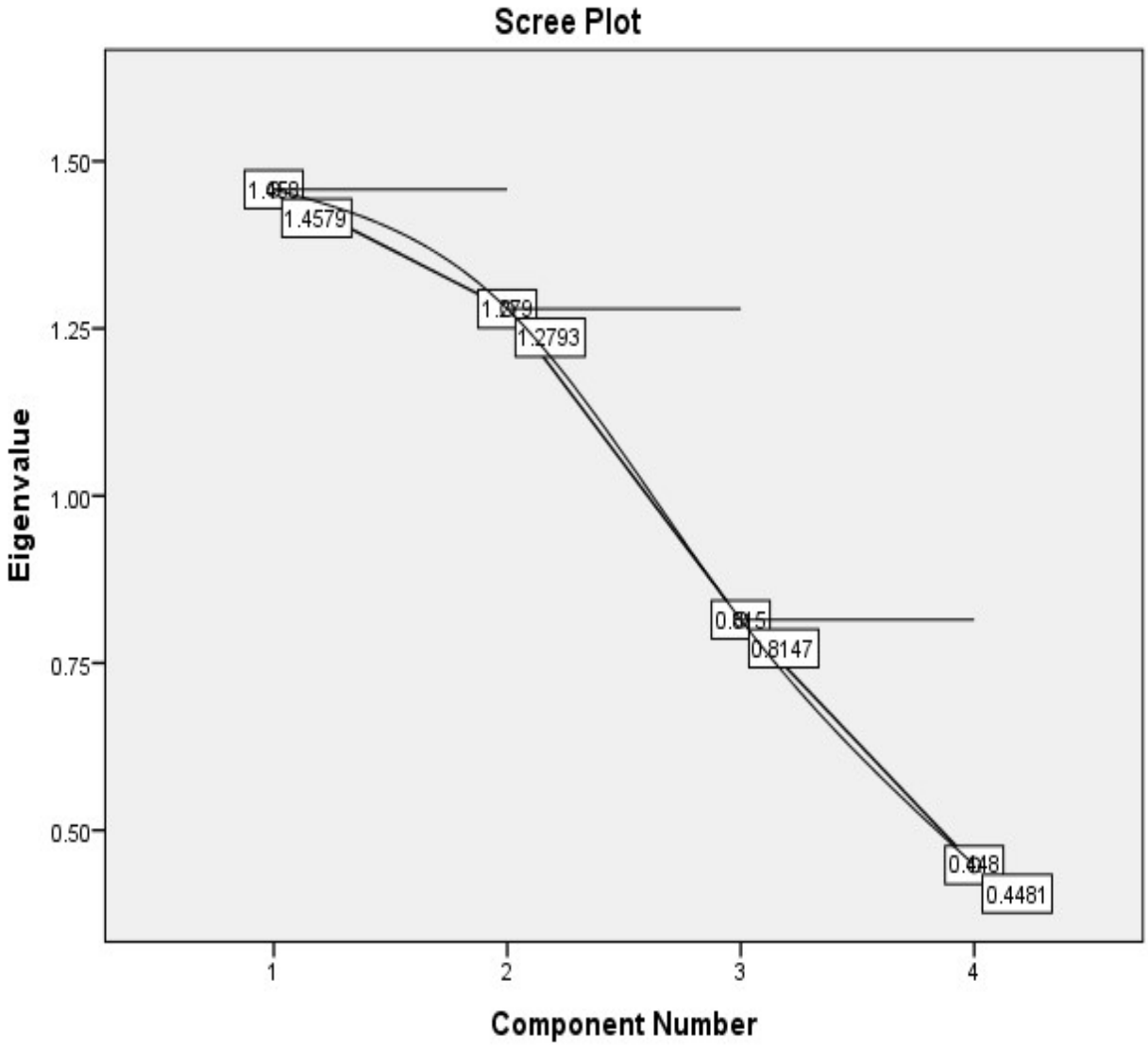
		Information Services	Semantics Web	Reasoning	Knowledge management
Correlation	Information Services	1.000	.065	-.426	.101
	Semantics Web	.065	1.000	-.002	.230
	Reasoning	-.426	-.002	1.000	.254
	Knowledge management	.101	.230	.254	1.000
Sig. (1-tailed)	Information Services		.326	.001	.243
	Semantics Web	.326		.493	.054
	Reasoning	.001	.493		.038
	Knowledge management	.243	.054	.038	

a. Determinant = .681

Communalities

	Initial	Extraction
Information Services	1.000	.734
Semantics Web	1.000	.525
Reasoning	1.000	.782
Knowledge management	1.000	.697

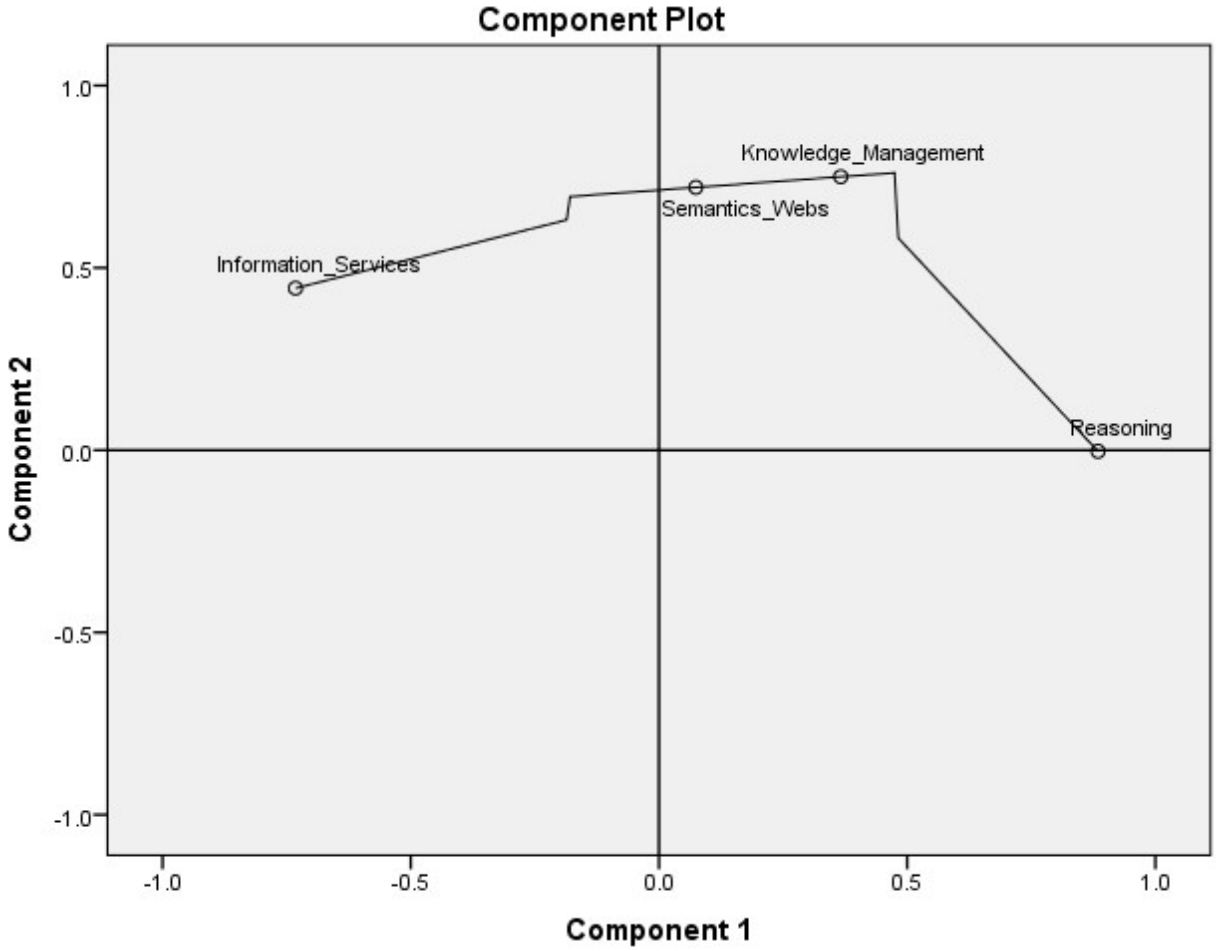
Extraction Method: Principal Component Analysis.



Component Matrix[a]

	Component	
	1	2
Information Services	-.732	.444
Semantics Web	.074	.721
Reasoning	.884	-.003
Knowledge management	.366	.750

Extraction Method: Principal Component Analysis.
a. 2 components extracted.



V. INFERENCE AND DATA ANALYSIS REPORT

The statistical analysis is showing the correlation and coefficient relationship between information services, semantics webs, knowledge management and reasoning are the related to the ontology of knowledge engineering. The coefficient of relationship lies in between 0 to 1 that is concluded that there is positive relative ship between these all components and create ontologies to limit complexity and to organize information ontologies can then applied for problem solving.

In computer science and information science, ontology is a formal naming and definition of the types, properties, and interrelationships of the entities that really or fundamentally exist for a particular domain of discourse. It is thus a practical application of philosophical ontology, with taxonomy. Ontology compartmentalizes the variables needed for some set of computations and establishes the relationships between them. The fields of artificial intelligence, the Semantic Web, systems engineering, software engineering, biomedical informatics, library science, enterprise bookmarking, and information architecture all create ontologies to limit complexity and to organize information. The ontology can then be applied to problem solving.

VI SIGNIFICANCE OF THE RESEARCH STUDY

What many ontologies have in common in both computer science and in philosophy is the representation of entities, ideas, and events, along with their properties and relations, according to a system of categories. In both fields, there is considerable work on problems of ontological relativity (e.g., Quine and Kripke in philosophy, Sowa and Guarino in computer science), and debates concerning whether a normative ontology is viable (e.g., debates over foundationalism in philosophy, and over the Cyc project in AI). Differences between the two are largely matters of focus. Computer scientists are more concerned with establishing fixed, controlled vocabularies, while philosophers are more concerned with first principles, such as whether there are such things as fixed essences or whether entities must be ontologically more primary than processes.

Other fields make ontological assumptions that are sometimes explicitly elaborated and explored. For instance, the definition and ontology of economics (also sometimes called the political economy) is hotly debated especially in Marxist economics where it is a primary concern, but also in other subfields.[6] Such concerns intersect with those of information science when a simulation or model is intended to enable decisions in the economic realm; for example, to determine what capital assets are at risk and if so by how much (see risk management). Some claim all social sciences have explicit ontology issues because they do not have hard falsifiability criteria like most models in physical sciences and that indeed the lack of such widely accepted hard falsification criteria is what defines a social or soft science.

VII. CONCLUSION

In this researcher paper, the researcher analyzed the basic components of knowledge engineering in clear and understanding of various kinds of knowledge which play an important role in realizing knowledge based system. Problem solving methods and ontologies are the most notable concept that are based on these foundations by providing conceptual and distinguish these types of knowledge the re-use oriented development of knowledge based system would be feasible. The researcher also mentioned a statistical analysis report to analysis the correlation and coefficient relationship between information services, semantics webs, knowledge management , and reasoning which are showing, positive relationship to create ontologies to limit the complexity and to organize information ontologies can then be applied to problem solving.

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The Indian Railways: Reforms and the Road Ahead

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ABSTRACT

The purpose of this paper is to study the issues ahead of Indian Railways. As one of the largest rail systems in the world, it serves as the backbone of freight needs of the core sector. It contributes to six per cent of the total employment in the organized sector directly and an additional 2.5 per cent indirectly through its dependent organizations. As the 4th largest rail network in the world, freight trains carry nearly 1.2 million tons of originating goods while 7,500 passenger trains carry nearly 12 million passengers daily. However, the most accessible and affordable means of passenger and goods transport of the nation is not free of issues. The ever rising population and operational cost put several roadblocks ahead of Indian railways. To tackle such issues, Indian railways has undertaken several measures. One such measure is the appointments of the expert groups for reviving Indian Railways from time to time.

This study focuses on the steps suggested by such expert groups with specific focus on Foreign Direct Investment needs and developing a sustainable Public Private Partnership model. The study also benchmarks Indian Railways with the Russian Railways' experience in implementing FDI and PPP model. It proposes a way forward for receiving greater private participation and suggests policy initiatives to revitalize Indian Railways.

Study will use a comprehensive analysis of available literature. The study will refer to research paper, report and white paper to draw inferences.

The paper will highlight the challenges ahead of this sector and the reasons behind it. It will bring forth the scenario of a similar economy like Russia and benchmark Russian Railway's reforms. This would help in applying similar reforms in our country. The study will highlight the significance and role of FDI and PPP for further strengthening the growth of the segment.

1. INTRODUCTION:

The Indian rail network spreads over a wide area. The rail network covers around 7,100 stations spread over ~ 66,000 route km. Indian rail network is the fourth largest in the world after US, Russia and China. In terms of distance freight also it is the fourth largest in the world. There are multi-level challenges that IR has been struggling with. They can be related to safety, operational, hygiene, imbalance in demand vs. supply etc. The paper shall cover the financial aspects of challenges faced by IR.

The Indian rail network is among the top five countries in the world in terms of passenger/ freight and traffic density. The importance of this sector is immense in the growth of Indian economy. However IR (Indian rail) suffers from several issues. A lot is studied and recommended for IR but due to policy level hurdles many a things are yet to be implemented.

With the increasing focus of current Prime Minister on the modernization and updating of current infrastructure, a lot is in the pipeline in terms of Foreign Direct Investment and Public Private Partnership. Countries like China and Russia have started series of reform way back resulting in the improved performance of their rail network. India still is awaiting crucial reforms and needed investment must for the survival.

Our study presents issues ahead of IR at the outset. The second section discusses our research methodology. In the third section, the recommendations made by the expert groups, committees for tackling IR's financial issues are discussed. The experience of reforming Russian Railways is shared in the fourth section. The fifth section discusses the present state of PPP and FDI in IR and challenges in attracting them. Lastly, our study puts forth some policy implications.

2. RESEARCH METHODOLOGY:

Our study is based on a comprehensive review of literature, sourced through several databases, white and discussion reports of government of India and expert groups appointed from time to time, for understanding the challenges faced by IR. For benchmarking with the Russian reforms, our study relied on the reports, studies published by the World Bank and European Bank for Reconstruction and Development.

3. CHALLENGES AHEAD OF IR:

There are several levels of challenges ahead of this sector ranging from top to bottom. As discussed, paper shall focus only on financial aspect. Some of those challenges are given below;

3.1. Lower Share of Transport Sector in Overall GDP

In spite of humongous importance of rail in Indian economy, its share in overall GDP has gradually declined. The share of overall transport sector has remained static at 6-7 % of GDP since 2008-13. Out of this the biggest chunk of this is enjoyed by road transport. The share of road transport in overall GDP has been 4.9% in 2013. However, the share of rail for the same time has been only 0.9% (Ministry of Railways, 2015).

3.2 Chronic Underinvestment in rail vs. road

Government authorities have not paid much attention toward rail in comparison to road networks since independence. Since last 15 years, government has allocated around 5 times of expenditure on road over rail. The budget allocation for rail stands at only 20% of road. The road network has grown 12.5 times over last 64 years; in comparison rail network could only grow by 21% (Morgan Stanly, 2015).For the growth of transportation both rail as well as road should be given equal focus. However, government seems to put most of attention and efforts towards rail and had taken them for granted. Globally, except for Russia and UK which almost spend equal of rail as well as road, many including USA, China, Germany etc. spend less on rail.

3.3 Poor Utilization of Available Funds

In addition to less allocation of funds to rail, the utilizations have also been lousy. Most of this allocation is routed towards unproductive areas like salaries, housing of staff etc. Such expenses have become a major burden of the rail pocket which is very unproductive. After sixth pay commission this burden has raised manifold.
Apart from that due to political promises leading to pressure resulted in 60% of funds being allocated to unprofitable projects with negative rate of return. Thus many economically unviable projects consume most of investment.

3.4 Poor Implementation of Revenues

The revenues obtained through rail are also poorly utilized. Around 94% of rail revenues go on operating cost and social obligations (World Bank, 2014). Thus there is a very little left for addressing other issues like modernization of existing infrastructure and addition more to it. Many of the railway bridges are decade old. A lot needs to be done towards their reconstruction or repair. This has become difficult due to paucity of funds.

3.5 Passenger Subsidy Hurting Freight Division

Over last decade passengers fares has increased by just 28% while freight rates have gone up by steep 91% (Morgan Stanley, 2015). In a way the subsidized passenger fares have been putting a pressure on freight business. This has led to freight charges becoming so high that people uses other modes of transport then rail. In India, freight rates are almost double the rate of China. Now trains carry only 30% of India's freight down from 80%, 30 years ago (World Finance, 2014). Thus rail seems to be losing a major chunk of revenue. So for freight purpose road is preferred over rail, while for passenger travel rail is preferred. This is a bad revenue model for Indian railways.

4. EXPERT GROUPS/ COMMITTEES APPOINTED TO SUGGEST REFORMS IN INDIAN RAILWAYS:

The second part of this paper covers a comprehensive analysis of committees which have been formed for the sustainable growth of IR. There are several committees which have been formed to review the scenario and recommend reforms.There is a long list of committees appointed to examine the functioning of Indian Railways. A few of them date even back to pre-independence days. Since our study focuses on the FDI and PPP model in IR, we discuss the recommendations of a few expert committees, groups, appointed in the past 15 years, formed to look into finances of IR and suggest alternative models of financing. Accordingly, our study discusses the recommendations of following expert committees:

- The Rakesh Mohan Committee (2001)
- The expert committee on PPP funding under the chairmanship of Dr. Amit Mitra (2009)
- The expert committee on Creative Financing for IR under the chairmanship of Montek Singh Ahluwalia (2014)
- The committee for mobilization of resources for major railway projects and restructuring railway board under the chairmanship of Dr. Bibek Debroy (2015)

Let us discuss each one of them in detail.

4.1 The Rakesh Mohan Committee (2001)

The committee was set up to suggest ways to attract private investment in the cash-strapped Railways. It assessed an investment requirement of Rs. 1, 99, 630 crores for a strategic high growth scenario for the period 2002 to 2016. (GOI, 2015 b). It developed a financing model for the strategic high growth scenario, wherein privatization proceeds was considered as one of the major sources of funds.

4.2 Expert Committee on PPP funding (Amit Mitra) (2009)

An expert committee was set up under the chairmanship of Dr. Amit Mitra, then Secretary-General, FICCI by the Ministry of Railways for developing business models and innovative funding techniques through PPP instruments. It recommended developing business models for commercial utilization of railway land and air space. It also suggested developing 'Vision 2020' for the Railways, with the short, medium and long term plans of action, unfolding the vision in a phased manner (GOI, 2015).

4.3 The Committee on creative finance for Indian Railways (2014)

This committee, under the chairmanship of Mr. Montek Singh Ahluwalia, outlined the possibilities of enhancing investments in Indian Railways through creative financing To overcome the shortage in investments and to mobilise additional resources for financing projects, the committee suggested two-pronged approach: i.) public investment and market borrowing and ii.) private investment. This way, the committee estimates that IR can generate an estimated amount of Rs. 3, 29,800 crore (GOI, 2014).

4.4 The committee for mobilization of resources for major railway projects and restructuring of Railway Ministry and Railway Board (Bibek Debroy) (2015)

This committee was set up to look into the mobilization of resources for major railways projects and restructuring of Railway Ministry and Railway Board. It built its recommendations on three pillars, namely: i) commercial accounting ii) change in human resources and iii) an independent regulator. However, it doesn't recommend privatization of IR but endorses liberalization for private entry. The committee puts forth that with its infrastructure need growing, constraints on budgetary support from government not likely to ease in the near future, IR requires to attract private investment in diverse forms. IR's sanctioned works valued (at the last sanctioned cost) at Rs. 6 lakh crore would require large quantum of funding. Thus, the committee recommends IR to diversify its investor base, which could be in the form of creation of assets through PPP mode, attracting FDI, loans from multi-lateral agencies, etc.

Thus different committees have given their own set of recommendations but the real issue is of implementation. Most of critical suggestions have not been implemented owing to political or economic constraints.

5. BENCHMARKING WITH REFORMS IN RUSSIAN RAILWAYS:

There are several reasons behind selecting Russia as the country for benchmarking. The United States, China, Russia and India have longest railway lengths (Km) in the world. In terms of traffic density also China, Russia, India and USA occupy top most position in the world. India recently joined the one billion plus freight loading club in the world with China,

Russia & USA. Thus, in terms of rail network top most countries in the world are China, USA, Russia & India. USA has a different economic standing in the group. China also is an exceptional country in terms of several aspects like Socio cultural, economic & political scenario. India and Russia have a long history of mutually compatible relationships. Like India, rail is the backbone for transportation in Russia. It implemented a long series of railway reform in 2001. Since then, there has been a manifold rise in the performance of its rail network. India also needs a similar set of reforms and more importantly, implementation.

Russian Railways played a pivotal role in the Russian economy. It is one of the largest rail systems in the world in terms of size of the network and the amount of freight and passenger traffic. In the beginning of the 1990s, Russian Railways transported 70% of passenger surface freight and 40% of public passenger service. However, it faced several challenges post the dissolution of the Soviet Russia. The Soviet collapse caused catastrophic consequences for the rail industry. During 1990 to 1995, freight traffic declined by 52 per cent and passenger traffic by 30 per cent (World Bank, 2011). To compensate for this loss, freight tariffs were revised, which affected traffic further. It resulted in decline in freight modal share and an increase in modal share of loss-making passenger share, followed by a fall in asset and staff productivity, decline in investment for new equipments and maintenance.

Consequently, the reform process was undertaken in 2001 with the following goals:

1. Introduce competition in railway transport
2. Facilitate private investment in rolling stock to renew the fleet
3. Ensure quality and safety
4. Decrease economic cost of freight and passenger transport

The reform strategy took cognizance of the fact that funding support was required from government authorities at the federal, regional and local levels and private sector to achieve these goals. The broader objective was to create an environment conducive to attract private investment and create healthy competition.

The process was spread over four phases, which are briefly discussed here:

5.1 Preliminary Phase (Pre 2001):

The preliminary phase involved establishing legal frameworks essential for launching reforms. The Railway Ministry transferred social services such as hospitals and rest areas to appropriate industries and encouraged private sector participation in supply industries.

5.2 Phase I (2001 – 2003):

During this phase, the 'Federal Law on Railway Transport in the Russian Federation' was enacted, which split the Ministry of Railway into entities, viz. The Federal Railway Transport Agency (FRTA) and Russian Railways (RZD). FRTA, as an agency under the purview of the Ministry of Transport, regulates rail transport, while RZD is responsible for railway infrastructure and train operations for freight and passengers traffic. It defined the relationship between railway infrastructure services, train operations and government. It also separated tariff for infrastructure charges on the one hand and wagon and locomotives charges on the other. Business models and legal responsibilities were spelt out in the Federal Charter of Railway Transport, 2003 for railway infrastructure service providers. Thus, this phase laid down foundation for encouraging private sector participation. Under the new legal

structure, private businesses played an important role as rail operators, wagon owners and rolling stock leasing company.

5.3 Phase II (2003 – 2006):

In 2003, RZD was established as a joint stock holding company, with 63 separate subsidiaries, which shall focus on serving niche markets. For instance, OJSC RefServices, a subsidiary of RZD, deals with transporting perishable goods in its own insulated rolling stock. Reforms were also introduced in passenger transportation, wherein private companies emerged to offer specialized passenger services. These private players owned and operated passenger coaches, set prices, sell tickets, provide on-board and on-station staffing.

5.4 Phase III (2006 -2010):

This particular phase focused on developing and promoting competition for the provision of passenger and freight services by continuing to set up RZD subsidiaries.RZD formed First Freight Company and Second Freight Company. Both were to face competition from private operators.

5.5 Phase IV (2010 – 2015):

Phase IV witnessed full privatization of Freight One (formerly, First Freight Company) and to sell equity stakes in RZD subsidiaries and RZD itself. It also involved end of cross-subsidy of passenger service by revenue from freight services.

6. PRESENT STATE OF PPP AND FDI IN INDIAN RAILWAYS:

Ministry of Railways Policy (2012) proposes following five models of PPP:

- Non-Government private line model
- Joint Venture
- Capacity augmentation through funding by customer
- BOT
- Capacity augmentation through annuity model.

According to the White Paper on Indian Railways (2015), there are projects worth Rs. 18,619 crore which are sanctioned or under construction or approved in principle. Similarly, the government has opened-up specific activities of Indian Railways for 100 per cent FDI.

Earlier, efforts have been made to involve private sector in creation of rail infrastructure, however, the end result was limited success. Issues such as absence of regulatory mechanism, no control over network and tariff, un-certainty of traffic materialization and delay in processes failed to generate confidence among the investors. Thus, Indian Railways shall provide certain benchmarks for appraisal which would be received well by the market to enable the relevant projects to be financed.

7. POLICY RECOMMENDATIONS:

1. IR should transfer social services, such as housing, hospitals, schools, etc. to appropriate ministries, as had been done by RZD in its preliminary phase.

2. It is essential to create conducive environment to attract and leverage PPP and FDI. This would require introducing necessary legal environment.

3. Fast-tracking efforts to promote private investment in setting up of locomotive factories, redevelopment of stations, wagon investment, leasing schemes and development of private freight terminus and more importantly, for increasing the network spread.

4. Government has opened FDI for construction operation and maintenance of freight/ passenger lines and terminals. Also the present government emphasizes focus on high speed/ bullet train projects. This could be an area for FDI involvement.

8. CONCLUSION:

There are several hurdles for Indian Railways. However, it is equally important that it also has a bright future. Indian Railways has developed a five-year action plan to break its vicious cycle of under-investment. Thus, we may see faster trains, modern trains, well-equipped stations, and skilled staff in the years to come. Some of which is already implemented. There can be various learning that IR can get looking at successful models of investment decisions across the globe. Need not say that in spite of road and other modes of transport being available, IR is the option that most of middle and lower section of people look forward as the mode of transportation. A right focus, policy implementation and investment commitment can contribute immensely not only to the transportation needs but also to the GDP of the country. The nation looks forward to the mighty carrier to be a multi-modal integrator that makes travel a happy, affordable, reliable and world class experience. Due to limited resources paper can only cover finance related issues; nevertheless it can be extended to cover other operational and marketing level aspects as well. Also other similar economies like China can be benchmarked to draw critical references for the sector.

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Make in India: Challenges in Bringing a Manufacturing Revolution to India

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ABSTRACT

The 'Make in India' program has attracted significant attention post the election of the NDA government in 2014. It has emerged as a cornerstone of the government's economic policy. This paper seeks to answer what 'Make in India' is and why it is needed, what are the major obstacles facing this program and which are the sectors best suited for the program. Based on the obstacles identified, we have also created an index using Principal Component Analysis (PCA) and ranked the states based on manufacturing attractiveness.

First, as the study shows, there are several challenges that need to be overcome if India is to truly establish itself as a global manufacturing destination. But the heartening aspect is that the Government of India is well aware of these challenges and has plans to tackle each of them. On the infrastructure front this government has pledged massive spending over 2016. This is especially true for roadways & dedicated rail freight corridors. On the other hand, labour laws remain a massive concern. The problem is compounded by the divisive nature of the subject and the inability of the government to push legislation through the parliament.

Second, there has been a lot of talk of 'Ease of doing Business' and its importance is slowly being recognised. Steps taken by the Government of India have resulted in a rise in India's Ease of Doing Business for the year 2015-16, this rise is likely to continue in 2016-17 as well. In this regard, steps taken by state governments are extremely important. Easing of FDI limits in select sectors has resulted in greater inflows. Concerns over domestic lending and investment however, do remain.

Finally, the rankings of states based on PCA come to an agreement reasonably well with the prevailing attractiveness of states for manufacturing investments. The analysis ranks the established industrial states such as Gujarat, Tamil Nadu, Haryana, Andhra Pradesh & Maharashtra at high positions. This signifies a significant starting advantage for these states. Efforts must be made by the central government to nudge laggard states in order to prevent these horizontal asymmetries from rising further.

1. Introduction:

Increasing the share of manufacturing in India's GDP is not a new idea. As far back as in 2009, the Directorate for Industrial Policy and Planning (DIPP) had proposed to increase this share from 16% then to 25% by 2022[1]. After this, in 2011 the Planning Commission came out with the New Manufacturing Policy which outlined the steps that needed to be taken to make this vision a reality. However, the subsequent policy paralysis at the Centre brought on by a slew of corruption scandals prevented any further movement in this direction.

The NDA government that came to power post the general elections in 2014 has brought the spotlight back on manufacturing in a big way. It effectively rebranded the policy prescriptions as 'Make in India' and has tried to hard-sell the initiative across countries such as Germany, France, the USA and Australia in hopes of attracting FDI for the manufacturing sector. The government has made the Make in India initiative a cornerstone of its economic policy and with good reason; jobs. India urgently needs to create millions of decent jobs requiring low to medium skills in the formal sector. As the Chinese example shows, labour intensive manufacturing may be the solution to this problem. This need for government intervention, by way of policy directives to boost job creation is fourfold.

Firstly, the high rates of growth experienced post liberalization have not translated to extensive job creation within the formal sector. NSSO data released in 2013 suggests that job creation between the years 2005-2010 when India's growth rate was at its highest, was a lot lesser than that between the years 2000-2004. Moreover the formal employment continues to be only about 7-8%[2].

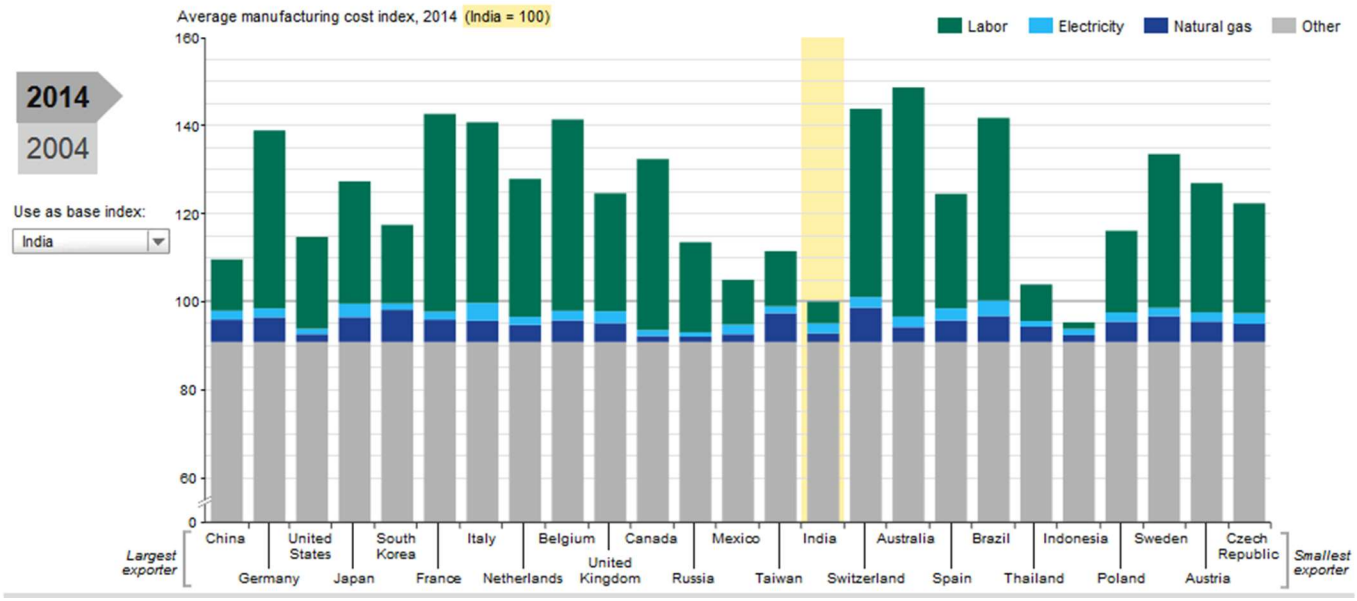
The reason for this is that India possesses two distinct comparative advantages. A small proportion of individuals with high levels of tertiary skills and vast numbers of unskilled and semi-skilled workers. As suggested by Rajan et all., '*for a poor country India spent, and still spends, relatively far more resources on higher education than on primary education. For example, India spent 86 percent of per capita GDP on each student in tertiary education in 2000 while it spent 14 percent of per capita GDP per student in primary education. By contrast, China spent 10.7 percent and 12.1 percent, respectively, of per capita GDP per student in tertiary and primary education*.' The growth experienced post liberalization has been largely spearheaded by tertiary sectors such as IT, Pharmaceuticals, Engineering, Media and Financial Services. The direct employment generation by these sectors and employment generation through linkages is possible only up to a particular level.

