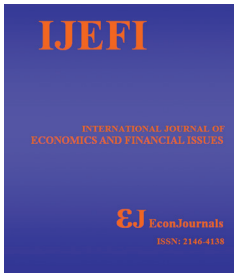

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Financial Institutions and Economic Growth: An Empirical Analysis of Indian Economy in the Post Liberalized Era

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ABSTRACT

Development of insurance and banking institutions is one of the fundamental constituents that plays an important role in stimulating financial development and thereby the growth of the economy in any country. However the causal effect of these financial institutions can't be generalized as the development of financial institution is quite different in nature and scale in different countries. This paper attempts to examine the relationship between financial institutions and economic growth in the Indian economy. We find that there exists a long run relationship and insurance institutions do promote the economic growth and *vice-versa*. It is also found that it is growth in the economy that causes development of banking institutions.

Keywords: Economic Growth, Financial Institutions, Banks, Insurance, Time Series, India
JEL Classifications: C22, E44, G20, G21, G22, O16

1. INTRODUCTION

The financial liberalization efforts taken by various developing economies had crucial impact on their financial institutions. With the passage of time many of these economies have achieved high rates of economic growth. Analyzing the possible cause for such growth rates, financial researchers have advocated that, it is financial sector development that has played a crucial role in promoting the growth of the economy to remarkable levels (e.g., Patrick, 1966; McKinnon, 1973; Shaw, 1973; Sandberg, 1978; Jung, 1986; King and Levine, 1993; Levine, 1997 and 1998; Outreville, 1996).

Understanding the role of financial development, researchers emphasized on analyzing the factors that contribute to the development of the financial sector and ultimately economic growth. Development of insurance and banking institutions is one of the crucial elements that plays an important role in stimulating financial development and thereby the growth of the economy (e.g., Patrick 1966, Sandberg, 1978; Levine, 1997; Levine and Zervos, 1998; Outreville, 1990; Ozturk, 2008; Arena, 2008; Haiss and Sumegi, 2008, Curak et al., 2009; Acaravci et al., 2009; Adams et al., 2009). However there are some empirical studies (e.g., Al-Yousif, 2002; Demetriades and Khaled, 1996) that suggest that the relationship between financial development and economic growth cannot be generalized across countries as the economic policies differ from country to country and therefore it is pertinent to study one individual country at a time.

The purpose of this paper is to find the empirical relationship between financial institutions (such as banking and insurance institutions) and economic growth in the Indian economy during the post liberalized period when the reforms were initiated in the financial sector. The reason for choosing these institutions is that, insurance and banking institutions channelize the savings by investing them in productive activities for a long period. Thus these financial intermediary institutions lead to capital accumulation besides relieving the entrepreneurs from financial constraints. This ultimately leads to economic growth. Also, by taking insurance, the entrepreneurs take risk more confidently and utilize their maximum attention in productive activities which also helps in promoting economic growth.

In the next section we first review the various researches that have focused on assessing this relationship in various countries. This is followed by an overview of the reforms and development

in the banking and insurance institutions in India in Section III. We proceed with finding the empirical evidence towards the relationship between financial institutions and economic growth in India in Section IV. The empirical results are presented in Section V and the conclusion is discussed in Section VI.

2. LITERATURE REVIEW

Financial development means the process of creation and improvement in the financial structure which includes the interaction of financial institutions, financial markets and financial services. Considering this fact, the present study brings forth a review of some of the important works that have taken either the "development of the financial institutions" or "financial development" as a whole and have analyzed how such development is related with economic growth.

Asserting the importance of financial intermediaries, Schumpeter (1911) argued that the services provided by them are crucial for economic development. This study encouraged the researchers to empirically investigate the relationship between financial development and economic growth. Patrick (1966) determined certain pattern while examining this relationship. These were the "demand following" and "supply leading" patterns. In the demand following view, the growth in the economy creates demand for financial services that in turn leads financial development. As per the supply leading view, the growth in the financial sector leads to the mobilization of small savings towards big investors that ultimately stimulates economic growth. This raised the question of causality between these two broad sectors in different economies of the world. Addressing this question, Jung (1986) examined the relationship using the data of 56 countries. The study found that the less developed countries (LDCs) have a more prevailing supply leading relationship. He thus emphasized the role of financial intermediary institutions towards economic development in LDCs. Analyzing the same relationship for 10 developing countries Christopoulos and Tsionas (2004), find causal relationship from financial development to economic growth in the long run. However the reverse causality (i.e., from economic growth to financial development) is not found. Jeanneney et al. (2006) find that the financial development in China is responsible for the total factor productivity growth. Examining 29 Chinese provinces for the period of 1993-2001, the study further tries to identify the channel through which financial development leads growth. The results show that, it is improvement in the technical efficiency in the financial sector that supports growth. There is a wealth of literature that supports the supply leading view (e.g. King and Levine, 1993; Sylla, 2003; Rousseau and Wachtel, 1998; Levine et al., 2000; Beck and Levine, 2004; Sandberg, 1978; Levine, 1999; Levine and Zervos, 1998; Demirguc-Kunt and Levine, 1996) and asserts that the creation of financial institutions intentionally or any development in them increases the supply of financial services and therefore causes economic growth.

Supporting the demand following view, research advocates that with the growth in the real economy there is an increase in demand for financial services that induces an enhancement in the financial sector development. Thus financial deepening is an outcome of growth process. For example: Studying the relationship between financial development and economic growth in Malaysia, Ang and McKibbin (2007) find that the reforms in the financial sector have not caused economic growth in the long run. Instead it is growth in the economy that has led higher financial development. Chang (2011) has advocated three ways through which development in the economy affects financial institutions. In the first instance, the enhanced affluence as a result of economic growth increases demand for such institutions which are better in quality, i.e., institutions with high standards of transparency and responsibility. Meeting the high standards of service, the institutions become costly. Nevertheless, the increased affluence due to economic growth makes the costly financial institutions reachable. Also, the development in the economy brings forth new participants that support change and call for the creation of new institutions. The study also asserts that the well-off countries of present era, for instance, the Anglo American countries obtained majority of the important institutions (that are currently regarded necessary for the development of the economy), only after achieving their economic development.