The second major factor driving the need to rapidly create jobs is the oncoming demographic bulge. By 2026, around 64% of the population is expected to be of working age (18-59 yrs.). By 2020, India is likely to account for around 28% of the world's workforce [3]. This presents a huge challenge as well as an opportunity. It is imperative that the economy is able to provide jobs to this multitude. A large portion of this population growth is likely to occur in the lowest strata of society. The schooling available to this section is often of a very low quality and tertiary education is out of the reach of many. If this sector is to be provided formal jobs, it has to be in the manufacturing sector.

Thirdly, agriculture and allied services which employ the vast majority of Indians are slowly becoming unviable. As per the latest Economic Survey of India, Agriculture & allied industries contribute 18% to India's GDP but employ nearly half the population [4]. Per-hectare land holdings have been steadily falling over several years, and now the average Indian farmer owns 1.15 hectares of arable land as compared to 2.3 hectares 1970-71 [5]. This often leads to disguised

unemployment. Moreover, in several areas over-cultivation and excess fertilizer use has rendered farmlands infertile and robbed land owning farmers of a livelihood.

And finally, India remains a highly cost competitive destination for manufacturing activity. As per BCG's Global Manufacturing Competitiveness Index for 2014, of the 25 leading manufacturing exporting economies of the world, India remains the second most cost competitive after Indonesia. It has managed to be competitive consistently over the past decade, even as costs in peer countries such as Russia, Brazil & China have grown considerably [6].



This is a huge advantage for India. As costs continue to rise in China, India can make a determined push to capture a large portion of the market that it is likely to lose.

2. Major Issues & Concerns

Globally manufacturers consider the cost to manufacture in a country as the key determinant to investing there. Despite India's significant cost advantage over other peer countries, its inability to attract investment points to its failings in non-cost factors.

If the program is to achieve any measure of success it has to address these non-cost factors. These factors can be broadly clubbed under three headings; Infrastructure, Labour & Ease of Doing Business.

2(a). Infrastructure

Good reliable infrastructure is essential for the growth of industry. It provides a network for the movement of inputs to factories and finished products to the market, domestic or global. It reduces uncertainty by reducing bottlenecks and eliminating disruptions, thereby increasing investor confidence.

India has lagged considerably over the past couple of years both in Infrastructure spending and execution. As per the World Economic Forum's Global Competitiveness Rankings for 2015-16,

India is ranked 81st out of 140 countries on its infrastructure [7]. Here, we shall assess India's infrastructure across three sub-categories; power, transport & ICT infrastructure.

(i) Power:

In the modern economy, round the clock supply of power at a reasonable price is a pre requisite for any industry. For the year 2014-15, even with the availability of 1,030,785 MU of power, India experienced a shortage of 3.6% with peak shortage rising to 4.7% [8]. Despite the expected capacity addition of 20,037 MW during 2015-16 coupled conservative estimates of growth in demand, India is projected to face a power shortage 2.1% [9]. The experienced power shortage is likely to be a lot more as not all power deficient states can access power from the surplus ones. The problems with India's power sector can be analysed on two fronts; the production side & the distribution side.

On the production side, the major challenge is in inputs. Over 85% of India's power is generated through thermal sources, either coal or natural gas [10]. India has negligible reserves of natural gas but it has vast reserves of coal. Under the Coal Mines (Nationalisation) Act of 1973, coal mining was made a public sector monopoly operated by three state owned entities; Coal India Limited, Singareni Collieries Company and Neyveli Lignite Corporation. Of these, with a production of over 494 Million Tonnes of coal in 2014-15, Coal India is the largest producer of coal in the world [11]. However with an overall expected demand of 787.03 million tonnes for the year 2015-16, Indian imports of coal are expected to rise 19% to over 200 million tonnes for the year [12].

The main reason for the shortfall is the inefficient operating practices of the PSU firms. For the year 2015-16, Coal India is expected to produce 550 million tons, a hundredth of its proved geological reserves of 52,546 million tons [13]. Over 90% of this production is through open cast mines which are both exceedingly hazardous to the environment as well as extremely inefficient [14]. The output per man-shift, that is, the average amount of coal each employee digs out, of Coal India Limited was less than six tonnes, a third of the global average, in 2013-14 [15]. Unless Coal India & other PSUs adopt new technologies & improve efficiency, it makes little sense in extending a state monopoly over coal production.

Another problem on the production front was the rampant irregularities in the allocation of captive mines to private players. These mines were allocated to private players involved in power generation, iron & steel production & cement production to serve as a captive fuel source. In a draft report issued in March 2014, the Comptroller and Auditor General of India (CAG) had office accused the Government of India of allocating coal blocks in an inefficient manner during the period 2004–2009. The case was heard by the Supreme Court of India and in its judgement it decided to cancel 204 out of 218 coal blocks allocated since 1993. Apart from the cancellation, operational mines were also forced to pay a penalty of Rs. 295 for every ton of coal extracted [16]. Such rent seeking by the state apparatus dissuades investments and brings inefficiencies. Adoption of a transparent auction method by the new NDA government for 31 of the cancelled 204 coal blocks is a positive step.As problems on the production front are sorted out, bigger ones remain in the distribution front. Most power distribution companies (DISCOMS) are state owned. Decades of power subsidisation by state governments with an eye on electoral dividends combined extensive theft & transmission losses have ensured that most of these DISCOMS are bankrupt. State electricity boards with debt of Rs.3.04 trillion and losses of Rs.2.52 trillion are on the brink of financial collapse [17]. These state electricity boards would first have to be made financially secure and isolated from political interference. Guaranteed 24x7 power even at higher

realistic tariff rates would be welcomed by people. Transmission and losses due to theft must be reduced through implementation of smart grid etc.
While the central government has taken positive steps on the production front, improvements to transmission and distribution can happen only if state governments are proactive. States that can provide uninterrupted power at reasonable rates will be in pole position to secure manufacturing investments.

(ii) Roads:

An effective road & railway network is crucial for the transport of inputs to manufacturing centres & outputs to the market in a timely manner.
The major boost to road development in India happened with the implementation of the National Highway Development Project starting from 1998. The Golden Quadrilateral Project which consists of 5846 km of roads connecting Delhi-Mumbai-Chennai-Kolkata was completed in 2012 as part of phase 1. Phase 2 of the project, the North-South & East-West corridor, which connects Srinagar to Kanyakumari & Porbandar to Silchar is nearly 90% complete [18].
A vast number of these projects were completed under Public Private Partnership (PPP). However interest in these projects had dried up over the past couple of years. This was due to problems in toll collection and risks associated with traffic fluctuation, inordinate delays in getting clearances and financing. The current government has been proactive and addressed several of these issues in the previous budget. Steps taken include [19]:

- Earmarking Rs 40,000 Crores for the roads sector, an increase of 14,031 Crore over the previous year.
- Plans to set up a National Investment and Infrastructure Fund which would raise Rs 20,000 crore annually to invest in Infrastructure lenders have also been announced.
- A new Hybrid Annuity Model has been proposed where project cost would be split 2:3 between the government and the private contractor. Moreover toll collection will also be handled by the government to reduce contractor risk.
- The government has also decided award all projects only once land acquisition is complete environmental clearance had been obtained. Delays in securing clearances were a key reason for project delays.

The real test for the GOI will be in 2016 when it plans to invite tenders for nearly a 100 highway projects [20]. Interest from private contractors would determine the success of the steps taken by the government.

(iii) Railways:

While a lot of work has been done on highways, action on railways has been lacking. This is despite the ability of railways to move freight faster. Only about 30% of total freight transported, happens via railways. This down from close to 80% 30 years back [21]. This presents a significant opportunity for the railways. Secondly, a profitable freight network would enable the railways to offset losses experienced by it in the passenger travel segment.
In 2005, the GOI proposed the setting up of two dedicated freight corridors for the railways. The 1839 Km Eastern Dedicated Freight Corridor from Ludhiana in Punjab to Dankuni in West Bengal and the 1483 Km Western Dedicated Freight Corridor from Dhari in Haryana to JNPT in Navi Mumbai Both these projects were to be completed in seven years, but after several delays

the projects picked up pace only over the past year and are likely to be completed by 2019. Both these projects are likely to boost goods movement in a big way. The new tracks being laid for the freight corridor would be able to handle heavier trains and Freight train capacity can be more than doubled from the current 6,000 tonnes to 13,000 tonnes [22]. Freight trains would also operate at 70-80 Km/Hr as against the current average speeds of 25 Km/Hr [23]. The western corridor would primarily cater to containerised traffic, mostly exports and imports, while the eastern corridor will be used most to move coals from mines in east India to power plants in north. It is also proposed to operate double stack container trains, thereby increasing the handling capacity of the railways and also help decongest ports when consignments arrive.
Besides these two projects already under construction, four more have been planned [24]:

- East-West Dedicated Freight Corridor - connecting Kolkata to Mumbai 2,000 km-long.
- North-South Dedicated Freight Corridor - connecting Delhi to Chennai 2,173 km long.
- East Coast Dedicated Freight Corridor - connecting Kharagpur to Vijayawada 1,100 km-long.
- South-West Dedicated Freight Corridor - connecting Chennai to Goa 890 km-long.

It is imperative that these corridors are constructed in time bound manner and do not experience the delays experienced by the first two corridors.

(iv) Ports:

Ports that can handle heavy loads with minimal TOT are essential. For the manufacturing sector, these would enable exports of finished products and import of inputs. However, India's ports suffer from serious issues. Some of these include:

- Indian ports have a high turnaround time of at least 4 days. In comparison, Hong Kong has a turnaround time of just 10 hours [25].
- Indian ports have a low tonnage. All 12 major Indian ports combined handle less cargo than the port of Shanghai.
- Ports often have poor road and rail linkages to industrial clusters.
- Currently no Indian port has the ability to handle super large ships. These ships dock at Colombo or Dubai and the goods are transported on smaller ships to Indian ports.

The GOI recognising these limitations has proposed the Sagarmala project in August 2014. The main objectives of this project are: The key components of Sagar Mala Project are [26]:

- Port modernization & development of new ports.
- Improved hinterland linkages through efficient rail, road and water (coastal and inland waterways) networks for efficient evacuations.
- Engender port led development by promoting Port based SEZS, ancillary industries such as Ship Breaking, Ship Building / Ship Repair, Bunkering facilities, Container Freight Stations, Warehousing, Tourism and Waterborne Transport. 10 such Special Economic Regions are planned along the Indian Cost.

Development of domestic freight transport via sea is the other major push by this initiative. Water borne transport is much safer, cheaper and cleaner compared to other modes of transportation. The percentage domestic cargo transported by coastal shipping in India is only 7%, in comparison it is 20% in China and 23% is Brazil [27].
Proper implementation of the Sagarmala project can go a long way in improving Indian maritime trade and serve as a strong impetus for manufacturing in India.

2(c). Ease of Doing Business

Ease of doing business, comprises a wide set of factors that affect the cost, efficiency and risk faced by a business, while operating in a particular country. India is widely perceived to be a difficult place to do business. There is significant red tape as well as rent seeking. India is ranked a ridiculously low 142 out of 189 countries on the World Bank's ease of doing business index for 2014 [28]. This is even lower than war torn Sierra Leone. India is ranked third from bottom on contract enforcement and is fifth worst on securing construction permits [28]. This has created a preference among entrepreneurs towards sectors that require minimal government interaction.
This situation became particularly acute from 2012 to 2014. The spate of corruption scandals that hit the UPA 2 government created an environment of policy paralysis in the central bureaucracy. Several approvals and proposals got stuck and further exacerbated the already weak economic situation.

(i) Approvals & Clearances

The biggest step taken by the government is the setting of a new ebiz.gov.in portal. This portal was launched in Feb 2015 to serve as a transparent platform for processing of several essential G2B services. This is a move to reduce the cumbersome red tape that several businesses encounter while securing clearances from the government. Businesspeople will be able to apply for required clearances on the portal, make electronic payments to process these applications and track the status of their application online. The eBiz portal is also a repository of information on services required for business set-up in India. As of now, some of the 14 central G2B services that are being provided include [29]:

- Application for Industrial Licenses (for specified sectors).
- Employee Registration for ESIC (Employee's State Insurance Corporation) & EPFO (Employee Provident Fund Organisation).
- Applications for PAN (Permanent Account Number), TAN (Tax Collection & Deduction Account Number) & DIN (Director Information Number).
- Application for Certificate of Incorporation.
- Importer Exporter Code

At least 15 more central services and 24 state level services from the states of Gujarat, Tamil Nadu, Maharashtra, Andhra Pradesh, Haryana and Delhi are to be brought on this portal over the next couple of years.
Some other steps taken to improve the climate for doing business include [30]:

- Easing the process of applying for Environment and Forests clearances by making it online through the Ministry of Environment and Forests' portals; environmentclearance.nic.in. & forestsclearance.nic.in.

- Creation of an Investor Facilitation Cell to guide, assist and handhold investors during the entire lifecycle of the business.
- The registration process of VAT and Professional tax has been merged into a single process with single ID on 1st January 2015 by the Government of Maharashtra.
- The time required for securing a new electric connection in Mumbai has been reduced to 21 days from 67 days. The number of procedures involved has been cut down to 3 from existing 7.
- Municipal Corporation of Delhi has launched online application process for grant of construction permits for residential and industrial buildings on 16th March 2015 and commercial buildings in May 2015.

(ii) FDI Reforms

The change in the government at the centre, low oil prices, low inflation and a general upturn in the Indian economy have improved the investment climate in the country. With the slowing down of China & Brazil, India focussed equity funds have outperformed their emerging market counterparts. Over the fiscal year 2014-15, total FDI inflows to India rose 48% to $ 31 billion and FII inflows grew by an unprecedented 717% to $ 40.92 billion [31]. However, with nearly 17% of FDI inflows in the services sector, manufacturing sector remains limited [32].
Since coming to power, the government has eased some of the rules and limits to attract foreign investment. Some of these include [33]:

- 100% FDI allowed in the telecom sector, single brand retail & medical devices.
- Construction, operation and maintenance of specified activities of Railway sector opened to 100% foreign direct investment under automatic route.
- FDI limit of 26% in defence sector raised to 49% under Government approval route. Foreign Portfolio Investment up to 24% permitted under automatic route. FDI beyond 49% is also allowed on a case to case basis with the approval of Cabinet Committee on Security.
- FDI cap increased in insurance & sub-activities from 26% to 49%.

Since coming to power, this government has made a major push at integrating foreign with economic policy. The prime minister aggressively pitched the Make in India program at every one of his foreign visits to attract FDI. This appears to have been successful to a certain extent. As per a report in The Financial Times dated Sep 29th 2015, India attracted $ 31 Billion in FDI in the first half of 2015 [34]. In doing so, it surpassed China and the USA to become the most attractive destination for FDI in the world.
In terms of individual deals, electronics major Foxconn has pledged to invest $5 Billion over the next five years in setting up a manufacturing plant at Taluja, Maharashtra. General Motors too is shifting its manufacturing plant from Halol in Gujarat to Talegaon in Maharashtra and investing an additional $1 Billion.

(iii) Taxation Issues:

Tax policy in India has been a major constraint to foreign investment in the country. Among foreign investors there was significant uncertainty concerning the tax environment in the country. This had emerged post the infamous retrospective order issued by the previous UPA

government. After coming to power, the new government assured investors of a stable and clear taxation policy and assured them that no further retrospective decisions will be taken by the government. Further, its decision to not challenge the Bombay High Court ruling on the Vodafone transfer pricing case also served to boost investor sentiment.

Despite these steps, concerns over taxation remain. The ruling of the Authority for Advance Rulings (AAR) on the implementation of Minimum Alternate Tax (MAT) on a foreign company with no permanent establishment in India, sparked a fresh controversy and created further uncertainty. Although the Finance Minister later clarified that (MAT) would not be applicable on foreign companies' earnings from capital gains on securities, royalty, fee on technical services and interest, the damage had been done.

The biggest issue over taxation has been the non-promulgation of the Goods & Services Tax (GST), 8 years after it was first conceived. The new tax will do away with the myriad central and state excise duties and ease the movement of goods within the country. This is likely to provide a huge fillip to the manufacturing sector in India. Political bickering at the centre and convincing states to get on board has resulted in an inordinate delay.

(iv) Legal Environment:

As per the World Bank's Ease of Doing Business rankings for 2016, India is ranked an appalling 178 out of 189 countries on contract enforcement [7]. In a vibrant economy, disputes between firms are bound to rise. It is imperative that there exists a legal mechanism that can resolve these disputes fairly within a reasonable time frame.

India's legal system suffers from the following ailments:

- It is extremely slow. An extreme example is of the Karnataka High Court where it was revealed that a Company Petition was awaiting admission since 1985 [34]. Forget hearings, verdicts & enforcement.
- The processes are extremely complicated and cumbersome.
- There is significant corruption especially in the lower judiciary.

In order to resolve these issues, a number of steps need to be taken. They include,

- Electronic Case Filing: Use of IT & technology to streamline court proceedings is not a new one. It has been pioneered by South Korea that has been using it since the 1980s. Such as system enables electronic submission of documents, registration, service notification and access to court documents. This step will reduce paper use, need for storage space, time spent in court & better case management.
- Arbitration: All over the world arbitration is a preferred route for affected parties to resolve disputes in a timely manner. To support this, the GOI devised the Arbitration and Conciliation Act, 1996. Although a well drafted law, it has not been successful in reducing delays and has often been exorbitant on all parties involved. The cabinet in 2015 has approved some amendments to the law. Passage of the new law could improve the nature of arbitration in the country.

3. Methodology & Dataset

Now that we have looked at the factors that we believe would affect the success or failure of a manufacturing revolution, let us rank states based on these factors. Based on this ranking we can determine which state is best positioned & which states need work.

Data Chosen:

Data	Source
Road Density of Surfaced Road (per 1000 sq KM)	Infrastructure Statistics – 2014, Ministry of Statistics & Programme Implementation
Registered Motor Vehicles (per 1000 people)	Infrastructure Statistics – 2014, Ministry of Statistics & Programme Implementation
Rail Density (per 1000 sq Km)	Infrastructure Statistics – 2014, Ministry of Statistics & Programme Implementation
Installed Electricity Generation Capacity (GWh)	Infrastructure Statistics – 2014, Ministry of Statistics & Programme Implementation
Per Capita Consumption of Electricity (Kwh)	Infrastructure Statistics – 2014, Ministry of Statistics & Programme Implementation
Teledensity (No of Phones/1000 people)	Infrastructure Statistics – 2014, Ministry of Statistics & Programme Implementation
Literacy Rate	Census 2011
Gross Enrolment Ratio in Higher Education	All India Survey on Higher Education 2011-12, Ministry of Human Resource & Development.
Economic Freedom of States Index	Economic Freedom of States Report 2013
Ease of Doing Business Index	Assessment of State Implementation of Business Reforms 2015, World Bank Group & Government of India.

The raw data that was gathered is presented in Table 1. The data was normalized by $\frac{(Actual-Min)}{(Max-Min)}$ this is presented in Table 2. All the data chosen are such that the higher they are the better.

We use the Principal Component Analysis method to assign weights to the various parameters & use it to determine an index. PCA is a useful method when it is needed to summarize the information from a large data set into fewer variables. Post the PCA analysis we get three Principal Components. Here, we have used the first principal component P1 as the loading as it corresponds to the maximum variance in the data set.

Raw Dataset:

	Surfaced Road Density (per 1000 Sq Km)	Registered Motor Vehicle Density (per 1000 people)	Rail Density (per 1000 Sq Km)	Installed Generation Capacity (GWh)	Per Capita Electricity Consumption (KWh)	Teledensity (No of Phones/1000 People)	Literacy Rate	Gross Enrolment Ratio	Ease of Doing Business Scores	Economic Freedom Scores
Andhra Pradesh	626.38	145.33	19	12998	1156.52	80.87	0.68	0.30	0.70	0.5
Assam	682.33	58.4	31	513	249.82	46.61	0.73	0.12	0.15	0.32
Bihar	694.03	31.44	38	510	133.61	48.90	0.64	0.09	0.16	0.31
Chhatisgarh	425.29	126.26	9	4007	1319.56	53.81	0.71	0.11	0.62	0.44
Gujarat	747.73	241.03	27	18999	1663.23	91.14	0.79	0.18	0.71	0.65
Haryana	874.81	231.23	35	4856	1628.31	89.42	0.77	0.28	0.41	0.49
Himachal Pradesh	638.22	107.44	5	2599	1289.39	120.67	0.84	0.25	0.24	0.47
J&K	98.90	77.28	1	1094	1015.19	54.82	0.69	0.23	0.06	0.41
Jharkhand	236.29	98.98	26	1688	790.20	48.90	0.68	0.10	0.63	0.33
Karnataka	1036.50	181.75	16	11797	1081.35	97.22	0.76	0.24	0.49	0.43
Kerala	3187.52	198.07	27	2593	671.54	106.61	0.93	0.22	0.23	0.42
Madhya Pradesh	415.07	111.04	16	4988	671.54	53.81	0.71	0.19	0.62	0.47
Maharashtra	1089.97	170.18	18	20350	1204.38	96.80	0.83	0.26	0.49	0.42
Odisha	390.80	91.44	16	4379	1145.79	65.84	0.73	0.17	0.52	0.36
Punjab	1662.25	223.83	43	5239	1799.01	113.13	0.77	0.23	0.37	0.4
Rajasthan	591.94	130.43	17	7952	927.36	72.96	0.67	0.18	0.61	0.46
Tamil Nadu	1446.25	256.58	30	14000	1276.57	116.61	0.80	0.40	0.45	0.54
Uttar Pradesh	121.47	75.62	1	8328	449.89	60.93	0.70	0.17	0.47	0.36
Uttarakhand	580.37	123.37	165	1838	1232.17	60.93	0.80	0.31	0.13	0.39
West Bengal	1486.19	42.75	45	7622	563.48	79.91	0.77	0.14	0.47	0.35

	Surfaced Road Density (per 1000 Sq Km)	Registered Motor Vehicle Density (per 1000 people)	Rail Density (per 1000 Sq Km)	Installed Generation Capacity (GWh)	Per Capita Electricity Consumption (KWh)	Teledensity (No of Phones/1000 People)	Literacy Rate	Gross Enrolment Ratio	Ease of Doing Business Scores	Economic Freedom Scores
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Assam	682.33	58.4	31	513	249.82	46.61	0.73	0.12	0.15	0.32
Bihar	694.03	31.44	38	510	133.61	48.90	0.64	0.09	0.16	0.31
Chhatisgarh	425.29	126.26	9	4007	1319.56	53.81	0.71	0.11	0.62	0.44
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Jharkhand	236.29	98.98	26	1688	790.20	48.90	0.68	0.10	0.63	0.33
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Odisha	390.80	91.44	16	4379	1145.79	65.84	0.73	0.17	0.52	0.36
Punjab	1662.25	223.83	43	5239	1799.01	113.13	0.77	0.23	0.37	0.4
Rajasthan	591.94	130.43	17	7952	927.36	72.96	0.67	0.18	0.61	0.46
Tamil Nadu	1446.25	256.58	30	14000	1276.57	116.61	0.80	0.40	0.45	0.54
Uttar Pradesh	121.47	75.62	1	8328	449.89	60.93	0.70	0.17	0.47	0.36
Uttarakhand	580.37	123.37	165	1838	1232.17	60.93	0.80	0.31	0.13	0.39
West Bengal	1486.19	42.75	45	7622	563.48	79.91	0.77	0.14	0.47	0.35

Normalized Dataset:

4. Empirical Findings:

Based on the factor scores the rankings of the states are as follows:

Sr No	States	**Factor1**	**Sr. No**	**States**	**Factor1**
1	Gujarat	1.868735	11	Chhattisgarh	-0.0282861
2	Tamil Nadu	1.528249	12	Madhya Pradesh	-0.1105568
3	Haryana	1.068016	13	Odisha	-0.3245401
4	Andhra Pradesh	1.044656	14	J&K	-0.4658943
5	Uttarakhand	0.647483	15	Uttar Pradesh	-0.7174033
6	Maharashtra	0.626848	16	Jharkhand	-0.7292445
7	Punjab	0.5792857	17	Kerala	-1.017704
8	Karnataka	0.3631299	18	West Bengal	-1.090529
9	Rajasthan	0.1666539	19	Assam	-1.657108
10	Himachal Pradesh	0.05837	20	Bihar	-1.810161

1. The analysis ranks the established industrial states such as Gujarat, Tamil Nadu, Haryana, Andhra Pradesh & Maharashtra at high positions. This signifies a significant starting advantage for these states. Efforts must be made by the central government to nudge laggard states in order to prevent these horizontal asymmetries from rising further.
2. The state of Kerala is interesting. The first principal component attaches lower weightages to educational attainment variables, if these weightages are increased Kerala rises rapidly up the rankings. The problem with the state is the extreme values in its data. It has high educational attainment & good connectivity (road & rail densities, motor vehicle ownership) however it has very poor rankings for ease of doing business & economic freedom. This indicates the existence of good infrastructure but poor policy.
3. The states of Tamil Nadu & Gujarat are way ahead of the pack. Both states have strong infrastructure & policy variables with Gujarat slightly edging Tamil Nadu. However in terms of education, Tamil Nadu is way ahead. This is reflected by the higher presence of high tech industries in Tamil Nadu in comparison to Gujarat.
4. As the most industrialized state in the country & also as the one which attracts the maximum FDI, one would have expected Maharashtra to be higher up. A possible explanation for this is its early mover advantage. The Maharashtra Industrial Development Corporation (MIDC) was set up way back in 1962 and has consistently made an outreach to industries, Mumbai Metropolitan Region as the leading financial centre in the country provides the state a huge boost.
5. Uttarakhand has emerged in a strong position in the ranking. This is not surprising considering the effort made by the state in attracting industries especially in areas such as Pantnagar & Sitarganj. Pantnagar has seen investments by companies such as Tata Motors, Ashok Leyland, Bajaj Motors, Voltas, Schneider Electric and Britannia Industries.

6. There is also some evidence to suggest that the old acronym of BIMARU is slowly loosening. While Bihar remains rooted at the bottom, Rajasthan has made significant strides especially on the policy front. Though Uttar Pradesh & Madhya Pradesh remain low, they have managed to create industrial clusters in the NCR region & Pithampur respectively.
7. There are two principal weaknesses in this ranking. Firstly, the ranking doesn't consider land availability primarily because of a lack of data. Ease of land availability and careful creation of industrial clusters by Industrial Development Corporations of respective states can have a significant impact.
8. Secondly, the rankings do not consider the natural advantages that coastal states have over inland ones. This is especially true when industries are part of a global manufacturing chain which extends across countries.

5. Conclusion & Policy Implications

As the report shows, there are several challenges that need to be overcome if India is to truly establish itself as a global manufacturing destination. But the heartening aspect is that the Government of India is well aware of these challenges and has plans to tackle each of them.

On the infrastructure front this government has pledged massive spending over 2016. This is especially true for roadways & dedicated rail freight corridors. The power sector has received an impetus with transparent coal auctions and a plan to revive the health of failing DISCOMS. ICT Infrastructure could receive a massive overhaul through the Digital India campaign. While the government has mooted the 'Sagarmala' project, action on the ground has been limited till now.

Labour laws remain a massive concern. The problem is compounded by the divisive nature of the subject and the inability of the government to push legislation through the parliament. A possible alternative would be to allow individual states to frame their own laws. States like Gujarat & Rajasthan have already done so.

There has been a lot of talk of 'Ease of doing Business' and its importance is slowly being recognised. Steps taken by the Government of India have resulted in a rise in India's Ease of Doing Business for the year 2015-16, this rise is likely to continue in 2016-17 as well. In this regard, steps taken by state governments are extremely important. Easing of FDI limits in select sectors has resulted in greater inflows. Concerns over domestic lending and investment however, do remain. In the long run there is need for a massive overhaul of the Indian banking system, especially the operations of public sector banks.

Sectors crucial to the success of the program are those that are import substituting and those that can utilise India's core strengths. Besides this, support for MSMEs is crucial as they could form the backbone of the 'Make in India' program. Initiatives like the Mudra Bank and the upcoming draft MSME policy could play a crucial role.

Finally, the rankings generated agree reasonably well with the prevailing attractiveness of states for manufacturing investments. This in provides evidence of the relation between the obstacles discussed and manufacturing. A deeper analysis with a greater number of variables reflecting the verticals of infrastructure, labour & ease of doing business could however provide a better and a more rigorous ranking.