There is also another line of literature on the studies that have supported different views on the issue of causality between financial development and economic growth. Researchers have suggested that the relationship between financial development and economic growth depends on the level of economic development in the country. For example, Liang and Reichert (2006) find that the causality between financial development and economic growth changes with the change in economic growth cycle. At some level it is "demand following" while at some other level it is "supply led." For the developing countries the causality shows "demand following" relationship while such results for the developed countries were found to be weak.

Another point of view is that, the nexus between economic growth and financial development depends on the level of financial development in the country. Thus, while the previous view asserts that the relationship depends upon the stage of economic growth, this view contends that it depends on the stage of financial development in the country. As for instance, Rioja and Valev (2004) advocate that the relationship between financial development and economic growth changes according to the level of financial development. Here, they divided financial development in three stages, the "low region," the "intermediate region" (the threshold) and the "high region." They claim that the economic growth is strongly affected by financial development only when financial development attains the intermediate stage. Below this stage the effect of financial development is unsure while the effect of financial development falls down after attaining high stage. So, the study reflects that the effect of financial development varies from country to country depending upon their level of financial development. Such results are also confirmed by Cavenaile et al. (2014) where they have advocated that the banking development, considering it as an indicator of financial development, affects economic growth only after attaining a threshold level.

Apart from such results, there are studies that have found bi-directional causality between these sectors, for example, using

an array of econometric techniques Abu-Bader and Abu-Qarn (2007) find bi-directional causality between financial development and economic growth in the economy of Egypt. They have also suggested the need to improve the pace of financial reforms in order to increase economic growth. Another line of study highlights the importance of income level of the countries while examining the relationship between their financial development and economic growth. Hassan et al. (2011) analyze the relationship between financial development and economic growth of 168 countries for the period of 1980-2007. In their empirical examination, they find different results for different countries in the sample. Taking domestic credit to private sector as a proxy for financial development, they find strong positive relationship between financial development and economic growth in East Asia and Pacific, and Latin America and Caribbean countries. However they find negative relationship between the two sectors in high income countries. They therefore contend that the income level of the country should be taken care of while studying the association between its economic growth and financial development and so the measures of financial development should be taken accordingly. These studies also accord with the previous works which show mixed results on the relationship between financial development and economic growth (e.g., Patrick, 1966; Demetriades and Khaled, 1996; Arestis and Demetriades, 1997; Al-Yousif, 2002).

Studying the economy of Sweden, Sandberg (1978) contend that Sweden gained from its peculiar and effective commercial banking system in every economic growth stage for the 50 years before World War I. The study also highlights that Sweden was pioneer in banking in Europe in the seventeenth century and it recorded the highest growth rate of per capita gross national product during 1870-1914. After 1870 it also changed itself to the richest country of Europe from one of Europe's very poor countries. Similar work includes the study of Levine (1997). Taking bank credit and deposit as a part of financial development indicators, the study empirically finds a positive relationship between financial development and economic growth. Finding the empirical relationship between structure of banking market and economic growth, Catorelli and Gambera (2001) find that concentration of banks encourages growth in the industrial sector by meeting the credit needs of those firms who are dependent on external source of finance especially new firms. However such phenomenon is not found to have an elating effect on the growth of all sectors. In another study by Triner (1996) the link between Brazilian banking and economic growth in the industrialization period is analyzed. The results show a positive relationship between real bank deposits and industrial output. However such relationship is not found between bank deposits and agricultural growth. Thus, while banking was found to be related to industrial growth, similar result for agricultural production was not found.

Studying six OECD countries namely, Belgium, Canada, Chile, US, Spain and Japan, Cavenaile and Sougne (2012) have found bidirectional causality from banking development and economic growth for Belgium and Canada while there is no such relationship found in Japan. In Chile and United States the relationship is found to be demand following that is growth in the economy promotes development in the banking sector by stimulating demand. The study however reports negative (although to a small extent) long run causality from banking development and economic growth in Spain. Thus different countries may have different relationship between banks and economic growth.

The study by Botric and Slijepcevic (2008) finds that efficiency in the banking sector caused by privatization and foreign bank entry in South-eastern European countries has a positive relationship with the economic growth of those countries. Using interest rate spread and the share of non-performing loans as a parameter of banking sector efficiency, they find that the reduction in interest rates as well as bad loans, positively affects economic growth. They have limited their studies to the countries namely Bulgaria, Croatia, Bosnia and Herzegovina, Albania, FYR Macedonia and Romania. Cavenaile et al. (2014) enquire into the relationship between banks, stock market and economic growth and confirm that there is a long run relationship. Also they find that the causality between them is supply led. They have emphasized that banking development creates a positive impact on economic growth only when the economic development reaches a threshold level. Their results have also indicated that the effect of development in the banking sector will depend on the level of economic development.

In a cross section study of 45 countries, Beenstock et al. (1988) analyzed the relationship between economic growth and insurance. Their findings indicate that insurance premium particularly property liability insurance premium is positively related with income. Outreville (1990) finds that there is significant and positive relationship between insurance demand and financial development. The study also highlights that in the developing countries the importance given to insurance sector is comparatively low in view of the insurance premium. Examining the causal relationship between economic growth and growth in the insurance industry Ward and Zurbruegg (2000) find mixed results. For some countries like Australia, Canada they have found supply leading pattern both for the short run and long run while for Austria, Switzerland, UK, there was no long run relationship found. However Italy shows a bidirectional relationship both for the short run and long run.

The empirical study by Arena (2008) finds that economic growth is positively and significantly affected by insurance activity. The findings show that life insurance has a significant effect on economic growth only on high income countries. However it is non-life insurance that creates a positive effect on economic growth in both the high income as well as the middle and low income countries. Haiss and Sumegi (2008) also find positive impact of life insurance on economic growth of European Region countries that include Switzerland, Norway and Iceland. Similar results are also found by Curak et al. (2009) where using the data of 10 transition EU countries, they have found that economic growth is promoted by development in the insurance sector. However, Ching et al. (2010) have found mixed results in their empirical analysis. Using data from 1997 to 2008, they have examined the Malaysian economy and have found that the insurance institutions invest their funds in financial and real activities. This ultimately broadens the link between savings and investment which increases the growth of the country. They have therefore highlighted the intermediation feature of the insurance institutions that helps

in stimulating growth of the economy in the long run. Contrary to this, they have also found that growth in the economy causes insurance development in the short run. Thus in the long run they have found the supply leading relationship, i.e., from insurance to economic growth while in the short run, the demand-following relationship is found.