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Make In India OR Make For India

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ABSTRACT

Make for India is a national program designed to transform the country into a global business hub as it contains attractive proposals for top local and foreign companies. The successful implementation of this plan will help in the 100 smart cities project and affordable housing in India. The main objective is to ensure solid growth and valuable employment creation in the country with the help of top investors. Make for India is to make product specific for Indian market. Make for India is a cautionary advise. Export-led growth strategy will not pay for India as it did for Asian economies including China due to the tepid global economic recovery, especially in the industrial countries. The study mainly looks into Two Important Perceptions i.e. Make in India and Make For India. Population of India, Middle Class Expansion in India, Global Companies in India, Startup India. The Literature Review has been conducted to find out what other research scholars have studied about Make In India programme. It tries to understand what is Make In India Mission and Make for India Caution. It also studies the Reforms & Issues, Challenges, Advantages and Disadvantages, Initiatives of the Government of Make in India and the arguments put forward for Make for India. A look is also taken at the Indian Economics Statistics i.e. GDP, Growth of Industrial, Agriculture and Service Sector, Inflation, Exports and Imports of India. An attempt is made by the Authors as to which program is suitable for India and finally they conclude that an incentive-driven, export-led growth or import-substitution strategy may not work for the country in the current global economic scenario. Indirectly they suggest **'Make in India for India'**

Keywords: Advantages, Challenges, Disadvantages, Economy, India, Make in India, Make for India, Issues, Reforms, Startup

1.0 Introduction

With democracy reigning supreme in most parts of the world, Indian society is very different from what it was a few decades ago, allowing people to explore and innovate. The world today however, hangs in a delicate, balance with the weights of economic uncertainty and environmental concerns debilitating the delicate equilibrium. India today is witnessing one of the fastest moving resolutions of all times. Innovation alone can help reach the next milestone in human ingenuity **[1].**

Despite India becoming the first nation to successfully send a satellite into orbit around Mars on its maiden attempt, it is well understood that the world would still be judging the country, solely on the basis of its economic prowess **[2].**

2.0 Literature Review –

2.1 S. Soundhariya's (2015) paper's objective was to look into how to convert India into Global Manufacturing Hub, provide Employment, Boost Economic Growth, to urge both local and foreign companies to invest in India. His paper states that Indian has the capacity to push the GDP to 25% in next few years. The government of India has taken number of steps to further encourage investment and further improve business climate. "Make in India" mission is one such long term initiative which will realize the dream of transforming India into manufacturing Hub. Start-ups in the core manufacturing sectors are poised to play a crucial role in the success of 'Make in India' ambitions, said experts at a panel discussion at the 11th India Innovation Summit 2015 . Start-ups in the fields of telecom, defense manufacturing, automobile, Internet of Things, financial technology modules and mobile internet have immense potential to succeed in the scheme of 'Make in India', Make in India scheme also focuses on producing products with zero defects and zero effects on environment **[3].**

2.2 Gupta Vijay Prakash's (2015) paper has been able to identify the following major challenges in the path of making India a global manufacturing hub and accordingly made a few suggestions regarding possible solutions to deal with each of the issues:

- Improving the ease of doing business in India
- Improving the employability of general and engineering graduates
- Infrastructure development of major roads and highways in the country
- Capacity addition in the power sector to meet industrial energy demand

Although the ease of doing business score went down to 142 from 134 last year, the World Bank has taken care to distance this downslide from the NDA government which took charge barely a week earlier and World Bank has used data till May 2014 whereas most measures to improve doing business were undertaken subsequent to that. The various measures undertaken by the NDA Government to address issues related to economic growth, delay in Government decisions and reforms in the Labour law, Land law and taxation have kick started the manufacturing sector and shot the GDP growth by 5.7 % in the last quarter.

The Government has also signed a staggering USD 35 Billion investment deal with Japan for infrastructure development. If governance continues in the current manner, we can definitely hope to see significant and sustainable growth in the manufacturing sector and progress towards India becoming a global manufacturing hub **[4].**

2.3 Samridhi Goyal, Prabhjot Kaur, Kawalpreet Singh's (2015) paper objective was to identify the impact of HR and Financial Services on the development of Manufacturing sector in India and overall Indian economy, to suggest different techniques and systems through which financial assistance can be provided which is required to propel the manufacturing industry, to understand the importance of capitalizing human potential and put forward new ways of enriching human resources which is essential for the growth of Manufacturing Firms and to emphasize the promotion of assistance of financial services and importance of taping of human potential required for face-lifting the Indian Manufacturing Sector; which is the main objective of "MAKE IN INDIA" campaign. Their paper states that there is need of reforms in industrial strategies to make India a manufacturing hub. Favourable industrial framework need to be established that should attract more and more

domestic as well as foreign industrialists towards Indian Territory. There is a need for financial service providers and advisors who could work for these industrialists right from the beginning i.e. right from clearance of the project. Improved quality and better performance management system needs to be in place to guide, monitor and enhance the skill set of its work force. Mind set of Industrialists both foreign and domestic towards India needs to be changed. On the basis of the study it can rightfully concluded that People and money, both are the organization's greatest competitive edge. It is essential to unlock the human talent for the success and sustainability of any organization. The development, prosperity and sustainability of India as a Manufacturing hub clearly depend upon the immense potential of its human resources and the financial services that are available for the domestic and foreign players. Employees possessing high value and unique intellectual skills significantly contribute to generate intellectual products. If India successfully provides the industrial houses all this then it will certainly become a world manufacturing hub. This study both empirically and rationally explained the patterns through which India can become a manufacturing hub. Favourable investment climate, assistance of financial services, relax and industry favourable government policies are the essential ingredients of "MAKE IN INDIA" **[5]**.

3.0 Research Methodology

It is a Descriptive Research. The present study is based on secondary data. The required information has been derived from Articles from Journals, various related web-sites which addressed the objectives of present study.

4.0 Objective of the Study

The objective of the research is to:

i) Understand what is Make In India Mission and Make for India Caution.
ii) Study the Reforms & Issues, Challenges, Advantages and Disadvantages, Initiatives of the Government for Make in India.
iii) Study the arguments put forward for Make for India.
iv) Study the Economical Statistics of India.

5.0 Make in India and Make for India

5.1 Make in India

Make in India is an initiative of the Government of India to encourage multinational, as well as domestic, companies to manufacture their products in India. Make in India is like giving importance to export oriented manufacturing, like China **[6].**

It has a great opportunity for the government to position India as a manufacturing powerhouse able to match dominance of the developed countries on the world stage [10]. It is also an opportunity for top business investors across the world (national or international) to invest in India and to set up their business (manufacturing, textiles, automobiles, production, retail, chemicals, IT, Ports, pharmaceuticals, hospitality, tourism, wellness, railways, leather etc). **[7]**

The major objective behind the initiative is to focus on job creation and skill enhancement in twenty-five sectors of the economy. The sectors are Automobiles, textiles and Garments, Biotechnology, Wellness, Defence , Manufacturing, Ports, Food Processing , Mining, Media

and Entertainment, IT and BPM, Pharmaceuticals, Renewable Energy, Roads and Highways, Railways, Thermal Power, Oil and Gas, Space, Leather , Construction, Aviation, automobile components, chemicals and Electronic System The initiative also aims at high quality standards and minimising the impact on the environment. The initiative hopes to attract capital and technological investment in India. India would emerge, after initiation of the programme in 2015, as the top destination globally for foreign direct investment, surpassing China as well as the United States **[8].** The main objective of the scheme is to ensure the manufacturing sector which contributes around 16% of country's GDP is increased to 25% in next 5 years.

5.2 Make for India

Make for India is an ideology expressed by RBI Governor Dr. Raghuram Rajan in the talk delivered by him at the Bharat Ram Memorial Lecture on December 12, 2014 in New Delhi. It is an cautionary advise to produce as per our domestic needs, not based on global needs, so that majority of the produce will be consumed in India itself **[9].**

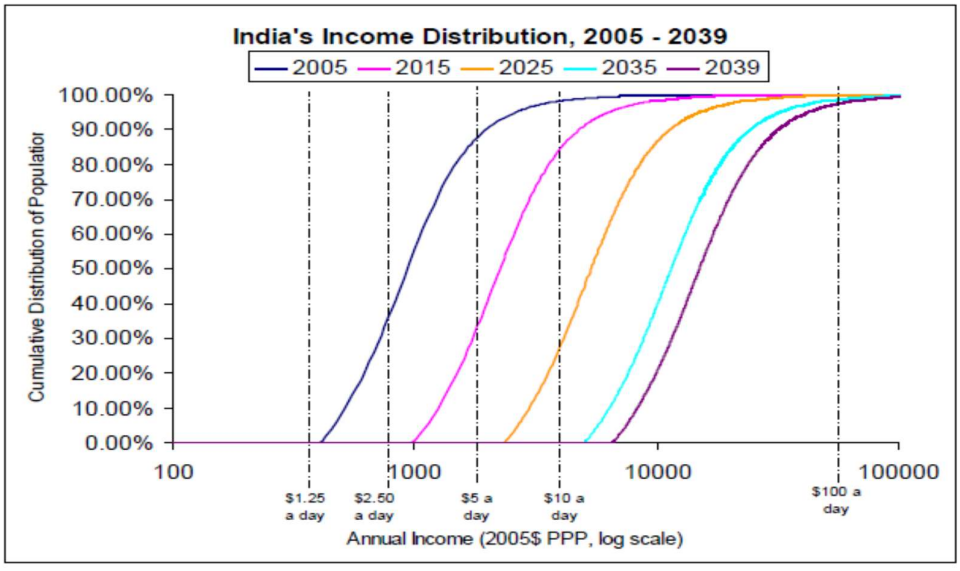
5.2.1 Population of India

The population of India is 1.277 billions (2015). Already containing 17.5% of the world's population, India is projected to be the world's most populous country by 2022. India has more than 50% of its population below the age of 25 and more than 65% below the age of 35. It is expected that, in 2020, the average age of an Indian will be 29 years, compared to 37 for China and 48 for Japan; and, by 2030, India's dependency ratio should be just over 0.4. The Rural Population of India is approx. 72%, Literacy Rate approx 81%, 22% of India's population is below poverty line and India's unemployment rate is approx. 8%. **[10]**

5.2.2 Middle Class Expansion in India

The Middle Class in India today is small (5% of population), but set to expand dramatically. India could be the world's largest middle class consumer market by 2030, surpassing both China and the US. Between now and 2039, India could add over 1 billion people to the global middle class.

Dramatic Expansion of India's Middle Class



[11]

5.2.3 Global Companies in India

While political scientists and economists do not have a standard definition for a global company, the recent informal definition for a global company is one that operates in at least more than one country. The past definition was a company based in one country that traded around the world.

One theory for a global company is one that has owners from two or more countries, and another definition is a company that has executives from a variety of nationalities. A common trait of global companies is one that offers the same product with modified changes to suit the local tastes of each country it serves**. [12]**

So a multinational company or corporation (MNC) is a company that manages its operations, production or service delivery 'from' and 'to' more than one country. Apart from playing an important role in globalisation and international relations, these multinational companies even have notable influence on a country's economy (both home and host) as well as the world economy.

As far as India is concerned, a number of multinational companies have shown interest in the Indian market. It is obvious that foreign companies come and settle in India to earn profit. As India has a wide market for different and new goods and services due to its increasing population and varying consumer taste, MNCs find it as a resourceful nation. Besides that, India's foreign directive policies, labour competitive market, market competition and macro-economic stability are some of the key factors that magnetise MNCs towards India.

In turn, India also derives a lot of benefits from MNCs such as higher level of investment, reduction in technological gap, optimum utilization of natural resources, reduction in foreign exchange gap and boost to basic economic structure. But roses do not come without thorns. So there are certain disadvantages of having MNCs in a developing country like India like competition to SMSI, increased pollution and environmental hazards, improper diffusion of profits and Forex imbalance, slow decision making and sometimes economic distress. But these don't overcome the gains of having MNCs. In India, a large number of MNCs are operating. Some of the major MNCs in India are:

(i) Microsoft Corporation (ii) Nestle (iii) Procter and Gamble (iv) Pepsi Co. (v) Sony Corporation (vi) Nokia Corporation (vii) Coca Cola (viii) International Business Machines (IBM) (ix) Sun Pharmaceutical (x) Citigroup **[13]**

5.2.4 Startup India

The Government of India on 16 January 2016 unveiled a raft of measures ranging from tax waiver for three years, ending inspector raj and mega fund to help boost the start-up eco-system. The Government announced 19 point action plan, with the promise that the government will only play the role of a facilitator and not burden entrepreneurs with complicated compliance requirement.

Highlights of the Start-Up India–

- *Funding support through Fund of Funds with a corpus of INR 10,000 crore* -
  To provide funding support for development and growth of innovation driven enterprises government will set up a fund with an initial corpus of INR 2,500 crore and a total corpus of INR 10,000 crore over a period of 4 years.

- *Credit Guarantee Fund for Startups* -
  To catalyze entrepreneurship through credit to innovators across all sections of society, Credit guarantee mechanism through National Credit Guarantee Trust Company (NCGTC)/SIDBI shall be rolled out with a budgetary corpus of INR 500 crore per year for the next four years.

- *Panel of facilitators to provide legal support and assist in filling of patent applications* – Facilitators shall provide assistance to Startups in filing and diposal of patent applications related to patents, trademarks and designs under relevant Acts. Government shall bear entire fees of the facilitators for any number of patents, trademarks or designs that a Startup may file.

- *Compliance Regime based on Self-certification* –
  To reduce regulatory burden, Startups shall be allowed to self-certify compliance with labour and environment laws. In case of labour laws, no inspections will be conducted for a period of 3 years. In case of environment laws, Startups under 'white category' would be able to self-certify compliances.

- *Faster Exists for Startups* –
  To make it easier for Startups to exist, provision for fast-tracking closure of business have been included in The Insolvency and Bankruptcy Bill 2015. Startups simple debt structures may be wound up within a period of 90 days from making an application for winding up on a fast-track basis.
- *80% rebate on filing of patent applications by Startups* –
  To enable Startups to reduce costs in their crucial formative years, Startups shall be Provided an 80% rebate in filing patents vis-a-vis other companies.

- *Fast-track mechanism of Startup patent applications* –
  In order to allow Startups to realize the value of their IPRs at the earliest possible, patent applications of Startups shall be fast-tracked for examination and disposal.

- *Relaxed Norms of Public Procurement for Startups* –
  To provide an equal platform to Startups vis-à-vis the experienced entrepreneurs/companies in public procurement Startups (in the manufacturing sector) shall be exempted from the criteria of 'prior experience/turnover' without any relaxation in quality standards or technical parameters.

- *Startup India Hub* –
  A single point of contact for the entire Startup ecosystem. Startup India Hub will be setup and will be a friend, mentor and guide for Startups through their entire journey.

- *Starting a Startup in 1 day on a Mobile App* –

To serve as the single platform for information exchange and interacting with Government and Regulatory Institutions, a Mobile App shall be made available from April 1, 2016. This will ensure that Startup companies/partnerships are registered in 1 day. Startups will also be able to file for various clearances/approvals/registrations through the Mobile-App and Portal.

- *Tax Exemption on Investments above Fair Market Value –*
  In line with the exemption available to venture capital funds to invest in Startups above Fair Market Value (FMV), investments made by incubators above FMV shall also be exempted.

- *Launch of Atal Innovation Mission (AIM) – Innovation Promotion –*
  Institution of Innovation Awards (3 per State/UT) and 3 National Level Awards. Providing support to State Innovation Councils for awareness creation and organizing state level workshops/conferences. Launch of Grand Innovation Challenge Awards for finding low cost4 solutions to India's pressing and intractable problems.

- *Tax Exemption to Startups for 3 Years*
  To promote the growth of Startups, profits of Startups, setup after April 1, 2016, shall be exempted from Income-tax for a period of 3 years.

- *Setting up of 35 new incubators in Institutions* -
  Funding support of 40% (subject to a maximum of INR 10 crore) shall be provided by Central Government for establishment of new incubators in existing institutions for which 40% funding by the respective State Government and 20% funding by the private sector has been committed.

- *Innovation Focused Program for Students –*
  Innovation Core program shall be initiated to target school kids with on outreach to 10 lakh innovations from 5 lakh schools. A Grand Challenge program ('National Initiative for Developing and Harnessing Innovations') to support and award INR 10 lakhs to 20 student innovations from innovation and Entrepreneurship Development Centres. Uchhattar Avishkar Yojana has earmarked INR 250 crore per annum towards fostering "very high quality" research amongst IIT students.

- *Launch of Atal Innovation Mission (AIM) – Entrepreneurship Promotion –*
  Establishment of Sector specific Incubators. Establishment of 500Tinkering labs with 3D printers in Universities across the country, including smaller cities. Pre-incubation training to potential entrepreneurs. Strengthening of existing Incubat4ion facilities. Seed funding to high growth Strartups.

- *Setting up of 7 new research parks modelled on the research park at IIT Madras –*
  Government shall set up 7 new Research Park in 6 IITs and 1 IISc with an initial investment of INR 100 crores each. The park shall enable companies with a research focus to set up base and leverage the expertise of academic/research institutions.

- *Capital Gain Tax exemption for Startup for 3 years* -
  Exemption shall be given in case Capital Gains are invested in the Fund of Funds recognized by the Government. In addition, existing capital gain tax exemption for investment in newly formed manufacturing MSMEs by individuals shall be extended to all Startups.

- *Relaxed Norms for Public Procurement for Startups –*
  To provide an equal platform to Startups vis-à-vis the experienced entrepreneurs/companies in public procurement, Startups (in the manufacturing Sector) shall be exempted from the criteria of "prior experience/turnover" without any relaxation in quality standards or technical parameters. **[14]**

5.0 Reforms & Issues, Challenges, Advantages and Disadvantages of Make in India

6.1 Reforms & Issues

- India has always been a pivotal part of the world's manufacturing community and the issues that plague its rise is that of economic reforms which remains largely unresolved. The urgent need is to reform archaic laws to facilitate economic growth and infrastructure growth. Policymakers must avoid partisan politics for the sake of swift reforms.

- Another issue of concern is protection of foreign investor's interests. For example the government must address intellectual property rights regulations and enforce the rule of law whenever it is being violated which will protect foreign investors investing resources, technologies and business know-how in India.

- Ensuring higher volume of FDI in industries, infrastructure and pharmaceutical sectors for providing proper environment in not going to be easy as well. Not only this, several long entrenched issues such as ease of doing business, labour reforms and urbanization are all going to prove as major obstacles in drawing FDI.

- Labour reforms remain a very sensitive topic in India, yet, with China experiencing a surge in labour unrest amid economic slowdown, this is India's opportunity to position itself as an alternative to China and deliver on its promise of economic growth and employment. The government has already began making progress on this front with proposed changes to allow businesses to make greater use of apprentices, allowing workers to work overtime and allow women to work night shifts. It is estimated that two thirds of all Indians live in villages. Should the 'Make in India' drive be successful it has to cater to the millions of workers expected to work in the manufacturing sectors based in cities.

- India's small and medium-sized industries can play a big role in making the country take the next big leap in manufacturing. India should be more focused towards novelty and innovation for these sectors. The government has to chart out plans to give special sops and privileges to these sectors.

- India's 'Make in India' campaign will be constantly compared with China's 'Made in China' campaign. The dragon launched the campaign at the same day as India, seeking to retain its manufacturing prowess. India should constantly keep up its strength so as to outpace China's supremacy in the manufacturing sector.

- India must also encourage high-tech imports; research and development (R&D) to upgrade 'Make in India' give edge-to-edge competition to the Chinese campaign. To do so, India has to be better prepared and motivated to do world class R&D. The government must ensure that it provides platform for such research and development **[15].**

6.2 Challenges

- Creating healthy business environment will be possible only when the administrative machinery becomes efficient. India has been very stringent when it comes to procedural and regulatory clearances. A business- friendly environment will only be created if India can signal easier approval of projects and set up hassle-free clearance mechanism.

- India should also be ready to tackle elements that adversely affect competitiveness of manufacturing. To make the country a manufacturing hub the factors of non-tax barriers, such as various quotas must be removed. India should also be ready to give tax concessions to companies who come and set up unit in the country **[15].**

6.3 Advantages

- Manufacturing sector led growth of nominal and per capita GDP. While India ranks 7th in terms of nominal GDP, it ranks a dismal 131st in terms of per capita GDP.

- Employment will increase manifold. This will augment the purchasing power of the common Indian, mitigate poverty and expand the consumer base for companies. Besides, it will help in reducing brain drain.

- Export-oriented growth model will improve India's Balance of Payments and help in accumulating foreign exchange reserves (which is very important given the volatility in the global economy with multiple rounds of Quantitative Easing announced by major economies).

- Foreign investment will bring technical expertise and creative skills along with foreign capital. The concomitant credit rating upgrade will further woo investors.

- FIIs play a dominant role (relative to FDI) in the Indian markets. However, FIIs are highly volatile in nature and a sudden exodus of hot money from India can effect a nosedive in the bellwether indices. Make in India will give an unprecedented boost to FDI flows, bringing India back to the global investment radar.

- The urge to attract investors will actuate substantial policies towards improving the Ease of Doing Business in India. The Government of the day will have to keep its house in order (by undertaking groundbreaking economic, political and social reforms) to market Brand India to the world at large **[15].**

6.4 Disadvantages

- From a theoretical perspective, Make in India will tend to violate the theory of comparative advantage. If it is not economically feasible to manufacture a commodity in India, it is best to import the same from a country which enjoys comparative advantage in its production. International trade, after all, is welfare augmenting.

- Reiterating the point made by Dr. Raghuram Rajan, India, unlike China, does not have the time advantage as it undertakes a manufacturing spree. The essential question is - Is the world ready for a second China?

- Make in India will lead to an unsustainable focus on export promotion measures. One such measure is artificially undervaluing the rupee. This will have devastating consequences for the import bill.

- A relative neglect of the world economic scenario may not augur well for Make in India. With the US and Japan economies yet to recover from their economic crises and with the EU floundering, one needs to be wary about the demand side of Make in India. The clairvoyance of the incumbent RBI governor to Make for India should be put to good use **[15].**

6.5 Initiatives of the Government

Ten key sectors will play a major role in the manufacturing sector in the future:

- Aerospace & Defence
- Automobiles
- Automobile Components
- Chemicals
- Construction Equipment & Technology
- Electronic Systems Design & Manufacturing
- Industrial Manufacturing
- Food Processing
- Pharmaceuticals
- Textiles **[16]**

Five industrial corridor projects have been identified, planned and launched by the Government of India in the Union Budget of 2014-2015, to provide an impetus to industrialisation and planned urbanisation. In each of these corridors, manufacturing will be a key economic driver and these projects are seen as critical in raising the share of manufacturing in India's Gross Domestic Product from the current levels of 15% to 16% to 25% by 2022.

Along these corridors, the development of 100 Smart Cities has also been envisaged in the Union Budget of 2014-2015. These cities are being developed to integrate the new workforce that will power manufacturing along the industrial corridors and to decongest India's urban housing scenario.

A National Industrial Corridor Development Authority (NICDA) is being established to converge and integrate the development of all industrial corridors. **[17]**

The five industrial and economic corridors are at different stages of implementation.

The corridors are - Delhi-Mumbai Industrial Corridor (DMIC); Bengaluru- Mumbai Economic Corridor (BMEC); Chennai-Bengaluru Industrial Corridor (CBIC); Visakhapatnam-Chennai Industrial Corridor (VCIC) and Amritsar-Kolkata Industrial Corridor (AKIC).

" BMEC, VCIC and AKIC are in the initial stages of implementation whereas master planning for all the three nodes in CBIC and all nodes except for 'Dadri Noida Ghaziabad' investment region under DMIC have been completed. The various trunk infrastructure projects like development of roads, drainage, sewage, potable water, water treatment, sewage treatment plant are being developed under DMIC.

According, to the Government the 'Make-in-India' programme represents an attitudinal shift in how India relates to investors - not as a permit-issuing authority, but as a true business partner. "Twenty-five industry related Ministries are working on sector-specific targets, which have been identified by them after detailed discussion with various stakeholders in the National Workshop held on December 29, 2014. Each Ministry has identified action plan for the next one year and three years," The 'Make-in-India' initiative aims at promoting India as an investment destination and establishing the country as a global hub for manufacturing design and innovation. The initiative also looks at providing a congenial environment to the business community so that they can devote their effort, resources and energy to productive work. "A number of steps have been taken by the government to improve ease of doing business. Rules and procedures have been simplified and a number of products have been taken off licensing requirements." **[18]**

7.0 Arguments for Make for India

- Make in India excessively focuses on a growth of single sector, i.e manufacturing. Such over-emphasis is flawed because we think what worked for China will work for us too. China started the same drive more than 30 years back when global situation was accommodating for it.

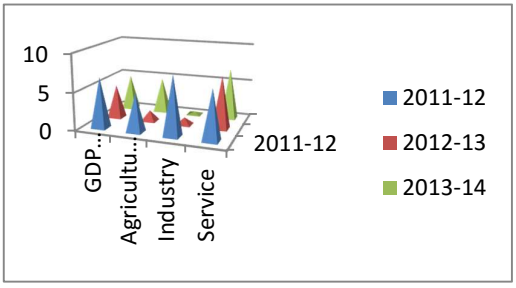
- The export-driven economy like China may have succeeded at that time. But now the global growth (mainly in developed countries) is very slow. Another export-led economy (India) may not have that advantage at the time when we are so dependent on global economy.

- Usually, export-driven economies offer a set of incentives (like cheap inputs, area, formalities, taxes etc) for exporting industries and most importantly, an undervalued rupee (If 1$=60 Rs., an exporter will get 60 Rs for per unit of his export. If rupee is undervalued and becomes 65 Rs. per dollar, he will receive now 65 Rs. for the same unit's export). Such thing may not translate into real export-driven growth due to reasons cited in above points.

- The country can rather raise and tap domestic demand growth and aim to ful fill it **[19].**

8.00 Indian Economy Statistics

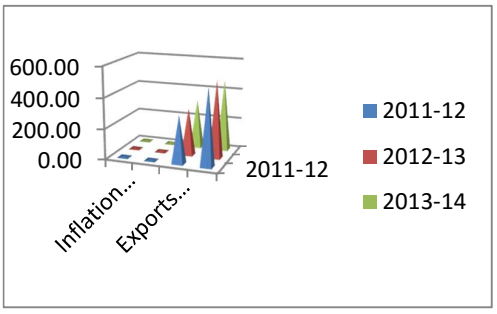
Item	2011-12	2012-13	2013-14
GDP Growth Rate %	6.69	4.47	4.74
Agriculture %	5.02	1.42	4.71
Industry %	7.81	0.96	0.35
Service %	6.57	6.96	6.78



[15]

Item	2011-12	2012-13	2013-14
Inflation WPI %	8.80	7.50	5.90
Inflation CPI %	8.40	10.20	9.50
Exports (US$ bn)	309.80	306.60	318.60
Imports (US$bn)	499.50	502.20	466.20

[20]



9.0 Conclusion of Study

Make in India is Government's attempt at replicating the manufacturing successes of South Korea, Taiwan, China and other East Asian countries. Unlike those countries, India never built a range of factories or manufacturing infrastructure. Thus, we were left behind in the tides of time. RBI Governor gives his argument that the time is up for an East Asian style growth and we need to look at our own strengths.

Manufacturing is key to employment at the lower levels. We are not going to get the rural poor work for Facebook or McKinsey. They need to be employed by factories, so that their next generation can move up and grow up in the ladder. Manufacturing is key to technology & service prowess. Superiority in that sector will have spillover effects through R&D etc. To accelerate manufacturing, Government can provide more incentives to industrialists - including a weak rupee and incentives to export **[21].**

Make for India" is to make product specific for Indian market. It is the cautionary advise of RBI Governor. We are more dependent on the global economy than we think. That it is growing more slowly, and is more inward looking, than in the past means that we have to look to regional and domestic demand for our growth – to make in India primarily for India. Domestic-demand-led growth is notoriously difficult to manage, and typically leads to excess. This is why we need to strengthen domestic macroeconomic institutions, so that we can foster sustainable and stable growth. At the same time, we cannot let foreign markets shrink further, and we have to take up the fight for an open global system. Rather than being reactive, we have to be active in setting the agenda. That requires investment in our idea-producing institutions – research departments of official bodies, think tanks, as well as universities. The diminished expectations in the world at large should not be a reason for us to lower our sights **[21].**

The world is in the throes of a major expansion in the middle class, particularly in emerging Asia. The global middle class is expected to grow from under 2 billion consumers today to nearly 5 billion within two decades. Middle classes are an important key driver of growth, as the income elasticity for durable goods and services for middle class consumers is greater than one. China and India are at the forefront of the expansion of the global middle class. The world economy can be expected to increasingly rely on the middle classes of these two Asian powers as key sources of global demand. **[22]**

It is therefore, necessary to focus on making India a 'global manufacturing hub' through export incentives. Also focus on labor-intensive manufacturing through financial incentives for large investments in manufacturing facilities in specific industries such as leather, heavy

equipment, electronics, etc. Neither an incentive-driven, export-led growth or import-substitution strategy may not work for the country in the current global economic scenario. **Indirectly we must 'Make in India for India'**

10.0 Limitations & Scope for Future Study

10.1 Limitations –

The Limitations of the Study is that it is based only on secondary data and it studies only two perceptions i.e. Make in India and Make for India.

10.2 Scope for Future Study

- To make a study with reference to cross country economies.
- To take up a study between selected Sectors.
- To Study the impact of perceptions after few years.