To find the nexus between economic growth and financial development there have been researches on Indian economy (e.g., Demetriades and Luintel, 1996; Ahmed and Ansari, 1998, Angadi, 2003; Vadlamannati, 2008; Sahoo, 2013, Ghosh, 2013). One of the important reasons for choosing Indian economy is that, the Indian financial system has undergone different regimes. Since its inception it was a completely regulated state controlled sector. However, with the introduction of New Economic Policy 1991, it was reformed by allowing the entry of private and foreign institutions in the banking and insurance sector. This led to the increase in the number of banking and insurance institutions and also changes in their development. Demetriades and Luintel (1996) analyze the effect of different banking controls on the financial deepening of the Indian economy. According to their view, the policies which impact the financial deepening of the country, may also affect the growth of the economy. In a cross country study of India, Pakistan and Sri Lanka, Ahmed and Ansari (1998) find a strong association between financial development and economic growth. In addition to this, their causality results confirm the supply-leading relationship. They have also suggested that government of these countries can enhance their economic growth by promoting development of the financial sector by taking further steps of liberalization. The empirical study by Angadi (2003) has also indicated that financial sector development causes economic growth in India. The work of Vadlamannati (2008) was focused on the study of the impact of reforms in insurance sector on the Indian economy. It is found that development in the insurance sector for the post reform period has a very strong and positive effect on the Indian economic development. Also the pace of reforms has a straight effect on the development of the economy. In another study of Indian economy by Ghosh (2013) the empirical relationship between Insurance growth and economic development in India for the post reform period in the insurance sector is highlighted. The results show a strong positive effect of insurance towards the development of the Indian economy.

The contradiction and variations in the findings of the relationship between development of financial institutions and economic growth particularly banking, insurance and economic development suggest that a re-evaluation of this relationship is required. It is also found that although the literature is abundant with researches on the Indian economy but such works have concentrated on taking either banks or insurance separately to study their effect on economic growth. Against these views, our study investigates the causal relationship between important financial institutions such as banking and insurance institutions together and economic growth in India by employing time series approach for the post liberalized era. Using times series approach is more fruitful than cross-country approach, because there may be differences in the results of cross country analysis that may pose a challenge to understand the findings and the causality issue cannot be answered well in cross-country model, (e.g., Quah, 1993; Evans, 1995; Lee et al., 1996; Arestis and Demetriades, 1997).

3. DEVELOPMENT AND REFORMS IN INSURANCE AND BANKING INSTITUTIONS IN INDIA

The establishment of the Indian financial system evolved as a result of planned economic policy that gave much significance to it. The initiation of this policy led to some important developments in the country that include the establishment of financial institutions crucial for the growth of the country as well as nationalization of important institutions including State Bank of India in 1955, Life Insurance Corporation of India (LICI) in 1956, and General Insurance Corporation (GIC) in 1972. The Indian financial system experienced a completely regulated regime dominated by public sector banks and state regulated insurance companies till 1990. However the state ownership and control continuously repressed the financial system and seriously harmed it. The introduction of New Economic Policy in 1991 gave special attention to financial reforms on account of deterioration of financial health, autonomy, soundness and resonance of the financial sector. This policy led to the introduction of reforms especially in banking and insurance sector through liberalization, privatization and globalization. As a result, in the banking sector, private and foreign banks were allowed to set up and operate banking business in India along with other major reforms that include deregulation of interest rates, reduction of cash reserve ratio and statutory liquidity ratio, permission to access capital market for debt and equity, etc.

The post liberalization period experienced substantial improvements in the banking sector which includes expansion in the number of branches along with a number of new banks. More than 57,000 branches have been opened since 1991. Around 65% of these branches are opened rural and semi-urban areas. Table 1 presents the progress of branch expansion in different areas of the country.

Other impacts include the expansion of bank credit, a remarkable improvement in the number of accounts and also the improvement in credit-deposit ratio among others. For instance, the credit-deposit ratio has improved from 61.9% in 1991 to 78.93% in 2014. The expansion of branches post reform has led to the increase in the number of deposit accounts from 0.003551 million in 1991 to 1226.710 million in 2014 as well as increase in the number of credit accounts from 61.946 million to 138.750 million. This shows that there has been a considerable increase in the number of bank customers who are availing banking services. Table 2 reports a brief summary of the impact of reforms in the banking institutions.

By the end of 2014 there were 146 scheduled commercial banks with 117,280 out of which 20 are private banks, 43 are foreign banks, 27 are nationalized banks and 56 are regional rural banks (Table 3).

With regard to insurance industry, after the submission of the Malhotra Committee report in January 1994, the gates of insurance were made open for foreign capital up to 26% equity in 1999.

Table 1: Progress of branch expansion of banking institutions post reforms

Year	Total number of branches of banking institutions	Rural branches	Semi-urban branches	Urban branches	Metropolitan branches
1991	60,220	35,206	11,344	8046	5624
2014	117,280	45,177	31,442	21,448	19,213

Source: Reserve Bank of India – basic statistical returns of scheduled commercial banks

Table 2: Summary of impact of reforms in banking institutions

Selected aggregates of scheduled commercial banks	1991 (till pre liberalized period)	2014 (post liberalized period)
Credit-deposit ratio	61.9	78.93
Number of deposit accounts	0.003551 million	1226.710 million
Number of credit accounts	61.946 million	138.750 million

Source: Reserve Bank of India – basic statistical returns of scheduled commercial banks

However the waves of the reforms had already begun in 1997 when the state controlled LICI and GIC and its subsidiaries were given more autonomy with respect to board restructuring and investment norms for mobilization of funds. It also led to the establishment of Insurance Regulatory and Development Authority (IRDA) under IRDA Act, 1999. This revoked the ascendance of LICI and GIC as the new entrants started participating in the insurance business. In 2001, 17 private insurers started operating insurance business in India. By the end of March 2014, there were 53 insurance companies in India, out of which 24 are in life insurance business, (including state controlled LICI and 23 private insurers) while in non-life insurance business there are 28 insurers (including 22 private insurers and 6 state owned insurers.) In addition there is one state controlled re-insurer, the GIC (Table 4).