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***Table* - India – Micro-Economic Summary: 1999-00 to 2013-14 (on 1st December, 2014)**

Indicators	**1999-2k**	**2000-01**	**2001-02**	**2002-03**	**2003-04**	**2004-05**	**2005-06**	**2006-07**	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**2012-13 (RE)**	**2013-14 (Adv.E)**
India's Real GDP Growth Rates (Factor Cost)	8.00	4.15	5.39	3.88	7.97	7.05	9.48	9.57	9.32	6.72	8.59	8.91	6.69	4.47	4.74
Agriculture growth (%)	2.67	-0.01	6.01	-6.60	9.05	0.18	5.14	4.16	5.80	0.09	0.81	8.60	5.02	1.42	4.71
Industry growth (%)	5.96	6.03	2.61	7.21	7.32	9.81	9.72	12.17	9.67	4.44	9.16	7.55	7.81	0.96	0.35
Services growth (%)	12.05	5.07	6.61	6.74	7.89	8.28	10.91	10.06	10.27	9.98	10.50	9.67	6.57	6.96	6.78
By Demand (%YoY)															
Consumption	7.2	3.0	5.3	2.3	5.4	1.9	8.7	7.7	9.4	7.7	8.4	8.2	8.9	5.2	4.7
Private Consumption	6.1	3.4	6.0	2.9	5.9	1.7	8.6	8.5	9.4	7.2	7.4	8.7	9.3	5.0	4.8
Public Consumption	13.2	0.9	2.3	-0.4	2.6	3.4	8.9	3.8	9.6	10.4	13.9	5.8	6.9	6.2	3.8
Gross Fixed Capital Formation	**11.2**	**0.0**	**7.4**	**6.8**	**13.6**	**20.7**	**16.2**	**13.8**	**16.2**	**3.5**	**7.7**	**11.0**	**12.3**	**0.8**	**-0.1**
Consumption; Investments, Savings (% GDP)															
Consumption	79.4	78.5	78.9	77.2	75.0	70.01	69.2	68.0	67.2	68.6	69.1	67.5	68.5	68.8	68.9
Capital Formation	25.3	23.8	22.3	24.6	26.9	32.82	34.65	35.66	38.11	34.30	36.30	36.5	36.4	34.7	31.4
Gross Domestic Savings	24.2	23.2	22.6	25.4	28.7	32.41	33.44	34.60	36.82	32.02	33.69	33.68	31.35	30.09	30.5
Money Supply	**16.0**	**16.1**	**167.0**	**16.1**	**13.0**	**14.0**	**15.9**	**20.0**	**22.1**	**20.5**	**19.2**	**16.2**	**15.8**	**13.4**	**17.0**
Bank Credit growth	15.3	23.2	15.3	23.7	15.3	30.9	37.0	28.1	22.3	17.5	16.9	21.5	17.0	14.1	15.0
Deposit growth	14.6	17.0	14.6	16.1	17.5	13.0	24.0	23.8	22.4	19.9	17.2	15.9	13.5	14.2	13.5
Fiscal Indicators (% GDP)															
Centre'S Fiscal Deficit			-6.0	-5.7	-4.3	-3.9	-4.0	-3.3	-2.5	-6.0	-6.5	-4.8	-5.7	-4.9	-4.6
State Fiscal Deficit			**-3.6**	**-3.5**	**-3.9**	**-3.4**	**-2.5**	**-2.1**	**-1.4**	**-2.3**	**-2.9**	**-2.1**	**-2.4**	**-2.3**	**-2.2**
Combined Deficit (Centre+State)			-9.6	-9.2	-8.2	-7.2	-6.5	-.5.4	-4.0	-8.3	-9.4	-6.9	-8.1	-7.2	-6.9
Inflation – WPI (Average)	**3.3**	**7.1**	**3.6**	**3.4**	**5.5**	**6.5**	**3.7**	**6.5**	**4.8**	**8.0**	**3.6**	**9.6**	**8.8**	**7.5**	**5.9**
CPI (Average)	**3.4**	**3.7**	**4.3**	**4.1**	**3.8**	**3.9**	**4.2**	**6.8**	**6.2**	**9.1**	**12.3**	**10.5**	**8.4**	**10.2**	**9.5`**
Exports (US$bn)	**37.5**	**45.5**	**44.7**	**53.8**	**66.3**	**85.2**	**105.2**	**128.9**	**166.2**	**189.0**	**182.4**	**250.5**	**309.8**	**306.6**	**318.6**
% YoY	**9.5**	**21.1**	**-1.76**	**20.36**	**23.23**	**28.51**	**23.47**	**22.53**	**28.94**	**13.72**	**-3.49**	**37.34**	**23.67**	**-1.03**	**3.91**
Imports (US$bn)	**55.4**	**57.9**	**56.3**	**64.5**	**80.0**	**118.9**	**157.1**	**190.7**	**257.6**	**308.5**	**300.6**	**381.1**	**499.5**	**502.2**	**466.2**
% YoY	**16.5**	**4.6**	**-2.76**	**14.56**	**24.03**	**48.63**	**32.13**	**21.39**	**35.08**	**19.76**	**-2.56**	**26.78**	**31.07**	**0.54**	**-7.17**
Trade Deficit (US$ bn)	**-17.8**	**-12.5**	**-11.6**	**-10.7**	**-13.7**	**-33.7**	**-51.9**	**-61.8**	**-91.5**	**-119.5**	**-118.2**	**- 130.6**	**-189.8**	**-195.7**	**-147.6**
Invisibles (US$bn)	**13.7**	**9.8**	**15.0**	**17.0**	**27.8**	**31.3**	**42.0**	**52.2**	**75.7**	**91.6**	**80.0**	**84.6**	**111.6**	**107.5**	**115.2**
Current Account Deficit (US$bn)	**-4.1**	**-2.7**	**3.4**	**6.3**	**14.1**	**-2.5**	**-9.9**	**-9.6**	**-15.7**	**-27.9**	**-38.2**	**-45.9**	**-78.2**	**-88.2**	**-32.4**
% to GDP	**-0.9**	**-0.6**	**0.7**	**1.2**	**2.3**	**-0.3**	**-1.2**	**-1.0**	**-1.3**	**-2.3**	**-2.8**	**-2.7**	**-4.2**	**-4.7**	**-1.7**
Capital Account (US$ bn)	**-9.5**	**8.8**	**8.6**	**10.8**	**16.7**	**28.0**	**25.5**	**45.2**	**106.6**	**7.4**	**51.6**	**62.0**	**67.8**	**89.3**	**48.8**
% GDP	**2.0**	**1.9**	**1.7**	**2.1**	**2.7**	**3.9**	**3.1**	**4.8**	**8.6**	**0.6**	**3.8**	**3.6**	**3.6**	**4.8**	**2.6**
Forex Assets (exc. Gold) (US$bn)	**35.1**	**39.6**	**51.0**	**100.6**	**131.2**	**137.2**	**177.3**	**275.6**	**254.6**	**283.5**	**297.3**	**296.7**	**296.6**	**295.7**	**303.7**
External Debt (US$ bn)	**98.3**	**101.3**	**98.8**	**104.9**	**112.7**	**134.0**	**139.1**	**172.4**	**224.4**	**224.5**	**260.9**	**317.9**	**360.8**	**409.4**	**442.2**
Short Term Debt	**3.9**	**3.6**	**2.7**	**4.7**	**4.4**	**17.7**	**19.5**	**28.1**	**45.7**	**43.3**	**52.3**	**65.0**	**78.2**	**96.7**	**89.2**
Exchange Rate US$/Rs.-avg.	**45.9**	**45.7**	**47.7**	**48.4**	**45.9**	**45.0**	**44.3**	**45.2**	**40.2**	**46.0**	**47.4**	**45.6**	**48.1**	**54.0**	**60.4**

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Evaluation of Supply Chain Effectiveness

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ABSTRACT

It is claimed by many professional that technology is the answer to all the problems faced by supply chain managers. No doubt it is must for the success of supply chain, but the role of people, who are crucial for the success of supply chain, cannot be ignored. One must take into account various factors viz., education, training, organizational, culture, relationship for the success in addition to technology. Last several years Structural Equation Model (SEM) has been widely used in various fields such as psychology, strategic management but not to that extent to supply chain management. Looking at the budget for training & the time actually spent on training by the organizations to enhance the skills of its people for supply chain, in comparison to other budget expenditure i.e. technology; there is need to make supply chain managers to realize the issues in operationalizing resources for minimization of cost or maximization of profits in lieu of specific markets or products.

In understanding the importance of managing human resource over the role of technology in SCM using SCM parameters for example the type of supply chain management such as partnership, vertical integration or outsourcing systems such as outsourcing, just in time or electronic data interchange, benefits and problem faced become important. There is a difference between the concept of supply chain management and the traditional concept of logistics. Logistics typically refers to activities that occur within the boundaries of a single organization and supply chains refer to networks of companies that work together and coordinate their actions to deliver a product to market. Also traditional logistics focuses its attention on activities such as procurement, distribution, maintenance, and inventory management. Supply chain management acknowledges all of traditional logistics and also includes activities such as marketing, new product development, finance, and customer service. In the wider view of supply chain thinking, these additional activities are now seen as part of the work needed to fulfill customer requests. Supply chain management views the supply chain and the organizations in it as a single entity. It
brings a systems approach to understanding and managing the different activities needed to coordinate the flow of products and services to best serve the ultimate customer. This systems approach provides the framework in which to best respond to business requirements that otherwise would seem to be in conflict with each other. Taken individually, different supply chain requirements often have conflicting needs. For instance, the requirement of maintaining high levels of customer service calls for maintaining high levels of inventory, but then the requirement to operate efficiently calls for reducing inventory levels. It is only when these requirements are seen together as parts of a larger picture that ways can be found to effectively balance their different demands (Chopra, S., Meindl, P., " Supply Chain Management, Pearson Education, Inc., 2004).

There are strong interdependencies between supply chain management and HR management and thus it is difficult to identify precise boundaries. Furthermore, these boundaries are continuously moving to accommodate an integration of supply chain and HR activities. The problem that the logistics professional faces is that managing companywide HR policies to effect coordinated change is often outside his or her management scope. This removes

the greatest point of leverage in accomplishing cross-functional integration for those who have such responsibility without commensurate authority. Moreover, it is extremely difficult to tailor coordinated HR policies that span functional departments; many logistics professionals lack knowledge and experience in this complex area (Hugos, Michael.; Essentials of Supply Chain Management, John Wiley & Sons, New Jersey, 2003).

This paper attempts to understand the benefit perception of SCM human resource with respect to technology deployment using the specific parameters like quality and quantity of information, flexibility, lead time in production, cost savings, forecasting, resources planning, operational efficiency and coordination between departments and the suppliers.

Introduction

It is becoming impossible to remove or ignore sources of turbulence and volatility in markets. Hence, supply chain managers must accept uncertainty, but they still need to develop a strategy that enables them to match supply and demand at an acceptable cost. Global supply chains are evolving into dynamic process networks in which companies connect in novel combinations based on the context and requirements of individual projects. This dynamic environment requires effective communication, team management, and constant lifecycle innovation. Human factors insights in these areas are critical for the effective development of global process networks (Mathis, R. L., Jackson, J. H.: Human Resource Management, South-Western College Pub, 2007).

Successful companies are those that consider their human capital as their most important asset. Facts and figures are the quantitative elements of successful management, yet the qualitative, i.e. the cognitive aspects, are those that actually make or break an organization. Assuming that the employees of an organization in some supply chain are individuals with own mental maps and perceptions, own goals and own personalities and as such they cannot be perceived as a whole, HRM holds that the organization should be able to employ both individual and group psychology in order to commit employees to the achievement of organizational goals (Prusa, P.: Some New Approaches in Logistic Management. In Perner´s Contact 2004. vyd. Pardubice: Univerzita Pardubice, 2004. p 56-59).

Supply chain is a term “now commonly used internationally – to encompass every effort involved in producing and delivering a final product or service, from the supplier’s supplier to the customer’s customer”. As the name implies, the primary focus in supply chains is on the costs and efficiencies of supply, and the flow of materials from their various sources to their final destinations. Supply chains encompass the companies and the business activities needed to design, make, deliver, and use a product or service. Businesses depend on their supply chains to provide them with what they need to survive and thrive. Every business fits into one or more supply chains and has a role to play in each of them. The pace of change and the uncertainty about how markets will evolve has made it increasingly important for companies to be aware of the supply chains they participate in and to understand the roles that they play. Those companies that learn how to build and participate in strong supply chains will have a substantial competitive advantage in their markets (Robertson, J.F., Copacino, W.C.: The Logistics Handbook, Andersen Consulting, New York, 1994).

If logistics professionals are to be consistently effective, they must have:

- *Integrative vision* - the vision to craft integrative, cross-functional, and cross-company programs that enable product to flow rapidly and responsively through the company and the channel.
- *Human resources ability* - the ability to harness the power of HR policies to ensure that the programs are implemented effectively throughout the company.

The economic power of cross-functional coordination is becoming widely recognized, and the first capability is now increasingly in evidence in our profession. Unfortunately, however, the second is all too uncommon. This is a root cause of the classic logistics dilemma, and it is preventing many companies from achieving their objectives. Because efficient, responsive product flow is essential to strategic success in most companies, focused HRM must become a core element in the logistics professional's portfolio. It is suggested that logistics is a sub-function of the supply chain. While logistics may be involved to some extent in an increasing number of supply chain activities, it will never include the complete supply chain spectrum. For example, functions such as sourcing, manufacturing, customer service and retailing involve logistics in their planning and scheduling in order to optimize the end-to-end supply chain, but their core operation is depend upon the functioning of HR. The ability to manage customer relationships, both internal to the organization and external, and supplier relationships is fundamental to success in supply chain management (**Source:** "*The Role of Human Resources in Supply Chains, Unpublished Research Paper*", Marinko Jurcevic, Morana Ivakovic, Darko Babic, Faculty of Transport and Traffic Sciences Vukeliceva 4, HR – 10000 Zagreb, Croatia, 2015).

Logistics professionals must learn to harness the power of human resources management to effect sweeping programs of change, not only in their own companies but in other companies in their supply and distribution channels as well. Farsighted top managers will see the huge strategic and financial gains of coordinated product flow and will give their logistics executive's new avenues of influence commensurate with their crucial responsibility. Perceptive logistics executives will realize that crafting company-wide HR policies is much more difficult than it might seem, and they will focus on acquiring this proficiency. Ultimately, the vision and savvy with which logistics professionals tailor companywide HR policies that drive coordinated product flow will go far to determine both their own effectiveness and their companies' long-run success (Steward, L. G., Brown, K. G.: Human Resource Management: Linking strategy to practice, John Wiley & Sons, Chichester, 2008).

Propositions for Managing HR over the role of Technology in SCM

Every man, bearing in mind their wishes and possibilities, selects occupation and any organization, keeping in mind the requirements of the environment and available resources will decide how to set up its organizational structure, define jobs and develop recognizable culture. Formation of certain structures of the company, except for activities with which it deals, depends on the willingness of old employees to adapt to environment changes and the readiness of new staff to embrace the culture of the organization. If appropriate organizational structure is established, its individual members and team activities can create a stimulating and pleasant environment, to educate, adjust and to reach their goals, otherwise, undefined tasks, inability to

self-decision making and the affirmation and unpleasant working atmosphere which results with dissatisfaction, higher staff turnover and poor business results. HRM as a business function encompasses the duties and tasks related to the people, their acquisition, selection, training and other activities that ensure the development of employees. The goal of human resources management is to help the company reach its strategic goals. The basic assumption of human resources management is that people are not machines and therefore we need an interdisciplinary approach for observant people in their work environment. From the manager is requested to respect the essential characteristics: trust, decentralization and distribution of information and knowledge, education, clear roles and responsibilities, freedom of action, feedback, motivation and resources necessary for action. Framework of action consists of business priorities and objectives that need to know all the employees. Managers are bond between employee and company and exercise their functions in order to achieve the integrity of the system and achieve the satisfaction of the people and the aim of the company (**Source:** "*The Role of Human Resources in Supply Chains, Unpublished Research Paper*", Marinko Jurcevic, Morana Ivakovic, Darko Babic, Faculty of Transport and Traffic Sciences Vukeliceva 4, HR – 10000 Zagreb, Croatia, 2015). The key elements that human resource management in supply chains must have are: technology, skills and education, demand of supply chain talent, training and career development, with other common skills requirement that includes financial planning, forecasting, cost analysis, knowledge of international business practices, knowledge of laws and regulations knowledge of logistics functions and the supply chain, optimization of workflow, knowledge of transportation, general management and business, languages tactical operational, contract administration and management, regulatory knowledge and negotiation skills, vendor relations / management, performance measurement and quality management, knowledge of currency markets and business implications, emerging emphasis on process and change management skills and employee engagement (Wyhra F. T.: Human Resource Architecture, SSM – Surgical Services Management, Denver, CO: AORN, May 1996, Volume 2/Number 5).
It is thus seen that the effect of competencies at individual, organizational and inter-organizational level on supply chain integration is critical for enhancing the performance of supply chain. The hypotheses in terms of propositions that are likely to result to assess the effectiveness are the propositions listed below:

Proposition 1*: Individual competencies are significantly related to the inter-organizational competencies of the focal firm.*

Proposition 2*: Organizational competencies are significantly related to the inter-organizational competencies of the focal firm.*

Proposition 3: *Inter-organizational competencies significantly impact the level of supply chain integration.*

Proposition 4: *Supply chain integration has a significant impact on overall performance of the supply chain.*

Proposition 5a: *The relationship between individual competencies and supply chain integration is mediated by the inter-organizational competencies of the focal firm.*

Proposition 5b: *The relationship between organizational competencies and supply chain integration is mediated by the inter-organizational competencies of the focal firm.*

Proposition 6a: *Inter-organizational systems moderate the relationship between inter-organizational competencies and supply chain integration.*

Proposition 6b: *Inter-organizational systems moderate the relationship between supply chain integration and overall performance.*

Methodology and Approach to assess SCM effectiveness

SEM allows measuring the efficiency of such supply chain parameters with the current usage of technology. SEM, is a very general, chiefly linear, chiefly cross-sectional statistical modeling technique. Factor analysis, path analysis and regression all represent special cases of SEM. In SEM, interest usually focuses on latent constructs i.e., abstract psychological variables like "intelligence" or "attitude toward the brand" rather than on the manifest variables used to measure these constructs. Measurement is recognized as difficult and error-prone. By explicitly modeling measurement error, SEM users seek to derive unbiased estimates for the relations between latent constructs. To this end, SEM allows multiple measures to be associated with a single latent construct. Multiple Regression Analysis (MRA) is a special case of SEM with the following structure:

$Y = a + bX + cZ + e$

- Y criterion variable
- X predictor variable
- a intercept: the predicted value of Y when all the predictors are zero
- b regression coefficient: how much of a difference in Y results from a one unit difference in X
- e residual
- $\hat{Y}$ predicted Y given X and Z or equivalently a + bX + cZ (often called "Y hat")
- R multiple correlation: the correlation between Y and $\hat{Y}$

The coefficients (a, b, and c) are chosen so that the sum of squared errors is minimized. The estimation technique is then called least squares or ordinary least squares (OLS). Given the criterion of least squares, the mean of the errors is zero and the errors correlate zero with each predictor.

If the predictor and criterion variables are all standardized, the regression coefficients are called beta weights. A beta weight equals the correlation when there is a single predictor. If there are two or predictors, a beta weights can be larger than +1 or smaller than -1. The predictors in a regression equation have no order and one cannot be said to enter before the other.

Generally in interpreting a regression equation, it makes no scientific sense to speak of the variance due to a given predictor. Measures of variance depend on the order of entry in step-wise

regression and on the correlation between the predictors. Also the semi-partial correlation or unique variance has little interpretative utility.

The standard test of a specified regression coefficient is to determine if the multiple correlations significantly declines when the predictor variable is removed from the equation and the other predictor variables remain. In most computer programs this is test is given by the t or F next to the coefficient.

Conclusion

The integration among the supply chain partners can be complex and requires unique capabilities that may be difficult or costly to imitate (Barney, 2012). By managing these integrative relationships better than the firm's competitors, it transforms itself to be a valuable internal strategic resource. This can be achieved by developing certain competencies internal as well as external to achieve a sustainable competitive advantage. In this purview, the competency based approach is one such perspective that relies on the foundation of defining critical behaviors needed for effective individual, organizational performance and further extending it to inter-firm performance. By leveraging the capabilities required for higher integration, each member in the supply chain can achieve superior performance. Collaborating Operations Management with HRM can help Supply Chain partners in developing resilient inter firm relationships and creating knowledge sharing routines. Furthermore, it is becoming imperative to strategically build competencies internally as well as externally to ensure sustainable performance at all levels.

Therefore, the importance of aligning the competencies with the business strategies and objectives in order to sustain a highly integrated supply chain is to be well understood. There is the need to merge the human resource management and supply chain management to achieve enduring results in both fields. Also, the extension of competency literature to include much important inter organizational competencies. It is important to answer questions such as what type of competencies at each level (individual, organizational and inter-organizational) have the better probability to bring out higher benefits in terms of supply chain integration and justify the need to align the supply chain workforce to bring in long term improvements in productivity and efficiency. Strategic HRM must develop competencies among individuals by building organizational and process competencies. Certainly, the paper is clearly built on only theoretical foundations. Much empirical evaluations of specific competencies affecting supply chain integration can be taken up to validate the illustrated propositions. Farsighted top managers will see the huge strategic and financial gains of coordinated product flow and will give their supply chain executives' new avenues of influence commensurate with their crucial responsibility. Perceptive logistics executives will realize that crafting company-wide HR policies is much more difficult than it might seem, and they will focus on acquiring this proficiency. Ultimately, the vision and savvy with which logistics professionals tailor companywide HR policies that drive coordinated product flow will go far to determine both their own effectiveness and their companies' long-run success.

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Review of MSME vendor performance assessment parameters in supply chain of ship building industry

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ABSTRACT

The growth of ship-building industry in India is harbinger of economic revitalization by stemming the outflow of revenue to foreign shipping company as more Indian ships meet the freight requirements and will also develop the maritime infrastructure and boost the "Make in India initiative" through the MSME vendors which support these ship-builders. The shipbuilders, with an aim to be lean and flexible are focusing on core competencies and outsourcing the non-core activities. Thus the Indian Navy, Coast Guard and Indian Shipping companies along with shipbuilders are focusing on developing a sustainable indigenous supply chain through suitable vendor management strategies. The MSMEs too would benefit from the long term interactions as it will provide thrust and much needed focus to the important areas of process improvements and enhancing quality of products and services to the exacting international standards expected by the shipbuilders. Thus ship-builders and shipping Industry are have initiated the process of registration of the vendors and their capacity and capability assessment for assuring the quality of their supply chain with aim to minimize their inventory costs and risk through innovative solutions.

The primary **purpose** of this exploratory study is to identify the various factors that need to be considered to assess the MSME vendor's capacity, capability and product delivery performance to meet the exacting quality standards in the supply chain of the shipbuilding industry. The study also aims to collate data on the factors which are focused on by the Indian Navy, Coast Guard and Ship-building industry to assess the MSME vendors and ascertain whether there are other factors viz. initiatives for building in-house technical capability, process improvements, innovative solutions etc that need to be considered for better assessment of vendors and identify parameters that may not be relevant in the present day scenario.

This **primary exploratory research** aims to get deeper insights on linkages between the various assessment parameters during vendor registration by shipbuilders and subsequent delivery performance in the supply chain. The target population for research is the various vendors of shipbuilding industry in Maharashtra/ Gujarat region and the procurement agencies in Indian Navy, Coast Guard and Shipyards. The primary data collection is through questionnaire emailed to respondents followed by in-depth interview.

The outcome of this study will provide a better understanding of the factors for assessment of vendors by the buyers (the ship building industry) and the expected feedback to the sellers (MSME vendors) in order to enable them to meet the industry expectation. The study aims to develop vendor assessment tool for the ship-builders to

evaluate the MSMEs and motivate them to perform. This research study will form the basis for formulation of appropriate models for ship building industry vendor development strategies.

KEYWORDS
Vendor, MSME, Vendor Development, Vendor Registration, Shipbuilding industry, vendor assessment, capacity assessment, capability building,

Introduction

Micro Small and Medium Enterprises (MSMEs) play a crucial role in the growth of Indian economy with a contribution of 45% in the industrial output and 40% in exports. They produce a large number of quality products for both Indian and international markets. SMEs are gradually gaining foothold in almost all sectors such as manufacturing, food processing, pharmaceuticals, textile, IT, etc. Today Indian MSMEs enjoy a plethora of opportunities for expansion and diversification across all sectors. It is a well established fact that Indian MSMEs create millions of job opportunities every year. Over the last 5 years, nearly 3500 lakh jobs were created by the MSME sector. A lot of skilled & semi-skilled manpower are employed in different MSMEs across the country. Besides, the MSMEs help Indian products get global recognition too. This leads to increase in demand for the Indian products in the international market.

It is evident that the products and services of Indian MSMEs have started occupying a foothold in the international arena. Over the years, Indian products have achieved great accolades in the global market. It has helped in the expansion of export market, and thus can be considered as one of the greatest strengths of Indian MSMEs. To take your business to the next level, you need to keep in tune with the latest technology. Technology helps you perform more efficiently and optimally incorporate new strategies. Unfortunately, many Indian entrepreneurs are unaware of such technologies or find it difficult to adhere & adapt new technologies. Moreover, they do not have easy access to these technologies either. A few technology up-gradation programs for the MSMEs have been introduced in the last couple of years by the Ministry of MSME. The core aim of these initiatives is to help the small and medium enterprises upgrade their technology and enhance their production facilities. Although, the Indian MSMEs have upgraded their product and service in terms of quality, it is yet to match the international standards. If one wants to occupy a formidable position in the global market, the offerings need to be in accordance with the international standards.

It is a well researched fact that getting a foothold in the ship-building industry and then reaching the leadership position as was done in succession by Japan, Korea, Taiwan and now China was through low-cost leadership followed by technology and quality upgrade. India too stands today in that position where labour is cheap and high entrepreneurial drive of MSME is waiting to move to next higher level in technology and quality so as to create a niche in International market. Thus the Indian Ship-building industry and the Indian MSME stand at the confluence capable of ***Revitalizing*** the Indian ***Economy*** through their joint growth by ***Pioneering Innovation*** in the Shipbuilding supply chain specifically tuned to Indian requirements.

There is a huge need for ships and vessels in India with estimations that demand will only rise in the years ahead – but even then Indian shipbuilding industry only comprises an

abysmal one per cent of global shipbuilding industry. The demand for ships, semi-submersibles and port auxiliary vessels is projected to grow in view of rising cargo traffic from/to India in coming years. These factors are likely to offer steady demand for new shipbuilding activities as well as growth in ship-repair volumes to sustain the fleet in a sea-worthy state. The need for shipbuilding cannot be more emphasized given the fact that around 90 per cent of India's foreign trade is carried out by foreign flagged carriers and even the bulk of imported crude. Other than loss of precious foreign exchange on foreign freight bill – it also makes the nation vulnerable strategically.

Indian shipbuilding is primarily centered on 27 or so shipyards of various sizes, comprising 8 public sector and 19 private sector shipyards which have 20 dry docks and 40 shipways between them wherein the ships are built. Of the 8 shipyards in public sector, there are four shipyards operating under Ministry of Defence, which cater primarily to the needs of the Indian Navy. These are Mazagon Dock Limited (MDL), Mumbai, Garden Reach & Ship Engineers (GRSE), Kolkata, Goa Shipyard Limited (GSL) Goa , and Hindustan Shipyard Limited (HSL), Vishakhapatnam. The other PSU shipyards are under Ministry of Shipping, the most notable among them being Cochin Shipyard Limited (CSL). In the private sector, the largest shipyard is at Pipavav in Bhavnagar, Gujarat, and other prominent private sector shipyards are owned by ABG group at Dahej, L&T shipyards at Hazira (Gujarat) and Kuttupally in Tamil Nadu and Bharti Shipyard at Dhabol in Ratnagiri district of Maharashtra.

Most private sector shipyards are engaged in building of medium and small vessels such as Offshore Supply Vessels (OSV) and Anchor Handling Tugs (AHT). In large ship segment, public sector shipyards, CSL and HSL, virtually hold monopoly. Private players such as Pipavav and L&T have made huge investments for construction of large vessels. Indeed, Pipavav has of recent, delivered five Panamax bulk carriers and three more are under construction. The DPSU shipyards are primarily engaged in building high value, niche segment warships and submarines of highly complex design, with MDL at the vanguard.

The status of Indian shipbuilding when benchmarking against international standards, particularly of shipyards located in Japan, South Korea and China, have major deficiencies in operations, both in the Public & Private sector. This is aptly conveyed in one snntence by a retired Admiral of Indian Navy who has also been head of three shipyards in past which included a Naval Dockyard, a DPSU Shipyard and a private one. Quoting Vice Adm (Retd) ***Harsimran Malhi*** ***"****Despite the unique advantages such as a long coastline, history of experience and expertise and availability of cheap labour, the ship building capacity of the country is marred by time overruns and low quality of product, owed to various deficiencies"*

Our shipyards as a result are unable to compete internationally for shipbuilding orders. The evidence of these shortcomings was made explicit, in 2007, when Shipping Corporation of India, the country's largest state owned shipping line placed its largest shipbuilding order of about $ 400 mn for 6 Aframax vessels with an East Asian shipyard, instead of an Indian yard.Shipbuilding industry, in addition to securing vital national security and economic interests, is critical in other sectors such as steel, manufacturing and ancillary industries. The remedy lies not only in serious rethinking of our government policies but also reworking the nitty-gritties of

shipbuilding aspects and management issues such as planning, design, production technology, scheduling, supply chain management and modernisation of our shipyard facilities.

While the shipyards are developing core competency on above aspects, the Supply Chain Management is especially important as timely supply of material for ship construction is the single most critical area which needs urgent improvement as this has high impact on both cost and time. Although the guidelines suggest scientific procurement policies such as EOQ and JIT or even better methods, these are rarely followed. Often requirements of high volume, low value class 'C' items are over estimated resulting in pile up of inventory in warehouses. These are hidden inventory – carrying costs incurred perpetually in some shipyards until material is used in some other project or sold as scrap. More shockingly, Indian shipyards have to pay more for buying indigenous goods than imports. This is because the government provides 100% tax waiver on imported shipbuilding materials. It makes better financial sense to import than buy locally. This is a government level issue that needs to be resolved. Import of material means longer lead times. JIT system becomes impractical when vendor is located abroad. This policy also hampers growth of local ancillary industries such as steel, equipment and pipe manufacturers.

The above aspect brings out that there clearly exists a need to study the Indian ship building industry, its supply chain Management, interaction with the MSME vendors and whether this supply chain is able to facilitate the value co-creation which will develop the MSME vendors through exposure to high end technology and managerial skills to enhance quality standards to world class level, which in turn will provide the ship-builders with the competitive advantage to become the future low cost leader.

Objectives

The general objective of this study is to determine the efficacy vendor selection and development being achieved by ship builder's vendor management systems. The Specific Objectives are as follows: -

- To verify the vendor registration process is able to assess the vendor's capacity, capability and Quality management system.
- To determine the parameters used by procurement agency to assess the performance of the MSME vendor.
- To establish the vendor management systems capability to rate the vendor base on current as well as cumulative performance for quality consistency and reliability.
- To determine the vendor development processes and its efficacy using the established vendor management system
- to evaluate the perception of the supply chain managers in the efficacy and efficiency of the available Vendor Management system (VMS) to clearly differentiate the performance of the vendors in terms of quality, on time delivery and other support services provided.

- To verifying the fact whether the vendor capacity & capability parameter recorded/ evaluated during the registration process was being verified/validated as part of vendor's product delivery parameter, and being assessed/ benchmarked with each order execution.
- To identity which presently used parameters are redundant which newer ones need to be considered for before evaluation of vendor and their performance bench making.

Literature Review

Various papers published National and International journal & Seminar compendium on ship building industry, supply chain Management, MSMEs, value chain co-creation has been studied. The research on the supply chain value creation and vendor assessment parameter and mechanism for development of vendors though various vendor management models across variety of industry has clearly brought out the focus is on core competency, out sourcing of activities and value creation all along the supply chain through co-operative efforts. In addition the MSMEs are considered the major growth drivers and source on competitive advantage through effective resource activation & utilization. It was observed that the quantum of study in this area was not very extensive and consisted of case studies of single or small set of supply chain, or a single ship builder or in a particular cluster in certain countries. Thus the literature study consisted of combination of supply chains, ship builders—MSME buyer – supplier dyads and MSMEs as vendors to large industries. The areas covered and gaps are as tabulated below.

Author & Journal	Title	Areas covered	Gaps
K M Chudasama, IUP Journal of Infrastructure, 2010	Shipbuilding Infrastructure: An Efficiency Analysis of Indian Shipyards	Comparative cost advantage and efficiency of Indian Shipyards using DEA	Only production capacity, build length and number of employees considered as input variables
Rahul V Altekar; South Asian Journal of Mgmt 2004	Managing Supply Chain in Indian Manufacturing Sector: A critical Study with Special Reference to Supplier Partnership	Measurement of contemporary supply management practices across 8 industries	Majority industry are process based. Project based supply chain and multi-vendor scenario not considered
AK Kar, AK.Pani; Management Research Review 2014	Exploring the importance of different supplier selection criteria	Critical supplier selection criteria across industries and across purchasing contexts. - Seven criteria are of critical importance to Indian manufacturing industries	Industry considered are process based with large volume sales. MSME suppliers not specifically considered
Ravinder Kumar,	Critical success factors	Studies 13 critical	Study from supplier

Rajesh K. Singh, Ravi Shankar; IIMB Management Review (2015)	for implementation of supply chain management in Indian small and medium enterprises and their impact on performance	success factors for implementation by SMEs in their Supply chains	perspective
Gunasekaran et al International Journal of production economics (2004)	A framework for supply chain performance measurement	Both financed & Non financed criteria Includes collaboration from all stakeholders at Decision Making Level	Conducted in British companies. Large number of parameters may need to be pruned down based on limitations in Indian context
Issac K. Ngugi, et al Journal of Small Business & Enterprise development, 2010	Relational capabilities for value co-creation and innovation in SMEs	Examines relational capabilities developed by SMEs for large customers	Study conducted in Uk food industry Case study based research, needs suitable modification for generalisation
Liang – Chuan Wu; Industrial Management & DataSystems, 2009	Supplier selection under uncertainty: a switching options perspective	Studies the likely switching action by supplier when buyer focus only on lowest price bid causing uncertainty	Study based on mathematical modeling, which needs to be verified empirically through case study or other research formats
Joe Sanderman, Andrew Cox; Supply chain management: An international Journal (2008)	The challenges of supply strategy selection in a project environment: evidence from UK Naval shipbuilding	Supply strategy in shipbuilding, lean and Agile supply chain management. questions conceptual robustness & empirical generalizability of supply strategy selection.	Considers manufacturing industries in UK shipbuilding. Based on case studies
JA Ogden, PL Carter; The international journal of Logistics Management, 2008	The supply base reduction process: an empirical investigation	Three different types of supply base reduction approaches ; Systematic elimination, standardization & tie ring supply base reduction approaches and processes	Under taken from buying organization point of view use of case studies, limited basis for generalization.
C Mena, A	Towards a Theory of	3-ties supply chain	- Based on case

Humphries, T Choi (2013)	multi-tier supply chain management	investigated to develop a theory of multi-tier supply chain management. The relationship dynamics in terms of structural power, interdependence, relationship stability & collaborative performance.	studies in UK in food industry - 3- ties supply chain considered - Regional supply chain
Helena Forelund, Patrick Jonsson; International journal of operations & production management Vol29, No1, 2009	Obstacles to Supply chain integration of the performance management process in buyer-supplier dyads – The buyers perspective	- Degree of supplier relationship obstacles & operational tools Obstacles industry supply chain integration of the performance management (PM) process. - Quantitative assessment based on hypothesis testing.	Standard metrics not considered in study
Naina Samuel, Polawat Pupipat, Atin Nam Sung (2011) International Journal of GSTF Business Review	Competition in ship building industry industry – can The Korean Shipbuilding giants sustain their competitive Advantage?	competitive advantage in long run based on its cost effective & high quality vessels - learning effects - Competitive force analysis	Pertaining to one country and its policies
Gilbert n Nyaga ; Daniel F Lynch; Journal & Supply chain management, Jul 2013	Power asymmetry, adaptation & collaboration in dyadic relationships involving a powerful partner	-Perception of power use and prevailing relationship - Quality in dyadic relationship in terms of behavioural and operational outcomes due power asymmetry -Nature of relationship dictates which power source is most appropriate.	Relationship between large MNC. & its top suppliers reflects high value relationship - Does not cover less critical relationship - Changing power perception with age not considered.
Aleksandra Xtiuvani , Journal of business	Exploring factor effecting trust and relationship quality in	critical factors influencing trust between partners in	Study of 162 Albanian businesses

studies quarterly, 2012	supply chain context	SC which includes social Interactions, communication, competence & reputation, rule of law, personality traits.	Not generalized across region

The literature review indicated that vendor management in the supply chain of ship-building industry, especially in India has not been studied empirically. **The fact that about 60% of ship-building cost is due to material requirement and of this the Class C inventory, which is primarily supplied by the MSME vendors has large variety and considerable variability in requirement** (in terms of quantity and timing). Thus by controlling this variability through effective Vendor Management System as one of the Supply Chain best practices, will considerably impact the **overall cost and achieve on-time** ship-delivery. This study aims to assess the gaps in the established vendor management systems through an empirical study in the context of various theories and concept on improving and developing vendor through integrated supply chain process. This research aims to fill the gap in the study with reference to ship building which has project like environment thus requires the supply chain to be both lean and agile at some time with consequent uncertainty in the development path that a MSME vendor should adopt to become a preferred supplier to this industry. In particular this study aims to fill the gap w.r.t Indian ship building industry and MSME vendor development process being practiced.

Research Methodology

The research methodology followed is a combination of primary and secondary research with the primary data collected concerns the perception of the supply chain managers regarding the existing Vendor Management System(VMS) in its ability to suitably assess the various MSME vendor and provide the necessary decision support system to effectively carryout the procurement process meeting the primary objective of supplying quality products to ship builders of lowest possible cost

The data was collected using questionnaire distributed through email or in print form circulated. The supply chain managers across the complete hierarchy were considered for the study. The survey included the managers from executive level to the head of supply chain management. A total of ten such organizations were considered in Maharashtra, Kochi and Visakhapatnam region. The study included a total of 170 manager executives selected of random from each strata of hierarchy to achieve stratified random sampling, however the inputs were specifically obtained from Chief Procurement Officers (HoDs) of each supply chain organization. In addition a follow-up interview was conducted with the HoDs to get in depth inputs on innovative practices being adopted to overcome the limitation imposed by the

procurement procedures & the MIS system being used. The organization included 04 from Navy, 03 from shipyards one indigenization organization and one each quality assurance agency and ship-repair organisation.

The data collection instrument used viz, the questionnaire's content validity was ascertained through pilot testing in one procurement organization and expert opinion taken from Chief Procurement Officers (HoDs) of three different organization viz Navy, shipbuilder and indigenization organization. A total of 170 Supply Chain executives & manager were considered in the survey and response received from 103 (61%) of these 19 were not considered view incomplete responses/ responders not carrying out SC activity presently due change in functional aspects of role. Thus 84 responses have been considered in this study. The questionnaire consisting of 26 items had 7 open ended questions to enable respondents to list parameter/data and give additional information on peculations or innovative methods being followed. The respondents with gave inputs on these aspects were telephonically interviewed to attain additional information on the practise followed/adopted/adapted.

A large vendor base of over 140 were considered from across variety of product port folios and location, however the response rate was less than 60% with only 83 responses received. Of these about 39 were un-useable view very large quantum of missing data or excessive amount of socially desirable Response (SDR) bias which could not be updated despite attempts to follow up. Thus a total of 44 responses was considered after suitable corrections/ completion of data through following interviews. The questionnaire consisted of 38 items of which 15 were open-ended to elicit additional information/ perception which did give some relevant inputs.

Hypothesis

In this study based on the objectives stated above the various hypothesis considered are as follows:-

H_1: The vendor registration process does not capture the MSME vendor capacity, capability and quality management process for SC manager necessary to correctly evaluate the vendors.

H_2- The Vendor Management System does not provides SC manager necessary decision support service (DSS) for differentiating vendors on performance parameter

H_3- The Vendor Management System collates vendor performance parameter against the capacity/capability data to provide refined vendor rating to SC manager

H_4: The vendor management programme of procurement agencies does not clearly differentiate based consistent performance in terms of product quality, on the delivery and efficient support services for suitably rating the vendor.

H_5: The vendor management system does not clearly distinguish between traders, manufacturers, intermediary to suitably support the vendor short listing process.

H_6: The vendor management system does not capture the developmental parameters like in-house technical capability enhancement, process improvement, innovative solutions etc. to provide the supplier or the buyer inputs to initiate long term relationship based on quality of performance.

The above hypotheses were tested using one way ANOVA for different procurement agencies. The consolidated data are considered for testing the above for hypothesis and based on that hypothesis H1 & H3 were rejected and hypothesis H2 & H4 were accepted. Thus based on the primary data it can be reasonably concluded that the VMS does provide the supply chain manager the data on capacity & capability of vendors of the registration process. However acceptance of H2 & H4 hypothesis indicates that although the vendors ability and performance data is not being decision support services in form of cumulative vendor rating and segregation of vendors based on their performance multiple deliveries. Also significant difference was observed in H_1, H_3 & H_5 with the VMS of shipbuilders providing better inputs on vendor registration parameters in comparison to Naval Procurement agencies. This granularity of data processing severely limits the SC manager in decision making based on system generated data and requires them to carry out this assessment manually or by using innovative techniques which was highlighted as reprocess to open ended question. Hypothesis H6 was accepted by all agencies as the existing system does not explicitly include this functionality in the business rules based on the Defence Procurement Procedures (DPP) and Defence Procurement Manual (DPM) which although has this guideline, but is complex to implement as an algorithm.

Findings

The study was exploratory in nature aimed of assessing the perception of the various supply chain managers regarding the capability of established VMS to enable them to effectively manage the vendors. The general perception of all SC managers is that there exists a vendor registration system which follows the government stipulated procedures and captures vendor data required. The VMS is not designed to operate with this data as the primary basis, however utilises the data for vendor short listing purpose when required to either expand/peruse down the ready list held with individual SC managers. Even among the Supply Chain Managers, there exists a gradation in understanding levels in direct relation to organizational hierarchy regarding the utility and applicability of vendor assessment data in carrying out the procurement activities on require basis. This is evident from graphical analysis that executives are unable to derive direct utility as compared to senior experience SC manages. This analysis is based on data collected during interview about this aspect brought out that as the VMS itself does not generate this input, the data analysis is carried out through pattern recognition achieved through long range past experience. The chief procurement officer brought out that as the existing data

structures do not enable such analysis within the system, suitable experiential database is created external to the VMS by the respective portfolio manager to identify such patterns quickly.

Another significant finding was regarding absence of mechanism to capture data on manufacturers performance in case of an Intermediary being the registered vendor. The inputs from open ended questions and follow up interview brought out that such information is available intermittently and discretely in case of multiple intermediary vendors sourcing from a particular manufacturer, however collation to verify capacity & consistency of performance is not presently available within the existing VMS.

The vendor registration process data capture is considered adequate to assess minimal qualification criteria to become suppliers to ship builders as per perception of both buyer (ship builder) and vendors. There exists a distinct difference in perception of procurement agencies and vendors in reference to capture of vendor performance parameters on quality, delivery and service aspects. Both the buyers and suppliers agree on the fact that developmental parameters are not captured by VMS. Similarly the consistency of performance is not assessed by vendor management system as per the vendor's perception, however there exists significant dichotomy on this aspect from side of buyers with certain agencies indicating this is being considered and not considered significant by others. In addition there is no distinction for manufacturing/indigenous sourcing/import which does not help much in confidence building as for as MSMEs are concerned in terms of developing capability against assurance for business prospects in future.

In addition vendor assessment data for a particulars vendor cannot be accessed from other procurement agencies, thus severely limiting organizations to access data online and carry-out assessment real-time regarding capacity availability in case orders are booked for multiple organisations.

The study also clearly brings out that there exists no clearly defined parameters or VMS generated indices which will enable to engage vendors for long term business contracts based on consistency in performance, on time delivery and superior product quality. Availability of this feature in VMS would definitely reduce the amount of uncertainty and complexity in the ship-builders supply chain and ambiguity for the consistent vendors regarding future business scope.

Conclusion

It is therefore evident from the above primary study that the vendor management system established in the various organization follow the laid down procedures and norms and meet the current requirements wherein the procurement is on the basis of the competitive bidding, which focuses on minimum procurement cost at a point of time. The fact that such outlook is outdated and not cost effective is understood by the senior Procurement Offcers and modern supply chain practices are being adapted through inhouse managerial processes, however the design of the VMS has not been able to cater for the present day requirements of vendor development through

their performance measurement the system. The existing VMS due to lack of agility or adaptability is not able to seamlessly capture aspects of higher quality, consistent on time delivery, innovations, flexibility displayed by vendors in meeting buyer's requirements. Additionally, it has no mechanism for taking useful inputs like availability of capacity & capability to develop long term supply chain relationship which is a practice in all the progressive supply chain in other industries.

It is also been highlighted that organizations are not able to harvest the readily available data on vendor performance held individually for cross-validation and developing a comprehensive performance picture for a particular vendor. In order to overcome this granularity, it is essential to develop suitable mechanism to seamlessly integrate data across multiple VMS to create a suitable knowledge management system which will be a useful DSS tool. It is also brought out that there exists a need to train the SC executive on vendor registration process as this activity will enhance the perceptual depth of operation of supply chain and enable them to identify leverage points which will inform help develop a more effective VMS system in future. Such a system would considerably reduce the complexity and uncertainty in the supply chains of ship-building industry. In such a scenario both the buyer and consistent vendor stand to gain as the ambiguities and volatility presently favouring the unscrupulous vendors exploiting the uncertainty and complexity of supply chains to deliver minimum requisite quality and low one time transaction cost but which is extremely expensive and damaging on long term basis on overall quality and delivery performance on the individual ship-builder and the national ship-building industry as a whole

Limitations

This study was conducted in select organization primary involved in SC procurement action. For better analysis the complete set of organization/agencies across the supply chain viz the customer, material specifying authority, QA agencies, vendor, manufactures may be included to better evaluated the efficacy of complete supply chain. However such a study may have to be carried out in form of individual supply chain & multiple chain will need to be analysed for suitable generalization. The parameters like trust, inter-dependence, structural poses and communication efficacy are other parameters in SC studies which has not be considered in present study limit is scope as it will introduce large number of variables and world form last of much extensive study planned

Contribution of this Paper

In its own small way, this study has been able to identify the expectations from the supply chain managers to develop an effective VMS which will identify most suitable MSME vendors for the ship-builders who are differentiated on basis of product quality and ability and willingness to come upto the expectations of the order-placing-agencies. This will free the supply chain manager from micro-management and cost saving on short term basis and focus his/ her attention

on developing effective and efficient supply chain capable on on-time delivery on quality products by suitable vendor development activities, which not only add value but also reduce overall cost.

As a corollary, this vendor development activity will provide the consistent MSME vendor a well communicated requirement by the ship-builders on product requirements and provide mechanism to establish long-term relation through long term contracts will provide the necessary impetus to them to focus on process improvements to enhance quality and on-time delivery requirements. If clear mutual understanding of expectations and deliverables is worked out, the outcome gives way to many tangible as well as intangible benefits that can accrued to the ship-builders as well as the MSME suppliers. In other words the vendor registration process, the first step in Vendor-development will start getting treated as an investment with high returns, with consequent focus on selection of the MSME suppliers being considered for long-term relationship as business partners.

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Inventory Management: An Enabler for Supply Chain Responsiveness and Efficiency in Organized Retail Sector

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ABSTRACT

Today, logistics networks and supply chain are seen as a matter of survival and competitive advantage. Effective supply chain management has become a potential way to improve performance through matching supply chain practices and competitive advantages in the competitive world. The activities from the supply chain transform raw materials and components in a product that is delivered to the consumer or to the user. The inventory, together with the transport, the location of the storage represent an important factor that influences the performance of the supply chain. The changes of the inventory policies can lead to a dramatic alteration of the supply chain's efficiency and responsiveness. Observation shows that there is a serious problem regarding inventory management in organizations, particularly in organized retail sector.

Controlling inventory is need of the hour as it formulates the business success/failure as competition is intense, growing day-by- day. This research conceptualizes and develops the role of inventory management strategies and inventory management practices in fostering supply chain responsiveness and efficiency. The primary objective of this paper is to study the impact of selected inventory parameters on the responsiveness and efficiency of retail supply chain as inventory management across the supply chain is a big challenge for improving coordination among value chain. Survey method was used with the application of convenience sampling in selection of units within the selected organized retail sector. Primary data were collected through the use of structured interviews from organized retail supply chain professionals. Secondary data were collected from websites, journals, research papers and articles, reference books.

The study finds that all selected inventory parameters have a positive relationship towards the supply chain efficiency and responsiveness. For supply chain practitioners, the results indicate that firms benefit greatly if they consider the strategies of their supply chain in terms of inventory and that such a matching yield to improve the supply chain responsiveness and efficiency in organized retail sector.

Key Words: Supply Chain Responsiveness and Efficiency, Inventory Management.

INTRODUCTION-

Organized retail has played a major role in driving the economy of developed nations and provides a lot of growth opportunities to developing nations. Several alterations are happening to the face of retail by way of government regulations, adoption of new technologies and evolving consumer needs. Retailing in India is gradually inching its way toward becoming the next boom industry. The whole concept of shopping has altered in terms of format and consumer buying behavior, ushering in a revolution in shopping in India. Modern retail has entered India as seen in sprawling shopping centers, multi-storied malls and huge complexes offer shopping, entertainment and food all under one roof.

As a consequence, Indian corporate houses are refocusing its strategic perspective in retail marketing with the idea to use resources optimally in order to create core competence and gain competitive advantage. Retail trade has emerged as one of the largest industry contributing to employment generation, revenue generation, increased turn over and many more. Organized retailing is showing signs of enormous creativity. It. has emerged as one of the most dynamic and fast paced industries with several players entering the market.

The major challenge facing organized retailers are on the fronts of poor supply chain management. Over the past decade, management has come to realize that to ensure long term sustainability is the efficient and effective management of their supply chains. Ideally, retailers' goal would be zero out of stock and an inventory process where inventory is replenished daily as it sells but logistics, customer demands, economy of scale, productivity, uncertainty, and unpredictability makes this goal a far -fetched dream at the present time. The inventory represents an important factor that influences the performance of the retail supply chain. Inventory contains the raw materials, the work in process and all the finished products of a supply chain. High levels of inventory held in stock affect adversely the procurement performance out of the capital being held which affects cash flow leading to reduced efficiency, effectiveness and distorted functionality. Best practices in retail inventory management call for a proper balance between inventory and service levels, recognition of the importance of merchandise availability, and accurate store sales/inventory data (Wilson et al, 1995).

The changes of the inventory policies can lead to a dramatic alteration of the supply chain's efficiency and responsiveness. Traditionally, in the management of supply chain processes, inventory management is challenging because it directly impacts both cost and service. Uncertain demand and uncertain supply make it necessary to hold inventory at certain positions in the supply chain to provide adequate service to the customers. As a consequence, increasing supply chain process inventories will increase customer service and revenue, but it comes at higher cost.

Supply chain responsiveness is the ability of the supply chain to respond purposefully and within an appropriate time-scale to customer requests or changes in the marketplace. Safety stocks, excess capacity and safety lead times all provide a time buffer to be able to react to demand variability.

Increased inventory levels do, however, reduce the efficiency of the supply chain since they are costly, both in terms of storage cost and cost of capital. The trade-off between inventory and cost suggests that an increase in inventory may not be the optimal approach to increase responsiveness – or, as Hopp and Spearman phrased it: "inventory is the flower of all evil, and variability is its root" i.e. high inventory levels are a sign that something is suboptimal in the supply chain, and other strategies such as variability reductions may be more beneficial than inventory increases. It can be seen that increasing safety stock is a trade- off decision because an increase in the responsiveness goal increases the willingness to accept higher safety stock, while an increase in the efficiency goal reduces this willingness. Therefore it is verydifficult that two goals balance each other.Therefore an attempt has been made to identify the dimensions of inventory management which will affect the supply chain efficiency and responsiveness in organized retail sector in Mumbai and Navi Mumbai.

LITERATURE REVIEW-

Supply Chain Management (SCM) is a set of practices utilized to efficiently and effectively integrate all different stages in the supply chain in order to produce and deliver goods at the right quantities, to the right locations, and at the required time with minimum costs while meeting customer needs (Simchi et al., 2003).

In today's global digital economy, organizations compete, based on cost, quality, delivery time, and flexibility in order to capture market share and to survive. To continue growing, organizations need to develop their own core competencies and design superior supply chains by strengthening partnerships with suppliers, retailers, distributors, and customers (Kotler & Keller, 2005). Upper Saddle key functions consisting of purchasing, demand management, distribution planning, and quality management, manufacturing planning, and materials management throughout the entire supply chain for the purpose of moving material components, products, and services until final delivery to the end user. They also concluded that SCM's short-term objectives are to increase productivity, reduce inventory, and decrease cycle time but its ultimate goals are to increase customer satisfaction, increase market share, and increase profits for the entire supply chain in the long-run. Wisner, J. D., & Tan, K. N. (2000).

Providing meaningful products or services to customers in the context of a technology- driven competitive business environment is important to the success of supply chains (Bowersox, Closs, & Stank, 2000).

Wisner and Tan (2000) defined SCM as an integration of different In this way Inventory is a key determinant of supply chain efficiency and supply chain responsiveness. Supply chain efficiency is according to Beamon (1994) the measure of how well the measurement of how well the resources expended are utilized. The most efficient Supply chain is the one that has the lowest possible cost and at the same time meet the customer's expectations on service like delivery precision and lead-time.

Gilmore (2007) stated that working capital tied up in inventory can't be used for more productive purposes that could generate higher returns or growth for the company. Secondly, inventory is a component of the company's overall capital investment.

R. Ganeshan et al. concluded that the forecast error, the mode of communication between echelons, and the re-planning frequency all the three parameters have a significant effect on performance. Increasing forecasting errors and the re-planning frequency decreases service, Return on Investment, and increases cycle time.

Murphy and Daley (1996) found that Electronic Data Interchange (EDI) is an important tool if logistic organizations want to be successful international freight forwarders. EDI enables the transfer of data in an agreed electronic format, such as invoices, bills, and purchase orders, between companies. Murphy, P. R., & Daley, J. M. (1996).

Christopher and Peck (2004) state that 'the strategic disposition of additional capacity and/or inventory at potential "pinch points" can be extremely beneficial in the creation of resilience within the supply chain'.

Lee (2002) particularly emphasizes the role of inventory in situations of supply uncertainty.

Proper inventory management improves the responsiveness of supply chains which in lieu adds to the organizational performance (Khan et al., 2009). The overall supply chain should be structured to meet the needs of different products and customer groups so as to ensure effective inventory turnover. The alignment of supply chain strategy, inventory management and product characteristics are extremely important for the successful operations of a company (Srinivas, 2013).

One common effect of poor supply chain management is having excess inventory at various stages in the supply chain, at the same time having shortages at other parts of the supply chain. Since inventory forms a substantial part of working assets of a firm, poor management could lead to huge inefficiencies. Lee and Billington (1992) provide an excellent overview of pitfalls and opportunities associated with inventory management in supply chains. Poor supply chain management also results in late deliveries and large stock outs. Fundamentally, these effects are caused due to an inability of the firm to predict the requirement for raw material and equipment capacity together with the uncertainty associated with obtaining deliveries of products on time from its suppliers. Fisher et. al. (1994) describe how accurate forecasts in the apparel industry could potentially reduce this inefficiency.

From literature review the dimensions of inventory management affecting supply chain efficiency and responsiveness identified are degree of forecasting, order management, frequency of stock outs and overstocking and use of information technology and automation.

OBJECTIVES OF THE STUDY-

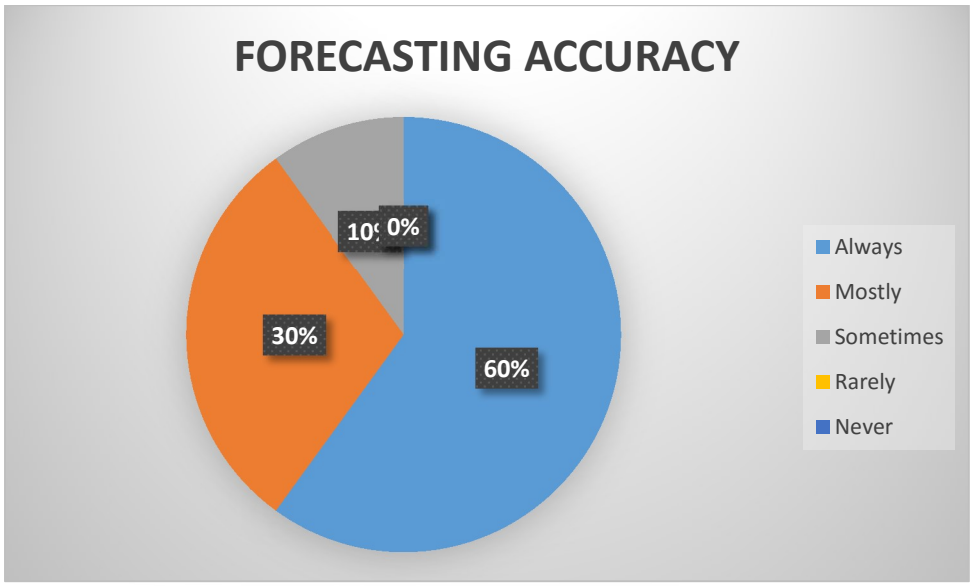
1) To analyze the dimensions of inventory management in organized retail sector.

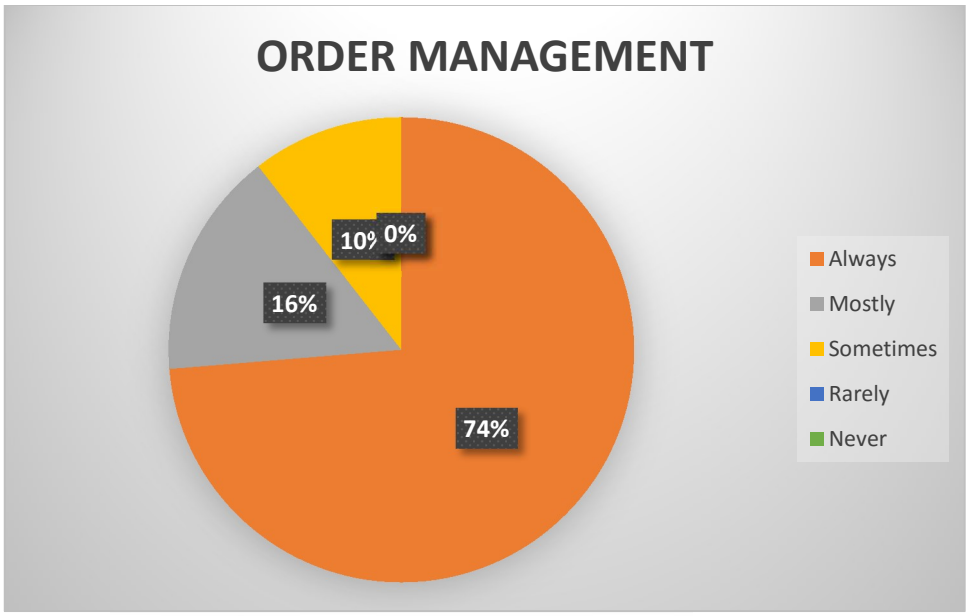
2) To study the role of inventory management as an enabler for supply chain efficiency and supply chain responsiveness.

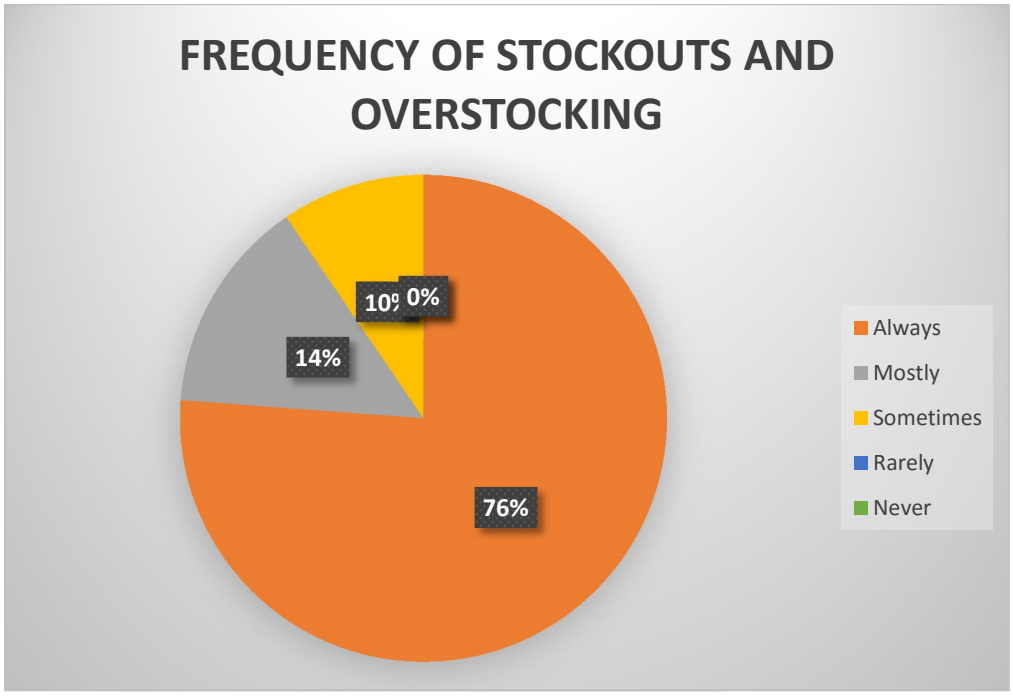
RESEARCH METHODOLOGY-

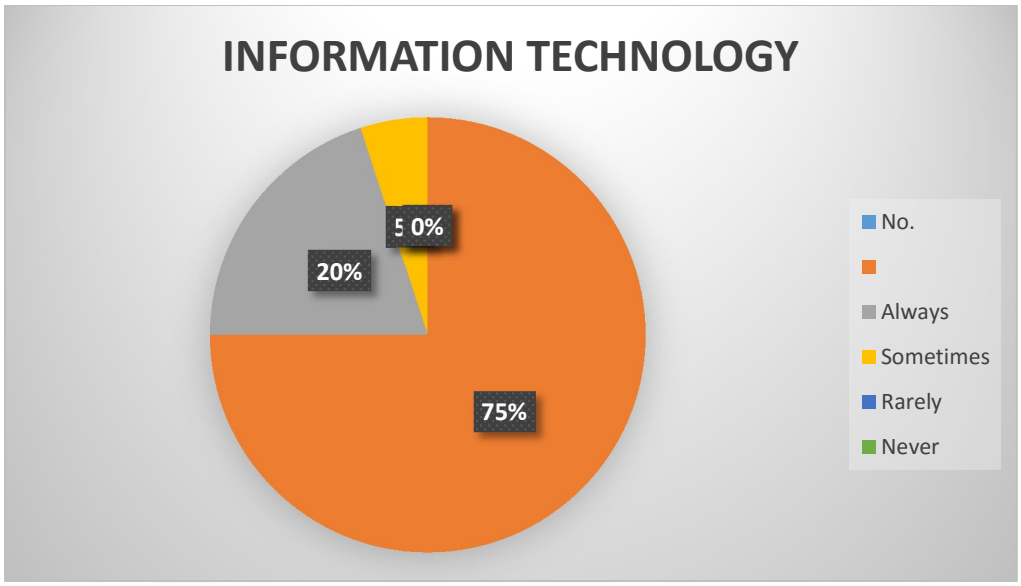
Research Design-The research design is Exploratory in nature.
Sampling-From the universe of all outlets of organized retails in Mumbai and Navi Mumbai 20 outlets are selected by **nonprobablistic convenience sampling method**.
Primary data is collected through Structured Closed ended and open ended questionnaire 20 store managers.

DATA ANALYSIS AND INTERPRETATION




ORDER MANAGEMENT
10%
0%
16%
74%
Always
Mostly
Sometimes
Rarely
Never


FREQUENCY OF STOCKOUTS AND OVERSTOCKING
10%
0%
14%
76%
Always
Mostly
Sometimes
Rarely
Never



DISCUSSION OF THE RESULTS

Forecasting Accuracy-60% of store managers have said that forecasting accuracy always affects supply chain efficiency and responsiveness. The demand forecasts are the base for the planning process, being one of the most important activities in the supply chain system. All inventory studies, in their beginning, are based on the forecasts of consumption of materials. This process establishes future estimates of the end products commercialized by the businesses. They also define which, how many and when certain products will be bought by the customers. Sales forecasting is used by various departments of the business. However, it is difficult to be measured, because it is based on uncertainty. If it is lower than the demand, a shortage of products may occur, and if it is higher, excessive inventory may occur (Kotler, 2000).Then 74% of the store managers have said that order management always affects the supply chain efficiency and responsiveness. The concept of order management has received increasing attention from academicians, consultants, and business managers alike Tan, Lyman (2002). Many organizations have begun to recognize that management of orders is the key to building sustainable competitive edge for their products and/or services in an increasingly crowded marketplace.76% of store managers have said that frequency of stock outs and overstocking always affects the scm efficiency and overstocking.75% of store managers have said information technology always affects the scm efficiency and responsiveness. Information technology (IT) in supply chain management (SCM) has gained its importance recently due to its capability to reduce cost and increasing responsiveness in the supply chain. The use of IT is considered a prerequisite for the effective control of today's complex supply chain. And it is further justified with the trend of globalization as business spans beyond borders and the need to manage it centrally. Therefore, effective SCM technology adoption allows rich information exchange, quick and reliable data availability and easy access to business

partners in addition to excellence in business processes and focus on industry specific markets, E-Commerce is considered to be the new competitive weapons for the retail industry.