The reforms in the financial sector did not spare insurance sector, rather they created major effects that led to remarkable improvements. Due to private and foreign entrants there was a tremendous increase in competition that led to increase in the level of insurance penetration (premium as a percentage of gross domestic product [GDP]) and insurance density (premium per capita) and also wider choice of products and better customer service among other effects. For instance, the level of insurance penetration improved from 1.93% in 1999 to 3.96% in 2014. The premium income also increased from Rs. 245.4 billion to Rs. 3142.83 billion. Table 5 gives a brief summary of the impact of these reforms.

There have been development in the banking and insurance institutions in India as a result of liberalization but their role in the economic development is not clear. The possible relationship between these sectors and the direction of causality between them post reforms has remained an untouched issue. We therefore try to fill this gap by studying the relationship between financial institutions and economic growth in the post liberalization period.

4. DATA AND ECONOMETRIC METHODOLOGY

We have used three macro economic variables to study the causal relationship (if any) of financial institutions and economic growth. Based on the literature we have taken monthly figure of credit to commercial sector by banking industry to measure the development of banking institutions and total premium volume of insurance industry (life and general) to assess the development of insurance institutions. Since the monthly figures for GDP growth is not available, Reserve Bank of India (RBI, 2007) has advocated the use of Index of Industrial Production (IIP) monthly series which qualifies as reference series for economic growth. We have therefore used IIP to measure the economic growth. All the data were collected from RBI, IRDA of India and Central Statistics Office under Ministry of Statistics and Programme Implementation, India. Since private and foreign insurance companies took some time to start their operations appropriately after they were allowed to operate in 2001 in Indian economy, we have considered monthly statistics from July 2004 to June 2013. Accordingly we have used the banking and economic data series.

The vector error correction model (VECM) is used to analyze the relationship between banking institutional development, insurance institutional development and economic growth. This model involves the following important steps. The first step studies the stationary properties of these variables since the non-stationary time series variable might give spurious relationship with erroneous conclusion. We have used the augmented Dickey-Fuller (ADF) test to check the stationary properties of these macroeconomic time series data which generally follow the random walk. If the variables are non-stationary and integrated of the same ordered then, it is possible to move to the second step. This step checks the existence of a long-term stable relationship among these variables. Though there are several tests for cointegration available we have used the Johansen's test which is considered as a superior and a popular test in agreement with many studies as primary statistical tools in the analyses. In The last step we will also check the short run dynamics of our model. To complete the analysis of this study, it is important to study the causality among the variables with the help of Granger Test (Engle, Granger 1987). To eliminate the heteroscedasticity, the natural logarithms of insurance premium, credit to commercial sector and IIP have been used in this study. The long run equation of our study is as follows:

$$ECO_t=\alpha+\beta BANK_t+\delta INS_t+\varepsilon_t \quad (1)$$

From Equation 1, the VECM model can be written as,

$$\Delta ECO_t=\alpha_0+\alpha_1 ET_{1t-1}+\sum_{i=1}^{n}\alpha_{2i}\Delta ECO_{t-i}+\sum_{i=1}^{n}\alpha_{3i}\Delta BANK_{t-i}+\sum_{t=1}^{n}\alpha_{4i}INS\varepsilon_{t-i}+\varepsilon_{1t} \quad (2)$$

$$\Delta BANK_t = \beta_0 + \beta_1 ET_{t-1} + \sum_{i=1}^{n} \beta_{2i} \Delta BANK_{t-i} + \sum_{i=1}^{n} \beta_{3i} \Delta ECO_{t-i} + \sum_{t=1}^{n} \beta_{4i} INS\varepsilon_{t-i} + \varepsilon_{2t} \quad (3)$$

$$\Delta INS_t = \delta_0 + \delta_1 ET_{t-1} + \sum_{t=i}^{n} \delta_{2i} \Delta INS_{t-i} + \sum_{t=i}^{n} \delta_{3i} \Delta ECO_{t-i} + \sum_{t=i}^{n} \delta_{4i} BANK_{t-i} + \varepsilon_{3t} \quad (4)$$

Where, Δ represents the difference operator. The symbol of n is the number of lags. The signs of ε (i = 0, 1, 2, 3), represents the stochastic error term with mean zero and a constant variance. ET_{t-1} referred to the error correction term derived from the long-run relationship.

5. RESULTS AND DISCUSSIONS

5.1. Stationarity Test

Standard regression with non-stationary data leads to spurious relationship with erroneous conclusion. It therefore becomes pertinent to study the nature of the time series data involved in our study. The stationarity of all the data series have been checked by the unit root test which involves ADF tests.

The results of the tests are summarized in the Table 6 and it is clear from the ADF ADF test (1979,1981) test (Table 6) that all the series (Bank, Insurance and Economic growth) have unit root at their level values at 10%, 5% and 1% significance level. That is, the series are non-stationary. After the first differencing, the hypothesis of unit root is rejected in all series, that is, the series becomes stationary after first differencing except in case of economic development. But the correlogram, (correlogram results are available on request) which shows autocorrelation functions and partial autocorrelation function at different lags, confirms our findings. So, we can conclude that they are integrated of order one, i.e. I(1) which suggest a long run relationship between these variables.