CONCLUSION AND SCOPE FOR FUTURE RESEARCH-

The primary objective of this paper was to study the impact of selected inventory parameters and management techniques on supply chain efficiency and responsiveness. The dimensions which are identified of inventory management are forecasting accuracy, order management, frequency of stock outs and overstocking and information technology. According to the results forecasting accuracy has a slight lesser effect on supply chain efficiency and responsiveness. Future research on perceptions of different partners of supply chain other than the store managers of supply chain can be carried out. This gives scope for more development of understanding of more factors which are affecting inventory management which will bring supply chain efficiency and responsiveness. Exploratory research can be carried out on case studies of different major Indian retailers who are making their supply chain efficient as well as responsive.

LIMITATIONS-

The study has certain limitations. The sample size was relatively small. Study was conducted in Mumbai which is a quite prosperous and cosmopolitan as compared to other cities in India, results cannot be generalized for the entire country.

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Status of star rated e-governance projects –a benchmark for Digital India

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ABSTRACT

E-governance opens up a door to vast opportunities for transforming governance. It goes beyond the computerization of the government process and into the realms of good-governance, which includes efficiency of service delivery, empowerment of citizens, transparency and accountability. In recent years, there has been extensive investment in e-governance throughout the developing world. Still, little is known about the impact of those investments. This paper reports study of assessments of major e governance projects (and their project implementation process) which were considered as mission mode project under National E governance plan, as well as to establish a performance benchmark for future projects.

From last year, Government of India has initiated Digital India initiative, whereas the earlier Government had set up a National e-Governance Programme, almost for a period of ten years. The study aims to understand the nature and quantum of the impact created by these e-governance projects that had already been implemented by the state and the national agencies.

Methodology

This exploratory research has used structured interviews of the people engaged in implementation, their views published in conferences and process charts as a primary data. The data is collected from users those who are using these e-governance applications, the assessment results of e-governance projects which estimate the difference between client ratings of computerized and (earlier) manual system. The secondary data will be obtained from periodicals/ magazines/ Government websites conference papers etc.

Findings

The study will bring out the areas where the e-governance projects have a large impact and the areas where the impact is very low. The study also will bring possible areas that need to be focused while designing future projects to harness full potential of technology, for better administrative reforms.

Keywords
E-governance, National E –governance plan, Digital India

1.1 INTRODUCTION

E governance is a tool for making reforms in government administrations and making the citizen services to their doorsteps. This reform will empower the citizen to get all the desired services at one click. These application of e governance can be categorized at various departments (from revenue department to agricultural department), various implementing agencies (central govt./state govt./public sector), various stakeholder (government /business/citizen), various target populations (urban/rural populations) . It can also be classified based on transacting agencies like 1. Government to Govt. services 2. Government

to citizen services 3. Government to business services 4. Government to employees services.Tis almost a decade now since the e governance projects have been initiated. Some projects have been succeeded that they made a paradigm shift in the process and some have failed (although they were much appreciated even by world bank at the beginning.) over the period of time. This paper presents an effort to highlight the impact assessment of these projects in bringing convenience to the citizens or users.

2.1 SIGNIFICANCE OF THE STUDY:

India ranked 89 in the global E readiness index of world economic forum report 2015 and ranked 42 in the global competitive ranking. This reflects that India, despite making great efforts, is way behind in the e governance scene globally. Many of the projects in last decade were funded by World bank and a great amount of efforts were taken to launch the e government initiatives. National E governance Plan was one of the major initiative amongst these efforts. The mission mode projects considered to have almost Rs. 32488.18 Cr as a budgetary provision.

Recently the new government under the leadership of honorable Prime Minister has initiated " Digital India Initiative " as a very ambitious project using the technology at par for better administration. The Digital India programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. This study aims to understand the nature and quantum of the impact created by the e-governance projects that had already been implemented by the state and the national agencies. The status analysis would help the policy makers to consider factors that would help in developing and designing the projects in digital India Initiative.

3.1 OBJECTIVE OF THE STUDY :-

The study aims for the following issues:-

1) To study the project design part of the e governance project under national e governance plan.
2) To study the actual process part of the projects.
3) To study the current status and success rate of the projects with respect to its usability, sustainability.
4) To study the factors that affects the projects' success.
5) To study the factors, which if avoided, can make the projects to a larger framework of sustainability.

4.1 SCOPE OF THE STUDY:

The study is limited to e governance projects in India and more specifically the Mission mode projects taken under National E governance plan, which are operative in Maharashtra. The data is collected from the interviews and opinions of the users and officials handling the projects in Maharashtra, Kerla, Andhra Pradesh, Gujrat and Assam.

5.1 RESEARCH METHODOLOGY

The study is an exploratory research. The data is collected through structured and informal interviews, various articles, various case studies and reports published by

Government publications. The findings are based on real time data of number of transactions of the service deliveries with respect to number of analog (non online/ physical) transactions of the specific projects.

6.1 PROJECT STUDY

6.1 MCA 21 Project :

MCA21 is the project implemented by Ministry of corporate affairs , Government of India. The project provides stakeholders-corporate bodies, businesses, professionals (CAs and Company Secretaries) who are authorized signatories or employees of companies, citizens and investors across the country. The services offered by Ministry include registration and incorporation of new companies, annual and event based filings, penalties and fees processing, investors grievance handling. The MCA 21 portal offered almost all these services online.

6.1.2The Process:

The MCA21 is implemented on Build, Own, Operate and Transfer (BOOT) Model under Public-Private Partnership (PPP) framework. The project cost includes the costs towards solution development, digitization and data migration, implementation and change management, operating the solution for a period of six years after implementation and establishment of institutional frameworks such as the Project Monitoring Unit to enable effective service delivery. The project was launched nationwide by September 2006. E filling of all documents carrying digital signatures of authorized representatives of the companies was made mandatory with effect from September 16, 2006.

6.1.3 Strategy:

Given the unique nature of requirements and the outcomes near complete paperless system. A hybrid system would have only added to complexities of reconciling paper and electronic transactions. The back office operations have been made completely paperless with the use of electronic workflows and secure digital document repositories. All employees were trained and Services can be availed through the portal via internet from home or office, a mode of delivery (virtual front office) or from facilitation center (Physical Front office) or by certified filing centers (outsourced agency).The most preferred mode (85 %) was of by virtual front office.

Impact analysis: Significant reduction in the number of trips (From 2.2 to 1.6 days) and in the waiting time (From 75 mins to 1 to 25 minutes) was reported in the impact analysis study. The total cost of availing services reduced by more than 30-50 percent depending on the mode (VFO, PFO) for accessing services. MCA21 system has been serving as the operational backbone to the process of MCA service delivery at the ROC offices. About 2,60,560 new companies have been registered using the newly introduced secure electronic services and 12.75 lakh users have viewed company documents online from the registry. Approximately, 93% of all filings are done directly at the MCA portal while the balance is filed through facilitation.

6.1.4 Current Status

The MCA users reported a significant improvement in both quality of service and quality of governance. The rate of errors in documents has nearly been halved from 26 percent to 12 percent in case of VFO and 9 percent in case of CFC. In the overall assessment MCA21 which provides an end to end online delivery of all its services has done better compared to other online projects (passport service, Income tax portal). (Source_ Saransh, and Vikalp report by IIM amadabad.)

6.2.1 E Panchayat Project

Panchayati Raj Institutions (PRIs) in INDIA is a concept of local self government , which promotes decentralized governance by participation of the ordinary public in their own governance. PRIs function at the village /block or district level. There are approximately 234030 gram panchayats, 6053 panchayat samitis and 535 Zilla Parishads. The Panchayati Raj Institutions (PRIs) are saddled with the problems of inadequate physical and financial resources, technical capabilities and extremely limited computerization. As a result, the potential of PRIs as the preferred delivery channel for the schemes of State and Centre as well as for citizen services has not been fully realized.

6.2.2 The Process :

The geographic and demographic coverage of the programme, therefore, makes it a challenging initiative to rollout. In addition, the level of devolution of powers to different tiers of Panchayats across the country varies across States/UTs. Consequently, design of the process re-engineering, computerization and capacity building programmes would face significant challenges.

In order to understand the extent of computerization and process re-engineering required under the panchayat project, Ministry of Panchayati Raj had decided to carry out the following four activities across 27 States/UTs: 1) Identification of Information and Services Needs of all panchayats in all 27 states 2) Process Re-engineering of identified services and 3) Preparation of 27 State-wise and 1 National Detailed Project Report for implementing the e-PRI MMP 4) Assistance in Rollout of the e-PRI implementation in all the states

In Maharashtra the study was conducted at Ahmadnagar and Yawatmal districts. The Project Overview Maharashtra has a three tier PRI structure consisting of i) Zilla Parishad (34): one ZP President and other Elected Members o CEO, Deputy CEO and other Government Officers ii) Panchayat Samiti (351) one Sabhapati and other Elected Members, one BDO and other Government Officers iii) Grampanchayat (27920) o Sarpanch and other Elected Members o Gramsevak and other Government Officers . Rural Development & Panchayati Raj Department (RDD) began the efforts for e-Governance in PRIs by issuing a government order to purchase Desktop computer, Multifunctional Printer, UPS. To change the legacy style of preparing letters, memos, government orders the officers should be enabled with technical assistance at local level. Hence department signed Memorandum of Understanding (MoU) with the Mahaonline (Semi-Government IT company) to provide software programmers, district coordinators, data entry operators at Zilha, Block and Grampanchayat. (b) Planplus – Assisting the District Planning Committee in preparing the district level

development plan by combining the Village Panchayat plans prepared in Grampanchayats, thus promoting decentralized planning by participation of common citizens. (c) Areaprofiler: The Socio-economic, Socio-demographic details are captured in the application. It generates various reports like availability of schools, colleges, PHCs etc. which will be helpful in making decision to improve core infrastructure in PRIs. (d) ServicePlus: Department has identified 19 G2C services (like Birth/Death/Marriage registration certificates, BPL/ Old age certificates) which shall be delivered through Grampanchayat. These services would reduce the time to deliver services and thus would save time and cost of common citizens.

6.2.3 Strategy:

An e-PRI cell was created at State level, headed by a nominated nodal officer, to monitor all activities. Department issued the guidelines for setting up a e-PRI cell at all PRIs and nominated various government officers to monitor the progress of 11 core e-PRI applications. Government of Maharashtra under the funding of 13th Finance Commission has provided latest Desktop, Multifunctional Printer to all Panchayati Raj Institutions in the state. As per the guidelines of MoPR the Basic Computer Course (BCC) training for government officers and elected members of PRIs is conducted at various training centers. The department has ensured accreditation of Mahaonline (Implementation Agency) with NIELIT to enable on-site ICT training to government officers and elected members of PRIs. This will help department in providing BCC training to more than 56000 gramsevaks and Sarpanchas in Maharashtra.

Although 70% of population is residing in rural areas of the state, the mechanism to monitor the effectiveness of the schemes was not designed to reflect the ground realities. Information, Technology and Communication (ICT) tools could be used. Similar to other e-governance projects this project also faced challenges a various levels like adoption of ICT, resistance to change, training the manpower, problem of load shedding and lower bandwidth in remote areas. Department had enforced key guidelines to ensure that all panchayats set up an e-PRI cell and makes data.

6.2.4. Current status:

Benefits: The implementation of e-PRI in Maharashtra has helped in providing G2G, G2C services to departments/citizens as shown below: (a) PRIASoft - an accounting application where all Zilha Parishad, Panchayat Samiti, Grampanchayat are updating entries of Fund Receipts and Expenditures. The expenditure details are now available in public domain and hence can control the mal practices of manipulation of accounts.

Few officials and users have shared that software are not at par with the current scene and are not citizen friendly. Since whole state could not be covered for online data updating, data gathered was insufficient and was not of any use in decision-making. Moreover the officials were not a party in the process of validating the data upload as they had to physically fill the data, which rose to duplication of work. As the officers are already overburdened and they could not see any help from this IT solution, the project remained as side activity and still could not become a core activity for use in decision makings. But the service delivery part played its role well in few (where literacy rate is high amogst citizens) districts of the state.

6.2 E-office

e-Office is one of the Mission Mode Projects (MMP), which is aimed at significantly improving the operational efficiency of Central Government Ministries and Departments through improvement in the workflow mechanisms. e-Office, as an e-Governance initiative, would be crucial in shaping Government Process Re-engineering (GPR), which eventually enhances the quality of services delivered to the citizens. The Department of Administrative Reform and Public Grievances (DARPG) is the nodal agency for implementing the project.

Any Government office is a hub of a variety of communications which require to be processed and thereafter communicated in some form. Inputs and outputs of all government activity need to be invariably communicated within and outside the office. The efficiency of an office is significantly determined by the efficiency of its systems of communication and internal processing.Functioning of Government offices in India is hampered due to various design and environmental issues. Some of these are 1)Bureaucratic procedures that add to delays 2)Lack of accountability & responsibility 3) Prioritization of work 4) Measurement of productivity 5)Monitoring systems 6) Workflows not streamlined 7) Duplicative & unproductive efforts. The need for efficiency in government processes and service delivery mechanism is a long-felt one. This need has reverberated in citizen feedback on the services offered by the Government agencies for a long time now. The e-Office MMP is being designed to serve as the means to achieve the objectives of 1) to improve efficiency, consistency and effectiveness of government responses 2) to reduce turnaround time and to meet the demands of the citizens charter3) to provide for effective resource management to improve the quality of administration 4) to enhance transparency and accountability.

6.3.2 Project implementation Process:-

eOffice at Mantralaya is one of the largest implementation in the country and transformation from paper based office to a paperless office requires huge focus for capacity building and change Management. Using e-Office in day to day activities is a paradigm shift in government offices. Until users are comfortable with basic skills on computers and typing, taking a leap towards eOffice is not possible. Hence to bring the awareness and to encourage users to use computers more often DIT undertook several initiatives such as Workshops on basics of Computers are Workshops on Marathi typing , ISM tool training, Tech Saturday programs etc along with eOffice training at various levels.

6.3.3 Stretegy :

In Mantralaya, a dedicated state of the art training room has been set up DIT to provide eOffice training to all Mantralaya users.Overview training sessions 3500 employees ,Hands on training 5000 users ,eOffice Champions training 20 nodal officers at Delhi, Exposure /visits to other eOffice Implementations at other locations

Role based trainings for all PA s, all Registry clerks, Minister Staff ,Refresher courses for 500 users ,detailed training by Director IT to Secretaries, nodal officers is arranged.In addition, on demand trainings, user manuals, FAQs, Usage Guidelines are developed and circulated to all users time to time. The outcomes expected from Process Reforms through e-Office are as follows :1)Workflow automation including Standardization & automation of

repetitive processes / work flows 2)Knowledge Management, including creation of institutional memories 3) Record Management 4)Efficient Communications Management-Registration & routing of communications digitally 5) File tracking 6) Process Time Reduction. The stretagy was decided on the following lines:

- Provide government functionaries with knowledge, information and communication tools to perform their daily operations and support in the various stages of the complex, knowledge-intensive tasks which they perform
- Establish a system of efficient document management to facilitate information retrieval
- Provide efficient support for handling of incoming correspondence / mails and management of meetings
- Result in better staff / officer morale due to working in fully automated environment
- Introduce a new aspect of operational performance measurement
- The most critical pre-requisite for the success of e-Office would be an exercise to simplify the government processes and procedures, which includes, streamlining decision making, level jumping, standardization and automation of repetitive

6.3.4 Current status :

Status Before : As per study, on an average, a document is photocopied 19 times. Paper files get doubled every 3.5 years and paper usage in an average office grows 22 percent a year and doubles every 3.3 years which keeps adding to the new filing cabinets and resources to manage these. A letter has to pass through 41 steps and entered in dozens of the registers before it is answered. The average time to retrieve and file a paper document is 10 minutes. Due to the large number of physical files, average search time for any document is 18 -20 min minutes and sometimes these files are never found. Misplacement of files is a very common issue and at any given time about 3-5% of organization‟s files are lost or misplaced. In organizations where there is lot of paper based work, half of the office‟s time is spent in handling paper or data entry. In spite of this effort, 92 percent of information is in manila folders.

(learning reproduced from case study of e office in mantralaya)

1. Phase-wise implementation: eOffice roll out should be planned in such a manner that it is implemented either department wise or subject wise. In department wise approach, departments should be categorized in terms of different phases of implementation and „Go Live‟ dates for each phase should be declared in advance. The alternate way is to implement eOffice for only a Case Study on implementation of eOffice in Mantralaya, Mumbai 15 selected number of subjects in all departments so that file movement takes place end to end and at least employees start getting hands on experience on eOffice.

2. Make Top Officials the Nodal Officers: Top officials should be assigned the role of eOffice Nodal Officers. They should review the progress of eOffice implementation in their respective departments. In Mantralaya, only Deputy Secretaries or Joint Secretaries have been appointed as Nodal Officers for each department.

Top-down approach: eOffice cannot be implemented if it is not driven from the top. A

bottomup approach is not the right fit for the smooth implementation of eOffice. It may be noted that if Secretaries of each department instruct their staff to take up eOffice working style religiously, it is much easier for the operations team to drive the project in a lesser time frame. Issuance of GRs and circulars: The apex body in an organization must issue Government Resolutions and Circulars which define digitization strategy to be adopted and the necessary actions to be undertaken by organizations as initial steps towards eOffice. To facilitate the implementation of eOffice in the state government offices and departments, Chief Secretary"s Office had issued a GR on 20th August, 2013 which is available on the official website and

provides guidelines to the organizations interested in implementing eOffice for undertaking requisite preparations. Similarly many circulars were issued to departments as measures to implement eOffice.

Discourage use of printers: Printers should not be used by departments unless due to emergency. There are several ways in which printer usage can be reduced in a Government set up. E.g. paper less environment drive was initiated by Director-IT as a result of which all staff members discarded unwanted papers, thus ensuring a clean and paperless desk; printers were also withdrawn from departments which had an excess number of printers and the same were redistributed to the ones with lesser than sufficient number of printers.

Change Management and capacity building: Changing attitude of people at all levels to change a 200 year old file movement system has been a challenge. Re-engineering of mindset of employees is necessary in order to drive eOffice environment. In this regard, regular training programmes need to be conducted. Initial trainings should be imparted to fresh users for demonstrating eOffice suite in detail while refresher trainings should be imparted to ensure that all queries of users, who have started using eOffice, are addressed.

7.1 Findings:-

SR.NO.	PROJECT	MCA21	E OFFICE	E PANCHAYAT
		G-B	G-G	G-C
1	DESIGN	END TO END	HYBRID	USER UNFRIENDLY
2	USERS PROFILE	GRADUATES + URBAN	10 + URBAN+RURAL	10+ RURAL
3	CONNECTIVITY	GOOD	LAN	VARIABLE
4	DOWN TIME	LESS	MEDIUM	CANT SAY
5	DIGITAL STATUS	40 LAKH HITS PER DAY	45000 FILES E FILES REDUSING	18 SERVICES ARE ONLINE
6	SUCCESS	GOOD	NEEDS RE-ENERGISING	NEEDS SUPPORT

8.1 CONCLUSIONS:

The sustainability of E governance projects is correlated with the project design, and the capability of the end users. E governance projects make a significant impact on service delivery mechanism of government and process within government, increasing overall efficiency, transparency and accountability. The projects, if designed and implemented carefully has the potential to bring the reforms in government administrations.

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Indicators for Sustainability: How smart cities are monitoring and evaluating their success

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Abstract

Cities are the most dramatic manifestations of human activities and causing great deal of environmental, social, and economic challenges both at global and local scales. In such a situation, establishment of sustainable cities, through sustainable urban development practices, is seen as a potential panacea to combat these challenges responsibly, effectively, and efficiently. Smart city is an emerging concept of sustainable cities. A smart city is a city that is well planned and it provides the cost efficient services, environmental efficiency, and technological sound services for the welfare of the citizens. The six dimensions of a smart city are Smart Economy, Smart Mobility, Smart Environment, Smart People, Smart Living and Smart Governance.

This paper offers a critical review of the key literature and examines the work that has been done in selected Smart cities globally towards establishing sustainability indicators to monitor the progress. The research has focused on identifying the commonalities between the cities analyzed to create a 'tool kit' that will serve as a starting point for other cities that are interested in establishing or developing sustainability indicators.

The Urban Development ministry is collaborating with a wide range of leaders from the industry and academia to develop a comprehensive ranking framework that shall have indicators contextualized for Indian cities.

Keywords: sustainability; sustainable development; sustainable urban development; sustainable city; sustainable urban ecosystems; sustainability assessment; smart cities, smart economy, smart energy, smart environment, smart governance, smart living, smart mobility, smart people, smart public services, smart solutions, tool kit, commonalities, sustainability indicators.

Introduction:

We are all aware that cities around the globe are being redesigned to become more sustainable. Despite significant research progress in sustainability and cities individually, relatively little investigation has been made by integrating the two themes together. At least three types of environment co-exist in a city—*i.e.*, natural, artefact, and social—and each of these generate both positive and negative externalities for a city [98]. As a result, diverse views prevail in relation to the sustainability of cities.

Against this background, it is possible to state that there has been growing, but still rather limited, research that systematically investigate sustainable cities, and the specific roles planning, development and management plays in their formation, stimulation and sustained success.

Given that there is no formula that can unilaterally be applied in all of the urban environments to achieve sustainability, this Special paper aims to gather diverse views and report progress towards sustainable cities.

A fundamental objective of this Special paper is to compile and present the cutting edge work of researchers who focus on a joined-up thinking of both themes—*i.e.*, sustainability and city. By doing so, we believe this paper contributes to the knowledge pool in this area, particularly with new evidence driven from empirical research.

The objectives of this paper are to:

- Identify and summarize the common key sustainability indicators that these cities are using.

- Create a tool kit that will support cities that are in the process of identifying which sustainability indicators they can use to accurately reflect the progress of their sustainability plans.

It provides case studies of indicators in practice from selected cities in Africa, Americas, Asia, Australia, Europe and the Middle East. We have reviewed the **Singapore** as an example of Smart Cities in Asia.

The tool kit summarizes key learning and commonalities among the Smart Cities case studies. It showcases the practices that are being employed internationally at municipal levels and which indicators are being used to measure success. The tool kit can be a 'one-stop shop' bank of indicators where cities will be able to see what has been successful in similar situations.

Problem Statement

Review of the key literature finds that majority of academic research focuses on the planning and development aspects of sustainable cities, while **issues related to their governance seems to be in neglect** [95].

The call for cities to engage in best practices for sustainable planning has increased. Sustainability is no longer a buzzword but a reality that must be addressed by cities all over the world.

To summarize, the challenges faced are:

- Identifying relevant data to measure success for the various indicators.

- Selecting indicators that are good measures of sustainability.

The tool kit created as a result of this paper will address these challenges to a certain extent, by providing a "baseline" of what indicators are being prioritized by other cities worldwide.

Method / Approach :

The first step was the selection of cities based on the parameters of population, geographical size, regional representation and stage of sustainability plan (ideally at the implementation and monitoring stages). The cities selected include a good representation of small, medium and larger size cities.

Most of the case studies are based on what Municipalities have implemented, but there are also examples on **how civil society has participated in collaborating with Municipalities to integrate** indicators in their plans and reports.

These case studies provide specific details of each city's experience in sustainability planning and their efforts to monitor indicators for sustainability. Each case study includes the city's overview, current work in sustainability management, list of indicators used and its reporting mechanism. This research was based on literature review, including available official plans and supporting municipal documents.

Once the case studies were completed, the second step was the analysis and comparison of the cities frameworks and indicators.

Indicator categories such as "green spaces", "housing", and "economic growth" were identified.
If five or more cities had one or more indicators in a particular category, it was selected for the tool kit.
Then, an analysis of the indicators under each category was conducted, and again, an indicator was included in the tool kit if five or more cities used it.

The third step was to develop the "Get set" section in the tool kit and identify the "key findings", drawn from insights gained from each city.
Finally, the review literature indicates that the research papers were reviewed by academics and city planners to provide feedback and comments.

In order to provide a basis for understanding sustainability and the subsequent challenges in creating indicators, it is important to understand the most accepted definition of Sustainable Development, which resulted from the work of the Brundtland Commission.

Sustainability: The Global Context

The Brundtland Commission

Sustainable development is development "that meets the needs of the present without compromising the ability of future generations to meet their own needs".
Sustainable development is the development that satisfies the human needs and improves the quality of life in such a way that ecosystems should keep renewing themselves. Allen [22].

In the "quadruple bottom line" sustainable development approach, which considers the governance domain besides environmental quality, economic prosperity, social justice [42], has gained a wider acceptance.

Sustainable development contains within it two key concepts:

- The concept of 'needs', in particular the essential needs of the world's poor so more of 'Inclusive' approach, to which overriding priority should be given; and

- The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

This definition has been widely adopted by UN, the Organization for Economic Cooperation and Development (OECD) and the World Bank.

By 2050, the urbanization in India is expected to raise up to 70 percent compared to only 30 percent in 2011.

According to the McKinsey Global Institute Analysis Report, India will have 68 cities with 1 million or even more than 1 million Populations, 13 cities with more than 4 million population & 6 megacities with population of 10 million or more by year 2030.

A Smart City is the integration of technology into a strategic approach to sustainability.

Sustainability Planning: Global Reports

Globally, there are a number of reports produced that can be very useful in the process of developing a sustainability plan. Most of these reports are either nation or region wide, however some initiatives have started compiling information at the Municipal level and allow cities to benchmark their progress against other cities of similar realities.

In this research, the following reports were considered or used at some extent by the cities included in the case studies:

- Ecological Footprint

- Global City Indicators Program (GCIP)

- Human Development Index

- IPCC Assessment Reports

Indicators in Practice: Case studies

The cities selected include a good representation of small, medium and larger size cities. All these cities are engaged in a planning effort under a sustainability framework and have done considerable work in developing indicators and tracking them in a continuous basis.

SINGAPORE CITY AS A CASE STUDY IN ASIA CONTINENT:

Singapore is a small island city-state located in Southeast Asia. It has a population of 5,183,700 with a growth rate of 2.1%, and a total land area of 712.4 square kilometres. (Singapore 2011a).

Malaysia and Indonesia are its closest neighbours. Since becoming a sovereign nation in 1965, under the leadership of the People's Action Party, it has become an example of success in the region.
Ensuring that its citizens are provided the basic life necessities by the government has steadily guided its growth.

Singapore's **economic story** is one of success. Since the city-state's independence in the 60s it has built its economy from the ground up with **forward-looking policies** to ensure economic growth.
The result has been Singapore boasting the strongest economy in the region with a GDP of $326,832.4 Billion Singapore Dollars. (Singapore 2011a). The base of the economy is: electronics, chemicals, financial services, oil drilling equipment, petroleum refining, rubber processing and products, processed food and beverages, ship repair, offshore platform construction, life sciences and trade.
Singapore has established itself as a destination for international firms due to **the ease with which companies can do business**. **Pro enterprise policies coupled with low tax** have made it a desirable place for businesses and the expatriates that come with international firms.

In Singapore it is the Ministry of National Development (MND) that oversees urban planning and transportation. Its functions are akin to a municipal government. The MND's mission is to: develop world-class infrastructure; create a vibrant and sustainable living environment; and build rooted and cohesive communities for Singapore. Its annual budget in 2012 was $ 2.5 billion SGD. (IMSCD 2009).

Sustainability in Singapore

The City State of Singapore presents a unique case study for sustainability.

As it is all urban, the city is a living experiment for pure urban sustainability. The city is conscious of its finite resources and dependency on imports of basic necessities such as water, fuel and agricultural goods to sustain the island nation of 4.5 million people on less than 700 sq. km. It is likely that this awareness has bred a culture of innovation that enables Singapore to be a leader in sustainable best practices such as rainwater harvesting, reverse osmosis to produce NEWater, efficient public transport and green space, to name a few.

In order to create Singapore's sustainable development strategy, the Inter-Ministerial Committee on Sustainable Development (IMCSD) was created and the output was the Sustainable Blueprint (IMCSD 2009).

The Blueprint defines what sustainable development is for Singapore (IMCSD 2009):

- Efficient: Development occurs with less resources and waste
- Clean: Development occurs without polluting the environment
- Green: Development preserves greenery, waterways, and natural heritage

Keeping true to Singaporean tradition in policy making, the Blueprint follows a 'Singapore Way' and upholds the principles of (IMCSD 2009):

- Long-Term, Integrated Planning:

  We will align our policies - from energy to transport to industry and urban planning - and take a long-term and complete view of our needs and circumstances.
  Indeed, this ability to plan and act in unison towards the overall goal of sustainable growth is one of our key strengths.

- Pragmatic and Cost Effective Manner:

  We have to secure our twin goals of promoting economic growth and a good environment in the most cost-effective way. We must constantly ask ourselves "what works", and we will not shy away from long-term measures that are necessary, even if they entail short-term costs. But we will pace the implementation of these measures and provide help to temper and soften the short-term costs for businesses and individuals

- Flexibility:

  The challenges to maintain economic growth and a good environment will span many decades.
  We therefore have to remain nimble, and adjust flexibly to changes in technology and in the global environment. We will invest in building our capabilities today to give us more options to better respond to the challenges of tomorrow.

Supporting the principles are four key priorities/strategies (IMCSD 2009):

- Improve Resource Efficiency: focused on reduction of cost and achieving growth with fewer resources

- Improve the Quality of Our Environment: controlling pollution, improving the landscape, and maintaining high public health standards

- Build Up Our Knowledge: Learning and cumulating knowledge on growing in an environmentally friendly way.

- Encourage Community Ownership and Participation: Engaging all stakeholders from business, NGOs and community leaders to citizens in the process of sustainable development

The Blueprint sets the stage for Singapore's vision and goals for 2030, by presenting its achievements in the past and present (IMCSD 2009).
Notable is the foresight that was premise for the policies that shaped present day Singapore. There is a consciousness that exists in regards to the challenges that will arise as the city-state grows, not only within itself but within the region and globally. The Government recognizes that "Sustainable development can only be achieved through long-term attention and effort".

For 2030 attention is being given to (IMCSD 2009): 1. Population growth with limited resources,
2. Competition for resources worldwide, and 3. Environmental risks.

Overall, Singapore's Blueprint builds on its historical efforts to manage growth and build itself within the constraints that its faces. The Blueprint itself is unique to Singapore; however it does have resemblances to the OECD Green Growth framework as it is based largely on economic outcomes.

Toolkit for Cities :

In moving towards developing a monitoring and evaluation toolkit, it must be recognized that every municipality has unique features that shape its policies and planning decisions. Therefore it follows that a **toolkit itself cannot be a "one size fits all"** set of instructions. That said, in designing the toolkit, it was assumed that the cities that will use it, share two basic characteristics: they recognize that they have an **obligation to meet the basic needs of their cities and they are committed to embracing the three pillars of sustainability (economy, environment and society) in a holistic perspective.**

The Governance

The classification that will be presented in the toolkit was developed as a result of the analysis of the information collected from the case studies. The **indicators presented in the tool kit are the ones that were used by five or more of the cities represented in the case studies.**

The Tool kit is divided in two sections:

- "Get set". This section covers the preparatory aspects that cities should consider before starting the development of their indicators as well as key considerations for the process to develop the indicators.
- Indicators list. This list is classified in the three sustainability categories: Environment, Society, and Economy. And within those, it has subcategories that reflect the indicators most used by the cities studied here.

"Get Set"

There are a number of aspects a municipality should consider before developing their sustainability indicators. Some of these go back to the planning process as this will be the basis for the indicators. Other aspects are focused on the preparatory work, awareness that needs to be raised amongst staff and stakeholders to create a system of indicators, and finally, some practical suggestions for the process to be successful.

First of all, define a **Vision**. Ideally, the city will have already identified a shared community vision and are clearly articulated and powerful enough to motivate staff, stakeholders and the community in general. The city could then review different frameworks or methodologies that have been used to develop a sustainability plan.

The framework used to develop a sustainability plan can be based on forecasting, back casting or any other method to decide how they will move towards that vision: what goals, strategies and actions will be taken to get there. It is important to ensure solid stakeholder participation through the process of developing the plan, as this will create engagement and commitment to the plan.

The next step would be **to select the indicators**. It is important to be cognizant of existing models, indicators and data. The city may find information about neighbouring municipalities or others in similar contexts to learn from successful examples. Moreover, looking at the outputs of international conferences could facilitate the city's choosing of a particular/published sustainable framework to follow (e.g. KPI or combined frameworks); city staff from different departments need to be involved in preparing a draft and it can also be done with stakeholders (NGOs, community businesses, state authorities, etc.) **to start creating ownership of the indicators**.

When **developing the draft indicators**, it is crucial to consider **if the data for them will be available and what systems need to be set in place to facilitate accessing and collecting** the necessary information. It is advisable to keep the first draft simple, and not try to cover everything at the same time. It is best to go in short steps to ensure systems are set up to support the monitoring and tracking before adding more indicators.

The next step **is to create a baseline that helps the city develop achievable targets and monitoring programs. Targets should ideally be SMART:** specific, measurable, achievable, realistic and timed. These targets may also be incremental and manageable. Baselines allow cities to analyse and compare how data have changed over the course of the plan, providing a reference for improvements/declines relative to the baseline.

Community participation and stakeholder engagement is key to create ownership of the plan and transparency throughout the entire process. Cohesion, integrity and trust are also important among the stakeholders to truly achieve a sustainable future for the city. Co-management/adaptive management can be incorporated to create a more decentralized structure of management, enabling greater stakeholder participation.

The last step is to create a report and a reporting mechanism that will allow stakeholders and the community to follow up on the progress of the plan. Reporting timelines should be set from the beginning of the project, and systems should be in place to ensure that this actually happens.
Additionally, the integrity of the data will be rooted in its transparency and availability to the public.
In order to keep the reporting exercise going, budgets and sustained sources of funding should be secured to ensure the continuity and success of the plan.

Indicators list :

ECONOMY

- Unemployment rates/Jobs
    - Underemployment/employment/unemployment rates

- Percentage of green jobs in the local economy
- Average professional education years of labour force

- Economic Growth
  - Annual GDP growth rate
  - Annual GNP growth rate
  - Net Export Growth rates (% increase of country's total exports minus the value of its total imports per annum)
  - Foreign Direct Investments (Capital/Earnings accrued from listed FDI's per annum)

ENVIRONMENT

- Green Spaces
  - Percentage of preserved areas/ reservoirs/ waterways/parks in relation to total land area
  - Percentage of trees in the city in relation to city area and/or population size
- Reduce Greenhouse gases / Energy Efficiency
  - Total amount of GHG emissions per city and per capita
  - Percentage of total energy consumed in the city that comes from renewable sources
- Mobility
  - Transportation mode split. (Percentage of each mode of transportation, i.e. private, public, bicycles, pedestrians)
  - Average commute time and cost
- Water Quality/ Availability
  - Total amount of water availability
  - Water quality index/score
  - Proportion of population with access to adequate and safe drinking water
- Air Quality

- Levels of Particulate Matter (PM10 - mg/m3)
- Levels of Particulate Matter (PM2.5 - mg/m3)

- Waste/ Reuse/ Recycle
  - Recycling rate (Percentage diverted from waste stream)
  - Volume of solid waste generated

SOCIAL

- Complete neighbourhood / Compact city
  - Access to local/ neighbourhood services within a short distance
  - Crime rates
  - Measures of income distribution and inequality
- Housing
  - Percentage of social / affordable / priority housing
  - Breakdown of housing sector by property type (owner occupied / rental, single occupant/ couples/family/multifamily etc.)
- Quality Public Space
  - Percentage of roadways in good conditions
  - Percentage of green space (public parks) coverage in relation to city area and/or population size
- Education
  - Number of schools with environmental education programs
  - Adult literacy rate
- Sanitation
  - Percentage of population with access to water-born or alternative (and effective) sanitary sewage infrastructure
- Health

- Mortality rate/ Life expectancy
- Percentage of population with access to health care services

Conclusions:

Key Findings:

After studying the selected cities, certain similarities or trends were identified, as well as success factors that were clearly highlighted in one or more case studies.

The similarities or trends are:

Measuring GHG emissions: The most striking similarity is that all cities measure GHG(Green House Gas) emissions and have included targets and specific emission reduction actions in their plans, even in countries where there is no legal national-level regulation requirement to do so. A possible explanation for this, besides the large exposure this topic has had in the public eye, is that there are tools and methods already established for conducting emissions inventories, such as the ones provided by ICLEI.

In addition to GHG s, several municipal plans include targets on air pollution and water quality because these are issues that were on the municipal agenda before sustainability became widely known.
In India in metro cities like **Delhi & Mumbai** it has been **debated a lot to improve air quality**.

Focus on environment: It was evident that environmental issues were more common in municipal sustainability plans than social or socio-economic issues. This may be due to plans being on their early stages, or to a lack of understanding on the part of municipal policymakers of the fact that sustainability has to be perceived and tackled holistically. It is interesting to note that in cities where sustainability has been on the public agenda for a long time, these aspects are included in their strategic plans.
In Bogota, for example, the Bogotá Cómo Vamos project created a holistic evaluation of the city based on economic, social, education and governance indicators. The municipality also recognized the important role played by civil society in reaching the community's sustainability goals.

Physical visible actions: Targets that can be physically demonstrated take priority over targets that are less visible. Examples of visible aspects that were considered by most cities studied here were **green /open space areas, roads, green buildings and bike paths.**

Missing indicators for food. Only two of the cities studied mentioned an aspect related to food, and both were about access to fresh food or grocery markets. In many countries, health problems related to dietary issues (either excess or lack of food) are an ever increasing threat (WHO 2012). Food security involves availability, access and use of food, and indicators that address this issue will need to be included in a sustainability plan.

The success factors identified are:

Back casting: The soundest recommendation for a reliable sustainability plan is to work with the city's stakeholders to create a strong vision.

As has been actively done by our neighbouring city - Pune

For example, posing the question: "How would you like your city to be in 20 or 30 years from now?"
And then inferring from this vision what needs to change in order to achieve it.
This methodology is called "back casting" and is used by cities building a Sustainability plan with targets and key performance indicators.
For example, Buenos Aires' 2030 Action Plan acts as a framework for all the other initiatives carried out by Buenos Aires; though it is about improvements of public systems, it sets opportunities for growth in the economy, the society and the environment.

Institutionalization: Change management is more likely to succeed when sustainability is "institutionalized" (DPU 1996) across the different municipal units by building linkages between each unit as though within a systematic web. This might take different shapes according to local context, but the important concept is that everyone is somehow engaged in the plan and it is not only a "sustainability department" responsibility.

Public/Private Partnerships: The city needs leaders in both the public and private sectors to work together, and the active participation of the private sector is a must in order to succeed. Partnerships should be looking after the interests of all stakeholders to ensure that it creates a win-win situation for everyone.

In **India Special Purpose Vehicle (SPV)** is mooted to mobilize the finance / funding for the development of the smart city which includes land mobilization for infrastructure development.

Risk Management: Municipal authorities need to understand that sustainability planning is also a way of managing risk. Identifying concerns regarding issues that could affect citizens, such as climate change, availability of energy, depletion of non-renewable resources, etc., is crucial to the development of a plan that addresses and manages risks.

Community participation and stakeholder engagement. Last but not least, public participation and engagement are key to create ownership of the plan and transparency of the process. Cohesion, integrity, and trust amongst the stakeholders are also very important to truly achieve a sustainable future for the city. Co-management/adaptive management can be incorporated to create a more decentralized structure of management, enabling greater stakeholder participation.
In summary, there are a number of steps that a city will have to go through to develop their plan and identify sustainability indicators as described in the "Get-set" section. The list of indicators provided as common ones can be a starting point, as they reflect the issues that have been considered priorities for most cities studied here, but still need to be adapted and responding to the local needs of each municipality.

Finally, there are certain aspects on managing the process, as described in the key findings that would be critical to consider when carrying out the planning process.

The Special Issue generates new insights by investigating the sustainable cities from various disciplinary angles (*i.e.*, urban studies, urban planning, urban management, urban design, architecture, civil engineering, construction management, regional science, environmental science, bio-physical sciences, environmental planning, and knowledge management) and country contexts (*i.e.*, Australia, Canada, China, Germany, India, Japan, Malaysia, Portugal, Turkey, the UK, and the USA) as well as international comparisons.

In the light of the sustainability related matters discussed by the contributors of the Special Paper, we compile the following sets of generic research questions focusing on the "planning", "development", and "management" domains of sustainable cities.

We believe investigating these issues further in prospective research projects by scholars of this highly interdisciplinary field will shed light on better conceptualization and practice of sustainable urban development and sustainable cities.

- What is a sustainable city supposed to be, and how can benchmarks be determined and set considering sustainability is a vague term?
- What is the current status of cities and the inhibitors and threats on the way towards sustainable urban development?

- What are the commonalities amongst cities that are moving towards sustainability, and what are the factors of success and failure?

- How can sustainability frameworks be developed and applied, recognizing that every city is unique, to the planning of cities?
- How can institutional and social capacities be developed and further enhanced for the formation of sustainable cities?

- How can sustainable cities be governed to make sure that existing high sustainability levels are maintained and improved over time?

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A Study on Revitalizing Sustainable Growth of Aging Population

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Abstract

One of the greatest economic successes of the past half-century is the rise of the so-called "developing world." More recently, the spectacular economic performance of some nations has prompted the need to create a new category − "emerging markets." The emerging markets, specifically, are growing and industrializing at an especially accelerated rate, sustaining and even fueling global growth even during recent recessionary conditions.

By any number of economic indices, the rate of growth in emerging markets has been extraordinary, and projections to mid-century suggest a promising near- and long-term future. One recent report by PricewaterhouseCoopers forecasts that "the seven largest emerging market economies [China, India, Brazil, Russia, Indonesia, Mexico, and Turkey]… will be more than 50 percent larger than the G7 countries [U.S., Japan, Germany, U.K., France, Italy, and Canada] by 2050, when measured by GDP at market exchange rates, and around 75 percent larger in PPP [purchasing power parity] terms." Yet, as we pass 2015 − the target date for the Millennium Development Goals − growth has slowed in emerging markets, in particular, and throughout the developing world, as a whole. Growth that once seemed certain now became indefinite.

The most common explanation for this slowdown is the global financial crisis. There is certainly truth to this interpretation. Yet to peg the economic sluggishness of the emerging markets on this single source is to miss the larger more comprehensive picture: the greatest economic, political and social development underway in emerging markets is the ageing of their populations. This is equally true throughout the rest of the world, but the emerging markets are experiencing ageing most dramatically. It is the emerging markets that have modernized most quickly and have, in recent years, seen the most rapid developments in health, nutrition and sanitation – all factors that lead to increased longevity.

Key Words: economic success, emerging markets, developing world, increased longevity, ageing population.

Introduction:

The prevailing narrative over the past half-century concerning economic development has predominantly stressed monetary policy, infrastructure, trade, and industrial capacity. Missing from this dialogue is population aging and its profound significance on economic growth and development.

This omission is unfortunate. Population aging is one of the most − if not the most − crucial forces upon which continued growth and development hinges. Through a series of policy dialogues over the past year, the Global Coalition on Aging has developed a set of insights that policymakers can leverage in order to drive economic growth through their countries'

aging populations. This paper takes an optimistic view of aging, turning on its head the liability that many assume aging will entail.

One of the greatest economic successes of the past half-century is the rise of the so-called "developing world." More recently, the spectacular economic performance of some nations has prompted the need to create a new category − "emerging markets." The emerging markets, specifically, are growing and industrializing at an especially accelerated rate, sustaining and even fueling global growth even during recent recessionary conditions.

By any number of economic indices, the rate of growth in emerging markets has been extraordinary, and projections to mid-century suggest a promising near- and long-term future. One recent report by Price Waterhouse Coopers forecasts that "the seven largest emerging market economies [China, India, Brazil, Russia, Indonesia, Mexico, and Turkey]… will be more than 50 percent larger than the G7 countries [U.S., Japan, Germany, U.K., France, Italy, and Canada] by 2050, when measured by GDP at market exchange rates, and around 75 percent larger in PPP [purchasing power parity] terms."

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OVERVIEW

"Aging…is a phenomenon that has to be taken duly into account by developing countries…To put it scientifically, while developed countries will see a 'linear increase' in their older population, developing countries will experience an 'exponential increase.'

— Ambassador Ert Ugrul Apakan,
Former Permanent Representative,
Permanent Mission of the Republic of Turkey to the United Nations

Equally and perhaps even more dramatic is the fall in birthrates in emerging markets and the rest of the developing world. As a consequence of urbanization and modernization, birthrates have plummeted, and projections to mid-century show that birthrates are projected to fall even further. This is true across geographies and religions.

Given the rate at which emerging markets are aging due to increases in longevity and declining birthrates, a fresh re-thinking of the priorities and goals of economic development is warranted. The conventional development theories that guide much of today's current thinking are outdated. They were framed in a different era for a different era. Twenty-first century demography demands a new approach to economic policy. As the population ages at

an unprecedented speed, a new structure of society is emerging. Economic policy must be responsive to this profound structural shift.

How can leaders in emerging markets create policies to capture the potential of population aging? How can policymakers ensure aging populations are not a barrier to growth, but quite the reverse as pathways to revitalize and ensure sustainable economic growth?

This paper intends to answer these central questions. With the population of emerging markets aging most dramatically, the answers to these questions are pressing. A dependent, disengaged aging population will be an additional barrier to growth. Yet a healthy, active, productive aging population can be the engine that powers it.

GCOA POLICY DIALOGUE SERIES

Between September 2012 and October 2013, the Global Coalition on Aging (GCOA) has hosted a series of policy dialogues aimed at strengthening the body of knowledge on the relationship between economic growth and aging populations in emerging markets. For this dialogue series, GCOA has enlisted leaders and experts from academia, think tanks, the business community, nongovernmental organizations (NGOs) in and outside the aging arena, and global institutions, including the World Health Organization (WHO) and the United Nations Population Fund (UNFPA), to lend their expertise to shape a new way of thinking about the role that aging populations can play in creating sustainable eco-growth in emerging markets. The goal of the dialogues was to identify the public policy changes that would position aging populations as drivers for − rather than barriers to − growth.

The first dialogue was hosted on September 7, 2012 at the Council on Foreign Relations in New York. The event, redefined how population aging was shaping developing nations. And contended that, historically, young countries have enjoyed "demographic windows of opportunity," but they are now approaching a moment of rapid, profound aging. They called for emerging economies like Turkey to implement into their development agendas policies in education, employment, and health care in order to turn aging populations into social and economic resources.

On May 28, 2013, GCOA held the second dialogue in Beijing with Renmin University of China, which was also supported by the China National Committee on Ageing. The experts recognized aging as the trigger to a mammoth shift in China, where, by 2050, nearly one-quarter (454 million) of the world's over-60 population will reside, and commented on a set of China's priorities in this area for the near future: investments to bring 97 percent of elder-care into the home and community; managing non-communicable diseases through better health information systems; promoting healthy aging through integrated health and social care systems; creating age-friendly environments that engage and educate older people as valued participants in society.

The third dialogue took place in Istanbul, Turkey on October 4, 2013. This dialogue highlighted the need for emerging-market countries to participate in the debate about population aging, most notably in the search for a long-term solution that defines a new "social contract" for older people in society.

In response to comments and suggestions made by Ambassador Apakan in September 2012, participants at this dialogue sought to identify which policies and investments would facilitate much-needed social and economic change. Among the many suggestions, one of the most insightful was the importance of reshaping labor markets so that they both include older workers and enhance inter generational understanding of this historic shift.

GCOA hosted this dialogue with the Istanbul Policy Center at Sabanci University and the United Nations Department of Economic and Social Affairs, and in association with Turyak and the International Federation on Aging's International Istanbul Initiative on Aging. The fourth dialogue was hosted by GCOA and the merging Markets Health Network in Bangkok, Thailand, and it focused on how free-market approaches can maximize opportunities to engage and enable aging populations in emerging Asian economies. One challenge that participants highlighted was cultural expectations, including the ways that strong traditions of filial piety and family bonds can create barriers against public- and private-sector solutions. Nevertheless, the group supported creating new policies that enable older people to avoid dependency and continue working.

They also advocated for creating a regional network that would explore ways in which free-market innovations can save systems costs by capturing the potential of aging populations.

These dialogues have helped uncover powerful opportunities for policy action. Yet to create tangible shifts in both behavior and culture, the work has only begun. GCOA's insights that are detailed in this paper aim to prompt bigger, more challenging questions − questions that require bold action.

For instance, as large numbers of people simultaneously reach "retirement age," how can we open new opportunities that draw from and enable health, work, and financial security? How can governments draw from business acumen to create economic growth structures that leverage their societies' aging populations? And, what is the role of global institutions (G8, G20, OECD, APEC, World Bank, WHO and UN) in this effort? There are no easy answers to these questions, to be sure, yet through the GCOA policy dialogues, we have leverage and the unique knowledge of participants to drive towards the answers.

In the remainder of this white paper, we discuss four overarching insights that emerged from GCOA's series of dialogues. We aim for this discussion to both lead to immediate action and prompt conversation for further evaluation.

Policymakers should focus on creating a "life course" of healthy aging that enables ongoing activity into the later years of life. It is common sense that we invest in education to give people the tools for lifelong productivity. Yet this reasoning has not extended to health, and it should. Policymakers should spend on health as they do on education − as investments in the future, not as costs that need to be contained and constantly reduced. It is a simple, but profound shift in thinking that will have great consequence. Policymakers should undertake, or have undertaken, the data analysis that shows the differences between a society investing in its future and those that treat such spending as short-term budget burdens to be limited and reduced.

For emerging markets, the payoff for this investment philosophy would be notable. As many emerging markets will soon have upwards of onethird of their overall population over 60, a

healthy, productive older demographic will be vital for continued, sustainable economic growth.

The following principles can guide prevention and wellness initiatives:

− Public and private reimbursement for both preventive and therapeutic services will encourage "ownership" of one's health;
− Early detection, diagnosis, and treatment prevent ballooning future costs;
− Incentives to seek wellness services like nutrition education and smoking cessation increase quantity and quality of commitment;
− Compensation for "wellness goals" encourages better health; these can be structured from employers and/or governments;
− Strong intellectual property for biomedical innovation as well as innovative medical devices and procedures will create an environment that attracts − and helps develop − cutting-edge products and services that lead to better health outcomes; and
− Willingness to pay prices for treatments and therapies that support incremental innovation as a critical basis for the more revolutionary innovation.

Furthermore, prevention and wellness initiatives should be focused on non-communicable diseases (NCDs). NCDs are the greatest health threat throughout emerging markets, and diseases like stroke, diabetes, cancer, cardiovascular disease, and Alzheimer's are rising precipitously. These diseases not only cost health systems untold sums, but they prevent people from continued economic engagement.

They are a double-edged sword.
Consider:
− **Cardiovascular disease (CVD):** Already the most common cause of death worldwide, an estimated 23.6 million people will die annually from the disease by 2030. The global direct cost of CVD is estimated to be more than $470 billion.

When including loss of productivity, the total global economic burden jumps to $860 billion and is estimated to grow to nearly $20 trillion by 2050.1 There are huge implications for emerging markets. For example, China spends more than $40 billion annually on direct health costs associated with CVD,2 equal to 4% of its gross national income.

Four Underutilized Prevention Strategies
1. Adult immunization: Vaccination through all stages of life prevents disease and promotes health. Vaccines against influenza and pneumococcal disease, for example, rank among smoking cessation and cancer screening as two of the most effective and cost-efficient public health strategies.

2. Preventive care for vision: For the first time in human history, vision loss is no longer an inevitable consequence of aging. Healthy vision enables prolonged economic engagement and prevents the accumulation of negative, costly health side effects.
One study by Price water house Coopers and the Fred Hollows Foundation found that, globally, there is a two-to-one benefit/cost ratio in vision loss prevention; in the less developed world, this ratio rises to four-to-one.

3. Life Course of Healthy Skin: Dry, fragile skin is a common but largely neglected health condition in older populations. It can lead to fissuring, bleeding, and injury, most often in the

lower extremities, thus increasing risks of infections and higher healthcare costs. While present expenditure on treating skin disorders is high, little attention is given to cost effective prevention. Regular hydration of the skin, the body's first line of defense against infection and disease, reduces these extrinsic risks.

4. Adherence to therapeutic interventions: A significant and avoidable barrier to better health is lack of adherence. Therapeutic interventions
− whether medications, exercise and diet, lifestyle changes, etc.
− only work when people follow recommendations. Unfortunately, adherence is low, and therefore health suffers and funds are wasted. According to the WHO, patients with chronic diseases have adherence levels of only 50% in the developed world, which are even lower in developing nations.10 Research has shown that adherence falls even lower among those who take multiple medications,11
− which is common for older adults, particularly among those who suffer from NCDs.
− **Diabetes:** 366 million people have diabetes worldwide, with an annual cost of $465 billion, or 11% of total healthcare expenditure in 2011. While 80% of those with diabetes live in lowand middle-income nations, only 20% of global healthcare expenditures due to diabetes take place in these countries.
− **Alzheimer's disease:** The number of people with Alzheimer's will double nearly every two decades, reaching nearly 66 million by 2030. Alzheimer's Disease International estimated the annual total economic impact, including direct and indirect costs, to be more than $600 billion. Today, over half of people with dementia live in developing nations, and by mid-century this ratio will rise to nearly three-in-four. As a result, the care giving burden will soon be overwhelming, and it will subtract significantly from the productive workforce. Globally, 50% of all care needs are a result of Alzheimer's and dementia. And, as such, the burden is becoming especially profound in emerging markets like China, India, Latin America, where the demand for informal caregivers is rapidly growing as populations are most rapidly aging.

2. Age-friendly businesses and incentives for entrepreneurship will maximize talent, create jobs, and drive growth.

Emerging-market economies must face a demographic fact: workforce are growing older, and so are consumers. This ostensible burden, however, can become an economic asset if older populations are vibrant, productive, and encouraged to remain in the labor force despite arbitrary retirement ages that were established at a time when life spans were three decades shorter than they are today.

Research by Prof. Ricardo Hausmann, Director of the Center for International Development at Harvard University's Kennedy School of Government, argues that growth in the global economy will be driven by knowledge. "Productive knowledge" – more than labor, natural resources, or educational systems – is what will power economic growth in the 21st century, according to Hausmann. To capture and engender this productive knowledge, however, real structural changes are required throughout organizations and societies. Below, two initiatives are described that leverage aging populations to foster this knowledge and drive growth.

− **Create Age-friendly Businesses:** Age-friendly businesses recognize that an older workforce is not by necessity a less productive or less valuable workforce. The right policies and programs can enable older employees to leverage their experience, insight, and knowledge to be extremely valuable. For instance, in January 2012, Singapore's Retirement

Age Act (RAA) was replaced by the Retirement and Re-employment Act (RRA), which requires employers to offer reemployment to eligible employees between the ages of 62 (the retirement age) and 65. Such public policy changes, combined with employers' efforts, will ensure that talent and productivity of aging workforces are maximized. Fortune 100 companies such as the automaker BMW and the pharmacy chain CVS are adapting their workplaces and work environments to utilize aging workers to drive business. To take this concept one step further, companies like Tesco are deploying new technologies to create a more friendly retail environment to older shoppers as valued consumers.

Policymakers can help employers become age friendly through:
• Tax credits for organizations that employ older workers;
• Assistance in developing working environments that suit older people's needs;
• Guidance on intergenerational collaboration and the elimination of ageism;
• Cross-generational training programs;
• Enabling partnerships between businesses and educational institutes to nurture life-long learning;
• Financial advisory services for longer lives and extended careers; the changing face of retirement
• Nutritional counseling and other healthcare related assistance to encourage healthy aging; and
• Pension reform that aligns with shifting demographics and a more phased approach to retirement.

− **Create Micro financing for Silver Entrepreneurs:**
Muhammad Yunus's groundbreaking work in micro credit and micro financing was transformational for individuals, families, communities, and nations at large. By creating funds for people who were generally seen as too poor to qualify for traditional loans, Mr. Yunus's micro financing empowered huge portions of the developing world's population to participate in economic affairs. The effect has been profound.

The time has come to extend this tool to aging populations. Just as the economically disenfranchised were effectively shut out of entrepreneurial activity before micro financing, so are the aging today. Often they are made to leave the workforce. Other times they cannot find jobs. There are two major losses that result.

First, older persons are cornered into positions of dependency, rather than given opportunity to create new businesses, jobs, and product and service offerings. Not only are they precluded from contributing to growth, but they are made reliant on social and familial welfare.

Second, this lack of opportunity prevents older entrepreneurs from leveraging their unique insights into creating products and services for an older consumer base − the fastest growing market. This is a net economic loss. Whether healthcare products and services, consumer items, transportation, entertainment, etc., older people best understand what older people want.

There is an entire sphere of economic activity that could be opened through entrepreneurial funding. Policymakers can incentivize older people to become entrepreneurs though micro financing, tax policy, pension flexibility, and strong intellectual property rights. Furthermore,

as entrepreneurs, older adults can remain more active and more socially engaged − two activities that promote better health. And, in turn, better health will further reduce costs that would otherwise be incurred from unhealthy aging.

3. Through innovations in personal care and technology, care giving must move from institutions to the home and community.

The traditional model of delivering care is costly, inefficient, and overly institutionalized. No one wins under this model. It is slowly being left behind.

As a model of 21st-century care giving emerges, two trends are shaping it: personalization of home based care and new technologies to enable better care. The emerging markets have a unique opportunity to both capture and pioneer a new global model of care giving. Doing so will reduce costs, decrease caregiver burdens (and free up time to continue economic participation), and lead to new technological products and services. Each outcome will contribute to economic growth.

Especially in the rapidly developing middle income countries, including China, India and Brazil, where demographic aging is also proceeding most rapidly, social and economic changes will create strong demand for formal care services, which, in these regions, are currently underdeveloped. In China, the goal is to move 97% of care into the home and community. Unfortunately this model will be unsustainable as the availability of family caregivers declines and absent new models to provide this essential care. Care that allows "aging in place" is needed across the globe, and entrepreneurial models that provide personal, relationship-based services will be best tailored to 21st-century aging population needs.

By focusing on the chronic conditions that increase with age, which may not require medical expertise, these services will provide cost efficiency, more humane care and job creation. Such innovations will be scalable across the globe while providing a sustainable solution for an exploding need.
Given the technological expertise and talent pool available in emerging markets, this new model of care presents tremendous opportunity for both domestic economic success and global leadership. There are a host of technological innovations that emerging-market leaders can nurture in order to forge this new, home-based model of care.

For example:
• Smartphones, tablets, and other devices can provide home-based monitoring and communicate with healthcare professionals in real-time and alert them of any abnormal developments.
• In-home sensors can detect falls, lack of activity, trips to the toilet, etc. and monitor for unusual or worrisome patterns. They can also communicate directly with healthcare professionals.
• Professional caregivers can make frequent home visits to both maintain these digital devices and provide companionship.

Overall, smart technologies that connect the care network while supporting active living open the door for more personalized home-based care. These two trends should be seen not in competition with one another, but acting in symbiosis. The concept of "aging in place" is being sought in country after country as it aligns to personal preferences and social good.

4. Age-Friendly environments enable the continued social and economic participation of older adults.

As urbanization sweeps through emerging markets, an opportunity arises for policymakers to make their cities and countries "age-friendly." A traditional view of rapid urbanization assumes budget challenges that result in older people falling victim to the system. To the contrary, urbanization can bolster economic growth in the 21st century if the mass relocation of people results in environments that support the swelling over-60 population and create new paths for engagement.

This will require a new framework for thinking about urban development and aging. Aging and urbanization are often seen as concurrent global developments, but not as intricately interwoven − and even potentially interdependent. As the post- 2015 development agenda is constructed, a focus should be placed on "age-friendly urbanization," which would seek to create urban environments that enable aging populations to be active, productive contributors.

Age-friendly development in the context of rapid urbanization will create:
− Safe and walk-able environments;
− Reliable, accessible public transportation;
− Safe and accessible public spaces;
− Convenient healthcare services and digital healthcare solutions; and
− Opportunities for ongoing education and work.

For emerging-market leaders, there is an established movement of age-friendly development underway, such as the World Health Organization's Age-Friendly Environments program, Europe's Healthy Cities, and the UK's Lifetime Neighborhoods initiative.

None of these programs, while critical to the health and social participation of older people across the globe, have yet to fully "connect the dots" between aging, urbanization, and economic growth. An initiative begun in and led by an emerging-market government could become the new global gold-standard for age-friendly development. There is reason to believe that there is rich potential for governments to partner with private sector organizations on such an initiative. There is certainly a void in this arena that is waiting to be filled.

Conclusion

For emerging-market nations to revitalize economic growth over the next two decades, government leaders will have to capture the opportunity brought by their aging populations. With longer lives and lower birthrates, a "business as usual" approach will lead to fiscal deficit and economic stagnation. A new structure of society is taking shape throughout emerging markets − and the changes in ratio of old-to-young that took over a century in the developed world will be brought about in a matter of decades. Continued economic success hinges upon new paths of healthy, active, and productive aging.

Emerging-market leaders need look no further than Japan and Western Europe to witness the consequences of inaction: economic growth is stifled, inter generational tension is rife, and policymakers cling to 20th-century norms despite 21st-century realities. As this paper has discussed, emerging market leaders can chart a new course by investing in wellness and

prevention, creating age-friendly businesses and environments, and innovating in home-based and personal care.

To get this right, there are many questions that remain to be answered. GCOA will continue to hold further policy dialogues among experts in aging and across different sectors in order to work towards these answers and generate new ways of thinking about population aging.

Ultimately, though, individual nations will need to learn their specific targets. What percentage of those over-60 will need to be employed to keep the economy growing − either full-time, part-time, or through self-employment? There is also need to understand greater segmentation among those 55 to 65, 66 to 70, and 70-and-over. Where are current levels of employment, and where do they need to be? What kinds of increases are necessary? Such economic research would provide concrete, actionable insight that could shape economic policy making in the decades to come.