5.2. Johansen Cointegration Test

After testing the variables are stationary at first order or I(1), the subsequent step is to estimate the VECM. Firstly, we need to select an optimum lag of VECM model before performing the Johansen cointegration test. To ensure proper specification of our VECM

Table 3: Summary of banking ınstitutions in India, 2014

Number of banking institutions (scheduled commercial banks)	146
Total number of branches	117,280

Banking ınstitutions-private	Banking institutions-foreign	Banking institutions-nationalized	Banking institutions-regional rural	Total
20	43	27	56	146

Source: Reserve Bank of India – basic statistical returns of scheduled commercial banks

Table 4: Summary of ınsurance ınstitutions in India, 2014

Number of insurance institutions	53
Life insurance institutions	24
General insurance institutions	28
Re-insurer institutions	1

Life insurance institutions-private	Life insurance institutions-state owned	General insurance institutions-private	General insurance institutions-state owned	Re-insurer institutions-private	Re-insurer institutions-state owned	Total
23	1	22	06	0	01	53

Source: IRDA-Annual Report. IRDA: Insurance Regulatory and Development Authority

Table 5: Summary of impact of reforms in insurance institutions, 2014

Selected aggregates of insurance sector	1999 (pre liberalized period)	2014 (post liberalized period)
Insurance penetration (life and non life)	1.93%	3.96%
Insurance density (life and non life)	US $ 8.5	US $ 52
Premium ıncome (life and non life)	Rs. 346.27 billion	Rs. 3848.93 billion

Source: IRDA - Annual Report. IRDA: Insurance Regulatory and Development Authority

Table 6: ADF unit root test

Variables	Null hypothesis	ADF test statistics	P*	DW statistics	Critical values		
BANK	BANK has a unit root	−1.396595	0.8561	1.987076	−4.054393	−3.456319	−3.153989
ΔBANK	D (BANK) has a unit root	−3.452372	0.0806	1.993459	−4.054393	−3.456319	−3.153989
INS	INS has a unit root	−1.428724	0.8465	2.047375	−4.054393	−3.456319	−3.153989
ΔINS	D (INS) has a unit root	−4.623772	0.0017	2.029166	−4.054393	−3.456319	−3.153989
ECO	ECO has a unit root	−0.650170	0.9735	2.148530	−4.054393	−3.456319	−3.153989
ΔECO	D (ECO) has a unit root	−3.122265	0.1070	2.228208	−4.054393	−3.456319	−3.153989

Lag length: 11 (Automatic based on modified AIC, maximum lag=12); *MacKinnon (1996) one-sided P values. ADF: Augmented Dickey-Fuller, AIC: Akaike information criterion

Table 7: Results of the Johansen cointegration test

Hypothesized Number of CE (s)	Eigen value	Trace Statistic	Critical value at 5%	P**	Max-Eigen Statistic	Critical value at 5%	P**
r=0	0.372226	60.73940*	29.79707	0.0000	46.09188*	21.13162	0.0000
r≤1	0.126400	14.64752	15.49471	0.0668	13.37812	14.26460	0.0687
r≤2	0.012740	1.269402	3.841466	0.2599	1.269402	3.841466	0.2599

*Denotes significant at 5% significance levels; **MacKinnon-Haug-Michelis (1999) P values

model, it is necessary to determine the optimum lags lengths (n) before performing the Johansen cointegration test. Therefore, different information criteria's were computed for different time lags. Based on the results (Appendix 1) of different information criteria (Akaike information criterion, Schwarz information criterion, Hannan-Quinn information criterion, sequential modified LR test statistic, final prediction error) we have selected optimal lag 12 in our study. Therefore, the Johansen test was made on stationary series with 12 lags.

After obtaining the optimum lag, the next step is to estimate the Johansen Cointegration. The results of the Johansen test reveal that a long-run association exists among ECO, BANK and INS. The results are reported in Table 7.

The VECM results confirm the findings of cointegration test if the coefficient attached to ET_{t-1} is negative (between −1 and 0), and it is statistically significant. In our case the coefficient attached to ET_{t-1} is negative and significant. The result of VECM is given in the Appendix 2. Based on the VECM results the long run Equation 1 can be written as,

$$ECO_{t-1} = -1.656161 + 0.071772\ BANK_{t-1} + 0.244886\ INS_{t-1}$$

From the above results we can observe that the co-integrating vector coefficients in the long run in all the equations are significant which indicates that the system is in the state of short term dynamics. In the short run, in case of Equation 2, the lagged values of ΔECO_t are not significant for consecutively 11 months but significant at 12 months lagged value. In case of lagged values of ΔBANK only the 6th lag is significant. But dependent variable ΔECO_t is significantly dependent on the lagged values of ΔINS for consecutive 6 months.

The short-run relationship between these three variables is tested using Granger Causality Test (Engle, Granger 1987) to check the causality running from independent variables to dependent variables. The null hypothesis is the lagged values of coefficients in each equation are zero. If the P value is less than 5%, then the null hypothesis (H_0) is rejected. Meaning that, the independent variables jointly can influence dependant variable. Since the series in our study are I(1) and co-integrated, the proper statistical inference can be obtained by analyzing the causality relationship on the basis of ECM as the simple F statistic in the traditional Granger causality test does not have a standard distribution. The result of the VEC Granger causality tests (Tables 8-10) shows that in the short run there is a bi-directional causal relationship between development of insurance institutions and the economic growth. Again development in the insurance institutions and economy helps to promote development of banking institutions. Importantly our results show that banking institutions do not

Table 8: Dependent variable: ΔECO

Excluded	χ^2	df	P
ΔBANK	12.12649	11	0.3542
ΔINS	63.51058	11	0.0000
All	86.61238	22	0.0000

Table 9: Dependent variable: ΔBANK

Excluded	χ^2	df	P
ΔECO	19.51060	11	0.0525
ΔINS	18.02076	11	0.0811
All	54.43613	22	0.0001

Table 10: Dependent variable: ΔINS

Excluded	χ^2	df	P
ΔECO	28.83157	11	0.0024
ΔBANK	4.135187	11	0.9658
All	38.94395	22	0.0143

causes to encourage the economic development and development of insurance institutions in India.

6. CONCLUSION

The main objective of this paper was to find out the relationship between the financial institutions, which is represented by the banking, and insurance institutions and economic growth. In our study we find that there is long run relationship between financial institutions and economic growth in India. It is also witnessed that there exists a bi-directional causal relationship between development of insurance institutions and economic growth in the short run. This bi-directional relationship is probably due to the role played by the insurance institutions in Indian economy. Insurance companies channelize the savings for longer period of time and make it available for long-term investment in the market that promotes the growth of the economy. With this, the level of development of the economy helps to improve the level of economic activity along with generating demand in the market which pushes the penetration of insurance market that ultimately helps in their institutional development. The study also found that development of insurance institutions promotes the development of banking institutions in the short run but the reverse is not true.

On the other hand, economic growth Granger causes the development of banking institutions however the development of banking institutions does not Granger causes the economic growth. This implies that the banking institutional development which is measured by bank lending does not have much effect on the insurance institutional development or economic growth in India in the short run. We may therefore conclude that the banking

institutional development in India is demand led and not supply led. Any development in economy or insurance institutions would create a demand for banking functions (intermediary services) which ultimately promotes the development of banking institutions in India. As the study finds that insurance institutional development leads economic growth, the government and policy makers should therefore make concrete strategies to enhance insurance institutional development in order to encourage economic growth in India.

REFERENCES

Abu-Bader, S., Abu-Qarn, A.S. (2008), Financial development and economic growth: The Egyptian experience. Journal of Policy Modeling, 30(5), 887-898.

Acaravci, S., Ozturk, I., Acaravci, A. (2009), Financial development and economic growth: Literature survey and empirical evidence from Sub-Saharan African countries. South African Journal of Economic and Management Sciences, 12(1), 11-27.

Adams, M., Andersson, J., Andersson, L.F., Lindmark, M. (2009), Commercial banking, insurance and economic growth in Sweden between 1830 and 1998. Accounting, Business and Financial History, 19(1), 21-38.

Ahmed, S.M., Ansari, M.I. (1998), Financial sector development and economic growth: The South-Asian experience. Journal of Asian Economics, 9(3), 503-517.

Al-Yousif, Y.K. (2002), Financial development and economic growth: Another look at the evidence from developing countries. Review of Financial Economics, 11(2), 131-150.

Ang, J.B., McKibbin, W.J. (2007), Financial liberalization, financial sector development and growth: Evidence from Malaysia. Journal of Development Economics, 84(1), 215-233.

Angadi, V.B. (2003), Financial ınfrastructure and economic development: Theory, evidence and experience. RBI Occasional Papers, 24(1), 191-223.

Arena, M. (2008), Does insurance market activity promote economic growth? A cross - Country study for industrialized and developing countries. Journal of Risk and Insurance, 75(4), 921-946.

Arestis, P., Demetriades, P. (1997), Financial development and economic growth: Assessing the evidence. The Economic Journal, 107(442), 783-799.

Beck, T., Levine, R. (2004), Stock markets, banks, and growth: Panel evidence. Journal of Banking and Finance, 28(3), 423-442.

Beenstock, M., Dickinson, G., Khajuria, S. (1988), The relationship between property-liability insurance premiums and income: An international analysis. Journal of Risk and Insurance, 55(2), 259-272.

Botric, V., Slijepcevic, S. (2008), Economic growth in South-Eastern Europe: The role of the banking sector. Post-Communist Economies, 20(2), 253-262.

Cetorelli, N., Gambera, M. (2001), Banking market structure, financial dependence and growth: International evidence from industry data. The Journal of Finance, LVI(2), 617-648.

Cavenaile, L., Sougne, D. (2012), Financial development and economic growth: An empirical investigation of the role of banks and institutional investors. Applied Financial Economics, 22(20), 1719-1725.

Cavenaile, L., Gengenbach, C., Palm, F. (2014), Stock markets, banks and long run economic growth: A panel cointegration-based analysis. De Economist, 162(1), 19-40.

Chang, H.J. (2011), Institutions and economic development: Theory, policy and history. Journal of Institutional Economics, 7(04), 473-498.

Ching, K.S., Kogid, M., Furuoka, F. (2010), Causal relation between life insurance funds and economic growth: Evidence from Malaysia. ASEAN Economic Bulletin, 27(2), 185-199.

Christopoulos, D.K., Tsionas, E.G. (2004), Financial development and economic growth: Evidence from panel unit root and cointegration tests. Journal of Development Economics, 73(1), 55-74.

Curak, M., Loncar, S., Poposki, K. (2009), Insurance sector development and economic growth in transition countries. International Research Journal of Finance and Economics, 34(3), 29-41.

Demetriades, P.O., Khaled, A.H. (1996), Does financial development cause economic growth? Time-series evidence from 16 countries. Journal of Development Economics, 51(2), 387-411.

Demetriades, P.O., Luintel, K.B. (1996), Financial development, economic growth and banking sector controls: Evidence from India. The Economic Journal, 106(435), 359-374.

Demirguc-Kunt, A., Levine, R. (1996), Stock markets, corporate finance, and economic growth: An overview. The World Bank Economic Review, 10(2), 223-239.

Dickey, D.A., Wayne, A.F. (1981), Likelihood ratio statistics for autoregressive time series with a unit root. Econometrica: Journal of the Econometric Society, 49, 1057-1072.

Dickey, D.A., Wayne, A.F. (1979), Distributions of the estimators for autoregressive time series with a unit root. Journal of the American Statistical Association, 74, 427-431.

Evans, P. (1995), How to Estimate Growth Equations Consistently. Memo, Ohio State University. Presented at the 7th World Congress of the Econometric Society, (Tokyo).

Engle, R.F., Granger, C.W.J. (1987), "Cointegration and Error Correction: Representation, Estimation, and Testing." Econometrica, 50, 251-76.

Ghosh, A. (2013), Does life insurance activity promote economic development in India: An empirical analysis. Journal of Asia Business Studies, 7(1), 31-43.

Jeanneney, G., Sylviane, P.H., Liang, Z. (2006), Financial development, economic efficiency, and productivity growth: Evidence from China. The Developing Economies, 44(1), 27-52.

Haiss, P., Sumegi, K. (2008), The relationship between insurance and economic growth in Europe: A theoretical and empirical analysis. Empirica, 35(4), 405-431.

Hassan, M.K., Sanchez, B., Yu, J.S. (2011), Financial development and economic growth: New evidence from panel data. The Quarterly Review of Economics and Finance, 51(1), 88-104.

Johansen, S. (1988), Statistical analysis of cointegration vectors. Journal of Economic Dynamics and Control, 12(2-3), 231-254.

Johansen, S., Juselius, K. (1990), Maximum likelihood estimation and ınference on cointegration - with applications to the demand for money. Oxford Bulletin of Economics and Statistics, 52(2), 169-210.

Jung, W.S. (1986) Financial development and economic growth: International evidence. Economic Development and Cultural Change, 34(2), 333-346.

King, R.G., Levine, R. (1993), Finance and growth: Schumpeter might be right. The Quarterly Journal of Economics, 108(3), 717-737.