Additionally, economic researchers should also establish health and care goals: what is the necessary per capita investment in wellness and prevention to reach desired health goals? What percentage of long-term care needs to be home- and community-based? What levels of medication adherence is a realistic target? These questions, among others, require both general and specific answers. Globally, leaders and policymakers should work together to define target levels. But national leaders will also need to discern domestic goals and benchmarks.

Ultimately, the journey of driving growth through aging is a quest that must be undertaken by both individuals and societies. If emerging-market leaders create policies that enable a more productive aging process, then their extraordinary economic success of the past few decades will continue into the 21st century.

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An Overview of Trade Volume and Its Composition: Comparative analysis of EU, ASEAN and India

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Abstract

India's foreign trade policy is mainly focused on increasing volume of bilateral trade with several economic cooperation arrangements with different countries. The bilateral trade agreements are considered as important strategies for development among the countries. They are instrumental in promoting economic growth and development of the economy, particularly, through FTA's (free trade agreements).Though the patterns of bilateral integration differ across regions, reducing barriers to trade between member countries remains the primary objective. Many go beyond removing intra-regional tariffs on trade in goods to removing non-tariff barriers, and even include investment. Thus the trade volume and its composition has played an increasingly important role in India's economic growth in the last two decades wherein a lot of bilateral trade agreements have been formed; India-ASEAN agreement and the on-going negotiations between India and EU representatives during the last few years have given rise to substantial curiosity among researchers across the world. The kind of trade agreements India has with the two trading blocs are significant to explain the direction and composition of India's trade volume. India trades more with ASEAN countries rather than with countries in the EU. The research analyses the performance of India's exports, imports and its trade volume with EU and ASEAN for the period between 1996 to 2014. The paper also looks at trade patterns in respect of selected industries where the trade volume has been significantly going up.

JEL classification: F1, F150, F140

Key words: ASEAN, EU, economic integration, free trade agreement, India, trade volume

Introduction: India's total merchandise trade increased from US$ 467 billion in financial year (hereafter; FY) 2010 to US$ 757 billion in financial year 2015. Exports from India have increased at a CAGR of 11.6 per cent from 179 billion in FY2010, to US$ 310 billion in FY2015. India's Export to GDP ratio increased from 13.3 per cent in FY2010 to 15.6 per cent in FY2015. India's share in world merchandise export was 1.7 per cent in 2014. Foreign Trade Policy 2015-2020 aims at increasing India's merchandise and services exports to US$ 900 billion by FY 2020. Also currently India's foreign trade policy is mainly focused on increasing volume of bilateral trade with several economic cooperation arrangements with different countries in Asia and rest of the world.

Free Trade Agreement (FTA) between two countries or group of countries happens when they agree to eliminate tariffs, quotas and preferences on most of the goods (if not all) between them. Countries choose FTA if their economic structures are complementary, not competitive. Presently India has FTAs and PTAs (preferential trade agreements), with many countries in Asia as well as other parts of the world.

The current research focuses on the trade volume from ASEAN (Association of South East Asian countries) and EU (European Union).The India-ASEAN Free Trade Agreement (AIFTA) came into effect on January 1, 2010. For the India –EU trade agreement fifteen rounds of negotiations have been held till date. India formulated the FTA with ASEAN with a lot of difficulty spread across a time line of five years. Under their initial bilateral framework agreement, signed in Bali on 8 October 2003, the India-ASEAN FTA for goods was supposed to be finalised by 30 June 2005.After a year's delay, discussions were ground to a halt in June 2006 when India released its' negative list' of items to be excluded from tariff reductions — with 900 products, both industrial and agricultural, figuring on the list. (This was down from India's initial negative list of 1,410 items.) India's agriculture ministry, in particular, was arguing hard to exclude commodities like rubber, pepper, tea, coffee and palm oil from the deal. Rules of origin have been the other thorny issue. Two months later, in August 2006, Delhi issued a revised list, pruned down to 560 items. However, tremendous fears about the impacts of the India-ASEAN FTA on farmers continued to rattle the discussion. By early 2007, in the midst of the new biofuels boom, palm oil became a central blockage point as Indonesia and Malaysia, both top palm oil exporters, struggled to get India to lower its tariffs. On 28 August 2008, a deal was finally concluded. The agreement was signed in 2009 and took effect (trade in goods) with 5 of the countries and India on 1st January 2010, (Singapore, Malaysia, Brunei, Myanmar and Thailand). Ever since the FTA in goods, India was pushing for a services liberalization deal (9a FTA in services) with the ASEAN countries which it concluded in July 2015.

India is an important trade partner for the EU and an emerging global economic power. The value of EU-India trade grew from €28.6 billion in 2003 to €72.5 billion in 2014. The EU and India are committed to further increase their trade flows in both goods and services as well as bilateral investment and access to public procurement through the Free Trade Agreement negotiations that were launched in 2007.Substantial progress has been made so far, and key areas that need to be further discussed include improved market access for some goods and services, government procurement and geographical indications, and sustainable development. However, between the governments, a number of controversies have been plaguing the talks. Delhi wants Brussels to relax its stringent food safety criteria which penalise Indian farm and fishery exports and to make it easier for Indian professionals to work in the EU. Europe is primarily out to win major openings of India's services sector and broad liberalisation of foreign investment, while India does not want to discuss allowing European firms to compete in India's government procurement market. Indian social movements, including fisher folk and labour unions, people living with HIV/AIDS and other health activists have been mobilizing against the FTA. International actions and campaigns have particularly targeted the proposed intellectual property provisions of the agreement, and the impact of the FTA on access to medicines.

Review of literature: The on-going negotiations between India and EU representatives during the last few years and implications of the India -ASEAN FTA have given rise to considerable curiosity among researchers across the world. Empirical studies have used various models to analyse the possible impact of both the agreements. At the outset Das Upendra (2014) pointed out that since 1991, India has witnessed wide-ranging economic reforms in its policies governing international trade and foreign direct investment (FDI) flows which has consequently led to a dramatic rise in both trade and FDI flows since then. He used firm level panel data to investigate whether these trends have contributed to significant productivity improvements since 2000, as measured by total factor productivity (TFP). The results suggest the existence of significant productivity improvements since 2000 and also identify variables such as imports of raw materials and capital goods, size of operation,

quality of employment captured by wage rates, and technology imports as crucial determinants of productivity. The foreign firms have catered to the domestic market and as a result, India is yet to develop as an export platform. Finally, the import-export linkage is not shown to be significant in the sample of import-dependent firms.

Pal and Dasgupta (2008, 2009), Harilal (2010) used tariff and trade data extensively through partial equilibrium framework. Then Karmakar (2005) used descriptive framework and Lee & Liew (2007) used time series analysis to study the possible impact of free trade agreements. Veeramani (2010) used SMART and gravity model for the same.

Alam, Izhar (2015) in his research paper attempts to analyze bilateral trade between India and ASEAN region-wise, country-wise and commodity-wise and identifies complementary and competing commodities of trade between India and ASEAN countries. According to him for the success of any Regional Trade Agreement (RTA) it is imperative for partner countries to have complementary trade structure to be exploited for mutual benefit. Revealed Comparative Advantage Index (RCAI) analysis and trade intensity indices (export intensity index and import intensity index) analysis provide a useful insight into the competitiveness of participating countries and hence reveal the possibility of increased trade cooperation between them. He further highlights India's total trade with ASEAN region and reveals that there is a rise in trade at an average annual growth rate of 19.8 per cent and compound annual growth rate of 21.8 per cent during the analysis period. In 2000-01 bilateral trade between India and ASEAN was worth almost US$ 7 billion and reached to almost US$ 76 billion, almost 10 times during 2000-01 to 2012-13 which accounted at an average of US$ 34 billion per year during these periods. Singapore, Indonesia, Malaysia and Thailand are the most important markets for India within ASEAN. Izhar's findings conclude that India's main export commodities to ASEAN region include mineral fuels, mineral oils and products, ships, boats and floating structures, organic chemicals, meat, edible meat offal, cereals, vegetables and fruit, nuclear reactors, boilers, machinery and mechanical appliances, parts thereof while the main imports items by India from the ASEAN region are mineral fuels, animal and vegetable fats, electrical machinery and equipments and parts thereof, nuclear reactors, boilers, organic chemicals, wood products, rubber products, etc. He also measured India's export intensity as well as import intensity with ASEAN and found that it is greater than one for most of the years. This means India’s exports and imports are intense with ASEAN countries compared with its trading pattern with rest of the world.

Other empirical studies from Kawai *et. al* (2007), and Sasatra and Prasopchoke (2007) have used CGE framework. Kawai *et. al* (2007) highlighted that the consolidation at the ASEAN+6 level would yield the largest gains to East Asia among plausible regional trade arrangements. The study by Sasatra and Prasopchoke (2007) also shows that ASEAN-5 would achieve greater benefits from the FTAs if they fully liberalized trade among themselves. But there is an argument by Veermani (2010) that AIFTA will cause significant increase of imports of plantation commodities into India. The increase in imports will be mostly driven by trade creation rather than trade diversion. The proposed tariff reduction as per the India-ASEAN trade agreement may lead to significant tariff revenue loss to the Indian government. However, the gain in consumer surplus (due to the fall in domestic price and the consequent reduction in dead-weight loss) outweighs the loss in tariff revenue leading to net welfare gain. Further analysing the trade of India with ASEAN, Ahmed (2010) has made an attempt to investigate the sectoral dimensions of India – ASEAN Free Trade Agreement post liberalization. The study states that India will be affected significantly in processed food products, grain crops, textile and wearing apparel, light manufacturing and heavy

manufacturing sectors. As a result, India's trade balance will be worsened and it will cause revenue losses for India.

India is an important trade partner for the EU and a growing global economic power. It combines a sizable and growing market of more than 1 billion people with a growth rate of around 8 per cent or above one of the fastest growing economies in the world. Although it is far from the closed market that it was twenty years ago, India continues to maintain considerable tariff and non-tariff barriers that hamper trade with the EU. There are hopes amongst both the EU and India to increase their trade in goods and services and investment through the Free Trade Agreement (FTA) negotiations that they launched in 2007. Negotiations were expected to be concluded in early 2012, but they are still on going. The economic survey 2012 -2013 states that EU-India trade has grown impressively and more than doubled from €28.6billion in 2003 to over €67.9 billion in 2010. The flow of EU investment to India has more than tripled since 2003 from €759million to €3 billion in 2010 and trade in commercial services has tripled from €5.2 billion in 2002 to €17.9 billion in 2010. However, India's trade regime and regulatory environment still remain comparatively restrictive and in 2009 the World Bank downgraded the Indian rank to165 from 120 in 2008 (out of 183 economies) in terms of the 'ease of doing business'. In addition to tariff barriers to imports, India also imposes a number of non-tariff barriers in the form of quantitative restrictions, import licensing, mandatory testing and certification for a large number of products, as well as complicated and lengthy customs procedures.

The report of the EU-India High Level Trade Group in October 2006 had set out the parameter for ambitious FTA between India and EU. Negotiations for the same were launched in June 2007 and, so far, eleven rounds of negotiations have been held. The last EU-India Summit took place on 10 December 2010 in Brussels. The last round of talks on the pact were held in 2013 with dialogue stalled since. Trade between India and the EU stood at $101.5 billion in 2013-14 and it was $57.25 billion during April-October 2015. While the EU is keen on greater market access to India, including for agricultural products, India wants fewer restrictions on the temporary movement of its nationals working in Europe To assist India in continuing its efforts to better integrate into the world economy the EU is already providing trade related technical assistance to India.
Kapur (2008) has pointed out in his article that India continues to export in traditional sectors like textiles, metals, stones, granite, etc. He also stresses that there are nonetheless signs that Indian exports are changing their colours. Sectors like engineering goods and chemicals and minerals are finding a place in Indian exports to EU.

Singh & Sharma, (2014) point out that ASEAN and EU are two significant unions of countries from the perspectives of economic and geo-politics as well. In Asia, South East Asian countries witnessed rapid economic growth in the decades preceding an equally rapid economic growth in China and India. ASEAN countries can be viewed somewhat as a precursor to India, both in terms of economic growth and also in terms of economic liberalization. At the same time, it was realized that there is a need to look at ASEAN countries as significant trade partners, more so because of the geographical proximity it enjoys as compared to other significant trading partners such as the EU and the USA. In last decade, the economic and trade relations between India and ASEAN also got boost by the 'Look-East Policy' of the Government of India. On the other hand the EU countries have different economic and geo-political profile as compared to the ASEAN countries. EU is India's major trading partner. A comparative study of India's trade agreements with the EU

and the ASEAN is in order and is expected to provide important policy lessons for prospective trade agreements as well.

Research Methodology: The proposed research has used the variables like exports, imports and trade volume (exports + imports) for the analysis. The data for the variables is from 1996 to 2014. In the research study mean, long term trend in trade volume, exports and imports of the EU and ASEAN is calculated. A total of 37 countries (27 from EU and 10 from ASEAN) were selected for the study. Data for India's trading partners from EU and ASEAN is taken from Direction of Trade Statistics, Ministry of Commerce. The trade data is in US $. The trade pattern in respective of selected industries is analysed for commodities under the HS code two. Various commodities under the HS code have been grouped together to form an industry. The study focuses on seven industries namely: food processing (from HS Code 2 to 5 and 7 to 22), textiles and garments (HS Code 50 to 63), minerals (HS code 25 to 27), chemicals (HS code 28 to 38), gems and jewellery (HS code 71), metals and metallic goods (HS code 72 to 83) and lastly machinery and engineering goods (HS code 84 to 89). The industry groups are of particular significance given their share in overall trade. The trend analysis for the trade volume is of 19 years. In the selected period of 19 years the trade volumes with countries has changed depending upon the exports and the imports. In the study, long term trend as well as compounded annual growth rate of countries in EU and ASEAN with respect to trade volume is calculated with the help of regression model shown below.

For trend Analysis

$$Y = a + b * time \quad \text{(1)}$$

For CAGR

$$\text{Log } Y = a + b * time \quad \text{(2)}$$

In the equation (1), b (slope coefficient) represents the long term trend behaviour for trade volume in EU and ASEAN. The slope coefficient (b) can be interpreted as the rate of change in trade volume of the countries in one year. The T statistic of the slope coefficient in the regression model test the null hypothesis, "there exists an insignificant long term trend in the trade volume of the countries with India". If the p value of t statistic in the regression model is found to be less than 5 % level of significance that the null hypothesis can be rejected. Similarly in the equation (2), the slope coefficient represented the calculated value of CAGR of the trade volume of the countries with India. The equation (2) is also known as semi log model which is used to calculate growth rate of the dependent variable. The t statistic in regression model equation (2) test the null hypothesis that the growth rate is statistically insignificant. If the p value of the t statistic is found to be less than 5 % level of significance than with 95% of confidence level the null hypothesis is rejected.

Descriptive Analysis: The results for the calculation of mean of exports, imports and trade volume from the EU and ASEAN for a period of 19 years (1996 to 2014) is indicated in Figure 1 and 2.

Figure1: Mean of Exports, Imports and Trade Volume between EU-India from 1996 to 2014

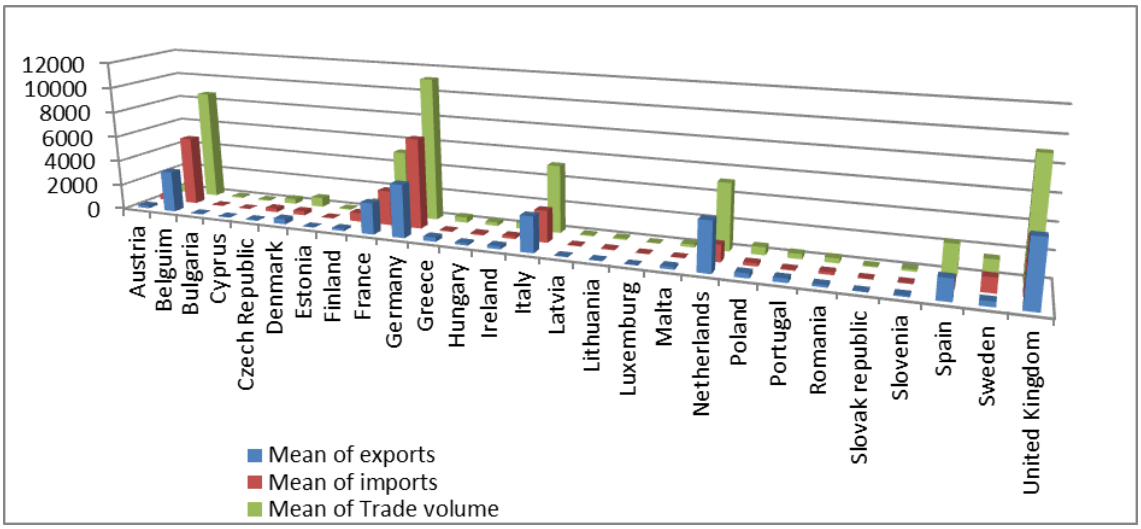
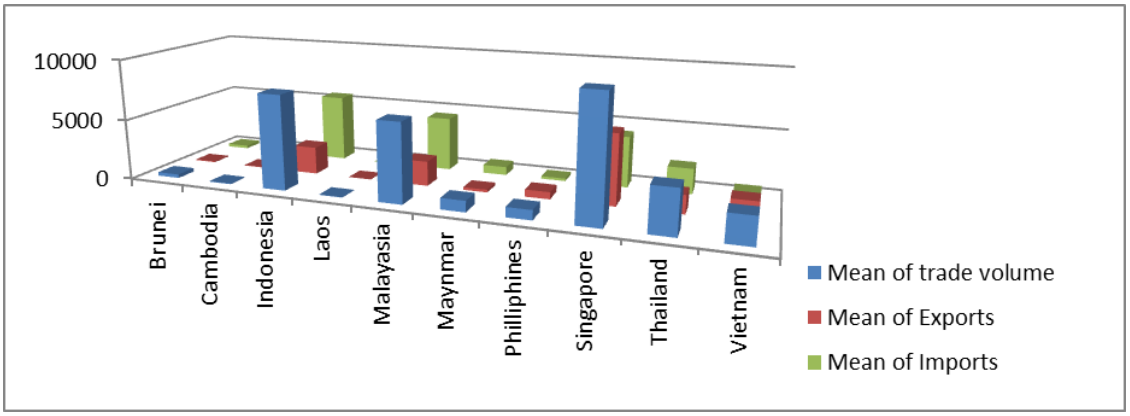


Figure2: Mean of Exports, Imports and Trade Volume between ASEAN-India from 1996 to 2014



The results indicate that United Kingdom (4948.627) has the highest mean of exports with India followed by Germany (4151.11), Netherlands (3835.44), Belgium (3266.66), Italy (2777), France (2460.67), Spain (1617.39) and Denmark (411.568). Rest of the countries have a very low mean of exports i.e. Austria (204), Bulgaria (57.85), Cyprus (48.48),Czech republic(87.93), Estonia (32.98), Finland (179), Greece(340.60), Hungary (162.43), Ireland (244.57), Latvia (42.34), Lithuania (48), Malta (198.2), Poland (369.18), Portugal (314), Romania (171), Slovak Republic (39.2), Slovenia (101.29) and Sweden(387.93). The country with the lowest intensity of exports from the EU is Luxemburg (9.034). Analysing the imports from EU it is found that the highest imports India does is from Germany (7046.84) followed by Belgium (5440.14), United Kingdom (4088.97), France (2720.73), Italy (2468), Netherlands (1301.37) and Sweden (1108.67). The lowest import intensity is from Luxemburg (24.16) and Malta (25.76). Analysing the mean of trade volume (exports + imports) it is found that the highest trading partner of India is Germany with a mean of 11197.956. This is followed by United Kingdom (9037.59), Belgium (8706.79), France (5181.40), Italy (5245.13), Netherlands (5136.80), Spain (2308.66) and Sweden (1496.61). The lowest trade volume intensity is from Luxemburg (33.19).

The results in figure 2 indicate that Singapore (5729.11) has the highest mean of exports with India followed by Indonesia (2265.47), Malaysia (2033.79), Vietnam (1599.52), and Thailand (1508.91).The rest of the countries in ASEAN have a very low mean w.r.t to exports with India. Similarly analysing the imports it is found that India imports largely from Indonesia (5551.86) followed by Malaysia (4463.57), Singapore (4212.27) and Thailand (2087.83). The rest of the countries in ASEAN have a very low import intensity with India. For the mean of trade volume with ASEAN it is found that Singapore (9941.37) has the highest trade volume with India. This can be due to the CECA (comprehensive economic cooperation agreement) which India formulated with the country in 2005. It is followed by Indonesia (7817.33), Malaysia (6497.36), Thailand (3596.74) and Vietnam (2220.07). The lowest mean of trade volume is from Laos (29.99). Other countries in ASEAN too have a very low mean in trade volume with India. They are Brunei (298.22), Cambodia (48.79), Myanmar (911.58), and Philippines (799.66).

Table 1: Long term trend analysis for trade volume of India with EU countries: CAGR

Country name	Trend Co-efficient	T Statistic (p value)	R Square	F Statistic (p value)	CAGR for trade volume
Austria	77.78	8.75 (0.000)	81.8%	76.58 (0.000)	14.72%
Belguim	787.05	10.37(0.000)	86.4%	107.57(0.000)	9.40%
Bulgaria	15.10	7.82(0.000)	78.3%	61.21(0.000)	16.81%
Cyprus	5.67	1.54(0.140)	12.4%	2.39(0.140)	8.60%
Czech Republic	44.75	6.11(0.000)	68.7%	37.35(0.000)	15.68%
Denmark	66.16	9.86(0.000)	85.1%	97.30(0.000)	10.27%
Estonia	14.21	4.87(0.000)	58.3%	23.76(0.000)	27.56%
Finland	98.77	6.39(0.000)	70.6%	40.86(0.000)	13.84%
France	537.38	9.96(0.000)	85.4%	99.31(0.000)	12.87%
Germany	1177.84	9.75(0.000)	84.8%	95.10(0.000)	11.84%
Greece	33.40	3.59(0.002)	43.2%	12.92(0.002)	10.87%
Hungary	39.49	8.15(0.000)	79.7%	66.56(0.000)	18.55%
Ireland	54.43	14.21(0.000)	92.2%	202.20 (0.000)	14.35%
Italy	522.47	10.65(0.000)	87.0%	113.56(0.000)	11.40%
Latvia	13.54	5.73(0.000)	65.9%	32.85(0.000)	19.50%
Lithuania	16.99	3.18(0.005)	37.3%	10.13(0.005)	26.66%
Luxemburg	3.05	6.18(0.000)	69.2%	38.25(0.000)	12.93%
Malta	34.08	3.78(0.001)	45.7%	14.32(0.001)	24.10%
Netherlands	670.36	8.49(0.000)	80.9%	72.20(0.000)	15.57%
Poland	92.25	9.59(0.000)	84.4%	92.13(0.000)	17.91%
Portugal	47.11	10.03(0.000)	85.6%	100.79(0.000)	13.28%
Romania	45.85	8.01(0.000)	79.1%	64.19(0.000)	18.17%
Slovak republic	11.23	8.46(0.000)	80.8%	71.65(0.000)	16.80%
Slovenia	21.66	10.29(0.000)	86.2%	106.01(0.000)	17.93%
Spain	273.46	14.54(0.000)	92.6%	211.56(0.000)	13.65%
Sweden	146.92	8.32(0.000)	80.3%	69.35(0.000)	12.58%
United	692.70	11.39	88.4%	129.81(0.000)	8.20%

Kingdom		(0.000)			

The results of long term trend analysis and CAGR (in table 1) indicate that out of 27 countries in EU, eight countries have a high trend co-efficient (b) of trade volume with India. The country with the highest trend coefficient is of Germany (1177.84) followed by Belgium (787.05), UK (692.70), France (537.38), Italy (522.47), Poland (670.36), Spain (273.46) and Sweden(146.92).These values indicate the long term trend behaviour in trade volume between India and the EU countries. Germany has the highest b in trend indicating that the trade volume of India with Germany changes 1177.84 billion US $ in a year. The t statistic of 9.75 indicate that there exists a long term significant trade value between Germany and India. This is supported by a significant p value of 0.000. Further a CAGR of 11.84 % shows a statistically significant growth rate between the two countries.

It has to be noted that countries with larger trend coefficient (b) have a lower CAGR compared to countries with lower trend coefficient (b) in trade volume having a high CAGR. This is because their base i.e. trade volume is very small so the compounded annual growth rate (CAGR) w.r.t trade volume with India is coming on a higher side. Therefore, the country with the highest CAGR from EU is Estonia (27.56%) with a very low trend coefficient 14.21.This is followed by Lithunia (26.66%) with a trend coefficient of 16.99. The countries with the lower CAGR are Germany (11.84%), France (12.87%), UK (8.2%), Greece (10.87%), and Belgium (9.4%).

Table 2: Long term trend analysis for trade volume of India with ASEAN countries: CAGR

Country name	Trend Co-efficient	T Statistic (p value)	R Square	F Statistic (p value)	CAGR for trade volume
Brunei	58.448	5.30(0.000)	62.38%	28.18(0.000)	41.70%
Cambodia	7.787	9.46(0.000)	84.06%	89.66(0.000)	21.87%
Indonesia	1194.192	9.46(0.000)	84.06%	89.65(0.000)	19.41%
Laos	6.596	4.49(0.000)	54.27%	20.17(0.000)	31.56%
Malaysia	826.279	11.47(0.000)	88.57%	131.74(0.000)	14.53%
Myanmar	113.395	12.08(0.000)	89.57%	146.06(0.000)	14.55%
Philippines	92.338	14.75(0.000)	92.76%	217.68(0.000)	13.64%
Singapore	1259.468	9.33(0.000)	83.67%	87.11(0.000)	16.84%
Thailand	519.089	11.19(0.000)	88.06%	125.38(0.000)	17.69%
Vietnam	425.911	7.66(0.000)	77.55%	58.73(0.000)	26.29%

Results in table 2 indicate that more than half of the countries in ASEAN have a very high trend coefficient w.r.t to trade volume with India. the country with highest b is Singapore (1259.46) followed by Indonesia (1194.19), Malaysia (826.27), Thailand (519.089), Vietnam (425.91), Philippines (92.3), Myanmar (113.39).Thus from the ASEAN region almost more than fifty per cent of the countries have a high beta in trade volume compared to EU where out of twenty seven countries only eight countries show a high trend coefficient with India. Countries in ASEAN like Laos (6.5), Brunei (58.4), and Cambodia (7.7) have a low trend coefficient in trade volume with India.

The highest CAGR from ASEAN is of Brunei (41.70%) followed by Laos (31.56%), Cambodia (21.87%).The countries with low CAGR are Philippines (13.64%), Malaysia (14.53 %), Myanmar (14.55), Singapore (16.84%),Thailand (17.69%) and Indonesia (19.41%).

Table 3: Industry wise mean of exports and imports from EU and ASEAN to India

Sr.no.	Selected Industry wise classification	EU		ASEAN	
		Mean of Exports	Mean of Imports	Mean of Exports	Mean of Imports
1	Food processing	2076.749	278.752	2051.5545	2956.2975
2	Textiles and garments	6308.724	281.8545	651.3915	200.144
3	Minerals	3432.083	793.09	3814.2855	4015.4005
4	Chemicals	3229.384	2962.521	1487.8025	1421.812
5	Gems and Jewellery	2329.736	15362.65	737.0985	189.571
6	Metals and Metallic goods	2323.362	2851.685	1263.598	854.29
7	Machinery and engineering goods	4288.726	11087.92	2542.905	3564.0875

In table 3 average values of export and imports industry wise from the two trading blocs is analysed. It is found that under the food processing industry Indian exports are similar as the mean values from EU (2076.749) and ASEAN (2051.5545) is more or less the same. As far as imports are concerned India imports in larger quantity from ASEAN compared to EU. Distance between India and EU countries along with transportation and logistics costs might discourage imports from the region. ASEAN has a geographical proximity to India so it is cheaper to import food items. Under the textile and garments industry it is found that major textile products from India are exported to EU as the mean value is 6308. Compared with ASEAN the average exports are very small (651.39). Also we find that India imports lesser both from EU and ASEAN under the textile and garment industry. India's average exports of minerals to both the trading blocs is very high i.e. 3432.08 (EU) and 3814.32 (ASEAN). Compared to exports India's imports very less minerals from EU. But looking at average import values from the ASEAN (4015.40) exceed than that of exports. Minerals largely consists of salt, sulphur, earths and stone, lime and cement, ores, slag and ash, minerals fuels and oils, bituminous substances and mineral waxes. India has ample of these which is also reflected in its average exports to both the trading blocs. Chemicals broadly include inorganic and organic chemicals, pharmaceutical products, fertilisers, tanning or dyeing, soap, explosives, photographic goods, glues, modified starches and enzymes. Indian average exports and imports are high to EU compared to ASEAN which is on a very lower side comparatively. The gems and the jewellery include natural or cultured pearls, precious or semiprecious stones, pre. Metals, clad with pre. Metal and articles thereof; imitation jewelry; coin. India’s average imports from the EU are very high from this industry (15362).But compared with ASEAN both the imports (189.57) as well as the exports (737.09) potential is very low. Metals and metallic goods industry include iron and steel, copper, nickel, aluminum, lead, zinc, tin, tools implements, cutlery, spoons and forks, of base metal; parts thereof of base metal. India has plenty of all these metals and metallic goods. Both its exports (2323.36) and imports (2851.684) to EU are much higher than ASEAN which has average

exports (737.09) and imports (189.57). These metals have a high demand in EU as it manufactures capital goods and heavy machinery and most of the metals are needed for the same. Machinery and engineering goods comprises of nuclear reactors, boilers, machinery and mechanical appliances, electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers and parts, aircraft, spacecraft, vehicles other than railway or tramway rolling stock, ships, boats and floating structures. As the Indian economy is a developing economy it is heavily dependent on Germany, France, Italy and UK for the import of all the commodities under the machinery and engineering goods sector. The average imports from EU are 11087.9and the exports are 4288.2.Comparing the same with ASEAN we find that the imports are on a much lower side. This shows that India is much dependent on EU for its import of capital goods.

Conclusion

The kind of trade agreements India has with the two trading blocs are significant to explain the direction of India's trade volume. India trades more with ASEAN countries rather than with countries in the EU on account of AIFTA. This paper has just made a beginning as far as the analysis of India's direction of trade is concerned. The analysis is obviously far from complete. India still maintains substantial tariff and non-tariff barriers that hinder trade with the EU. In addition to tariff barriers to imports, India also imposes a number of non-tariff barriers in the form of quantitative restrictions, import licensing, mandatory testing and certification for a large number of products, as well as complicated and lengthy customs procedures.The present study indicate that India trades more with ASEAN countries due to AIFTA which is sufficient evidence for policy makers to speed up the negotiations with the EU and thus enhance the contribution of India's trade with the bloc toward the country's economic development. The recent policy of MAKE IN INDIA is also likely to get a boost if India reduces all sorts of trade barriers with EU as the present paper indicate that a major composition of India's imports from EU is of capital goods. To conclude, the study points that the effort of the policy makers in improving the 'ease of doing business' in India in the current scenario will have far reaching effect on the volume and direction of India's trade and trade agreements with the two studied blocs, viz EU and ASEAN.

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