Lee, K.M., Pesaran, H., Smith, R.P. (1997), Growth and convergence in a multi - Country empirical stochastic solow model. Journal of Applied Econometrics, 12(4), 357-392.

Levine, R. (1997), Financial development and economic growth: Views and agenda. Journal of Economic Literature, 35(2), 688-726.

Levine, R. (1998), The legal environment, banks, and long-run economic growth. Journal of Money, Credit and Banking, 30(3)(2), 596-613.

Levine, R. (1999), Law, finance, and economic growth. Journal of Financial Intermediation, 8(1), 8-35.

Levine, R., Zervos, S. (1998), Stock markets, banks, and economic growth. American Economic Review, 88(3), 537-558.

Levine, R., Loayza, N., Beck, T. (2000), Financial intermediation and growth: Causality and causes. Journal of Monetary Economics, 46(1), 31-77.
Liang, H.Y., Reichert, A. (2006), The relationship between economic growth and banking sector development. Banks and Bank Systems, 2(1), 19-35.
McKinnon, R.I. (1973), Money and Capital in Economic Development. Washington, DC: Brookings Institution Press.
Outreville, J.F. (1996), Life insurance markets in developing countries. Journal of Risk and Insurance, 63(2), 263-278.
Outreville, J.F. (1990), The economic significance of insurance markets in developing countries. Journal of Risk and Insurance, 57(3), 487-498.
Ozturk, I. (2008), Financial development and economic growth: Empirical evidence from Turkey. Applied Econometrics and International Development, 8(1), 85-98.
Patrick, H.T. (1966), Financial development and economic growth in underdeveloped countries. Economic Development and Cultural Change, 14(2), 174-189.
Quah, D. (1993), Empirical cross - Section dynamics in economic growth. European Economic Review, 37(2), 426-434.
Reserve Bank of India. (2007), Use GDP and IIP Data Series to track Economic Growth; Develop Institutional Means to Bridge Data Gaps: RBI Group. Press Release, Press Relations Division. Mumbai: Reserve Bank of India. Available from: https://www.rbi.org.in/scripts/BS_PressReleaseDisplay.aspx?prid=16007.
Rioja, F., Valev, N. (2004), Does one size fit all?: A reexamination of the finance and growth relationship. Journal of Development Economics, 74(2), 429-447.
Rousseau, P.L., Wachtel, P. (1998), Financial intermediation and economic performance: Historical evidence from five industrialized countries. Journal of Money, Credit and Banking, 30(4), 657-678.
Sahoo, S. (2013), Financial structures and economic development in India: An empirical evaluation. In: RBI Working Paper Series No. WPS (DEPR): 02/2013.
Sandberg, L.G. (1978), Banking and economic growth in Sweden before World War I. The Journal of Economic History, 38(03), 650-680.
Schumpeter, J.A. (1911), The Theory of Economic Development. Cambridge, MA: Harvard University Press.
Shaw, E.S. (1973), Financial Deepening in Economic Development. New York: Oxford University Press.
Sylla, R. (2003), Financial systems, risk management, and entrepreneurship: Historical perspectives. Japan and the World Economy, 15(4), 447-458.
Triner, G.D. (1996), Banking, economic growth and industrialization: Brazil, 1906-30. Revista Brasileira de Economia, 50(1), 135-154.
Vadlamannati, K.C. (2008), Do insurance sector growth and reforms affect economic development? Empirical evidence from India. Margin: The Journal of Applied Economic Research, 2(1), 43-86.
Ward, D., Zurbruegg, R. (2000), Does insurance promote economic growth? Evidence from OECD countries. Journal of Risk and Insurance, 67(4), 489-506.

APPENDIXES

Appendix 1: Determination of optimum lags lengths (n)

Endogenous variables: ECO INS BANK						
Lag	**LogL**	**LR**	**FPE**	**AIC**	**SIC**	**HQ**
0	333.8211	NA	2.51e-07	−6.683254	−6.604614	−6.651436
1	694.0180	691.2871	2.08e-10	−13.77814	−13.46358*	−13.65087
2	705.8560	22.00202	1.97e-10	−13.83548	−13.28500	−13.61275
3	711.0330	9.308096	2.13e-10	−13.75824	−12.97184	−13.44006
4	735.3401	42.23053	1.57e-10	−14.06748	−13.04516	−13.65384*
5	744.3264	15.06797	1.57e-10	−14.06720	−12.80896	−13.55812
6	751.6388	11.81802	1.64e-10	−14.03311	−12.53895	−13.42857
7	761.7097	15.66580	1.62e-10	−14.05474	−12.32466	−13.35475
8	768.4125	10.02034	1.71e-10	−14.00833	−12.04233	−13.21289
9	782.2089	19.78880	1.58e-10	−14.10523	−11.90331	−13.21433
10	792.5363	14.18707	1.56e-10	−14.13205	−11.69421	−13.14569
11	800.3140	10.21310	1.64e-10	−14.10735	−11.43359	−13.02554
12	836.2791	45.04720*	9.75e-11*	−14.65210*	−11.74242	−13.47484

*Indicates lag order selected by the criterion. LR: Sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SIC: Schwarz information criterion, HQ: Hannan-Quinn information criterion

Appendix 2: Vector error correction estimates

Cointegrating Equation:	Cointegrating Equation 1
ECO(−1)	1.000000
BANK(−1)	−0.071772 (0.07273)
	[−0.98676]
INS(−1)	−0.244886 (0.05823)
	[−4.20530]
C	−1.656161

Error correction	D(ECO)	D(BANK)	D(INS)
CointEq1	−0.391613 (0.12692)	−0.007588 (0.05900)	−1.869185 (0.92975)
	[−3.08550]	[−0.12862]	[−2.01041]
D(ECO(−1))	−0.150284 (0.13539)	0.008607 (0.06294)	0.921934 (0.99183)
	[−1.10998]	[0.13676]	[0.92953]
D(ECO(−2))	0.173705 (0.13251)	0.133008 (0.06160)	1.488399 (0.97071)
	[1.31086]	[2.15935]	[1.53330]
D(ECO(−3))	0.191123 (0.13947)	0.077687 (0.06483)	2.422138 (1.02165)
	[1.37040]	[1.19834]	[2.37081]
D(ECO(−4))	0.019884 (0.14501)	0.085775 (0.06740)	1.115735 (1.06224)
	[0.13712]	[1.27254]	[1.05036]
D(ECO(−5))	−0.028519 (0.14583)	0.018864 (0.06779)	−0.298201 (1.06828)
	[−0.19556]	[0.27828]	[−0.27914]
D(ECO(−6))	0.048608 (0.13739)	0.001009 (0.06386)	−0.813532 (1.00643)
	[0.35380]	[0.01581]	[−0.80834]
D(ECO(−7))	−0.061354 (0.13647)	0.034468 (0.06344)	0.636192 (0.99973)
	[−0.44957]	[0.54334]	[0.63636]
D(ECO(−8))	−0.113676 (0.13498)	−0.015787 (0.06275)	1.108505 (0.98883)
	[−0.84214]	[−0.25160]	[1.12103]
D(ECO(−9))	−0.117897 (0.13572)	0.018817 (0.06309)	−0.528394 (0.99424)
	[−0.86865]	[0.29826]	[−0.53145]
D(ECO(−10))	−0.035714 (0.13442)	0.008699 (0.06248)	−0.416479 (0.98468)
	[−0.26569]	[0.13923]	[−0.42296]
D(ECO(−11))	0.028434 (0.13387)	0.000691 (0.06223)	−1.626841 (0.98067)
	[0.21240]	[0.01110]	[−1.65891]
D(ECO(−12))	0.235159 (0.12561)	0.054443 (0.05839)	1.678612 (0.92013)
	[1.87219]	[0.93247]	[1.82432]
D(BANK(−1))	−0.238994 (0.26718)	−0.041263 (0.12419)	−0.592804 (1.95719)
	[−0.89452]	[−0.33225]	[−0.30288]
D(BANK(−2))	−0.150832 (0.26613)	−0.098050 (0.12371)	−0.424706 (1.94952)
	[−0.56677]	[−0.79260]	[−0.21785]
D(BANK(−3))	−0.222782 (0.26528)	−0.287590 (0.12331)	0.440335 (1.94330)
	[−0.83980]	[−2.33222]	[0.22659]
D(BANK(−4))	−0.266134 (0.27901)	−0.003759 (0.12969)	0.043061 (2.04387)
	[−0.95386]	[−0.02898]	[0.02107]
D(BANK(−5))	−0.294999 (0.27647)	−0.096055 (0.12852)	−0.565002 (2.02530)
	[−1.06701]	[−0.74742]	[−0.27897]
D(BANK(−6))	−0.573058 (0.26887)	0.016981 (0.12498)	−2.679805 (1.96957)
	[−2.13140]	[0.13587]	[−1.36060]
D(BANK(−7))	−0.113976 (0.26448)	0.015782 (0.12294)	−0.818719 (1.93742)
	[−0.43095]	[0.12838]	[−0.42258]
D(BANK(−8))	−0.034877 (0.25735)	0.054593 (0.11962)	−0.967005 (1.88520)
	[−0.13552]	[0.45636]	[−0.51295]
D(BANK(−9))	−0.392768 (0.26811)	−0.021902 (0.12463)	−1.631314 (1.96407)
	[−1.46493]	[−0.17573]	[−0.83058]
D(BANK(−10))	−0.040124 (0.28024)	−0.011259 (0.13026)	−1.276650 (2.05288)
	[−0.14318]	[−0.08643]	[−0.62188]
D(BANK(−11))	−0.146900 (0.26747)	0.171600 (0.12433)	−0.957405 (1.95937)
	[−0.54922]	[1.38019]	[−0.48863]
D(BANK(−12))	0.038759 (0.25649)	0.232042 (0.11922)	1.567326 (1.87890)
	[0.15112]	[1.94625]	[0.83417]
D(INS(−1))	−0.086058 (0.03884)	0.004922 (0.01805)	−1.040310 (0.28452)
	[−2.21573]	[0.27264]	[−3.65639]

(*Contd...*)

Appendix 2: (*Continued*)

Error correction	D(ECO)	D(BANK)	D(INS)
D(INS(−2))	−0.103868 (0.03927)	−0.006414 (0.01825)	−1.060819 (0.28765)
	[−2.64515]	[−0.35138]	[−3.68784]
D(INS(−3))	−0.094876 (0.03937)	0.011411 (0.01830)	−0.967808 (0.28843)
	[−2.40966]	[0.62350]	[−3.35545]
D(INS(−4))	−0.071126 (0.03896)	0.002977 (0.01811)	−0.823033 (0.28542)
	[−1.82550]	[0.16435]	[−2.88357]
D(INS(−5))	−0.077218 (0.03827)	0.008868 (0.01779)	−0.597794 (0.28037)
	[−2.01755]	[0.49847]	[−2.13216]
D(INS(−6))	−0.062414 (0.03610)	0.002788 (0.01678)	−0.438014 (0.26441)
	[−1.72915]	[0.16615]	[−1.65654]
D(INS(−7))	−0.043252 (0.03352)	−0.004944 (0.01558)	−0.524638 (0.24557)
	[−1.29024]	[−0.31729]	[−2.13643]
D(INS(−8))	−0.062347 (0.03229)	−0.005733 (0.01501)	−0.391351 (0.23656)
	[−1.93067]	[−0.38192]	[−1.65434]
D(INS(−9))	−0.029998 (0.03029)	−0.002890 (0.01408)	−0.377539 (0.22190)
	[−0.99032]	[−0.20522]	[−1.70138]
D(INS(−10))	−0.012252 (0.02518)	−0.001319 (0.01170)	−0.454068 (0.18445)
	[−0.48656]	[−0.11267]	[−2.46168]
D(INS(−11))	−0.029202 (0.02217)	−0.005165 (0.01031)	−0.273546 (0.16243)
	[−1.31702]	[−0.50112]	[−1.68409]
D(INS(−12))	0.032794 (0.01918)	0.008967 (0.00892)	0.078559 (0.14050)
	[1.70982]	[1.00581]	[0.55913]
C	0.021042 (0.00928)	0.005659 (0.00431)	0.082933 (0.06795)
	[2.26841]	[1.31238]	[1.22045]

Standard errors in () and t-statistics in []