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# Causality between Financial Development and Economic Growth: Evidence from an Indian State

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*This study aims to examine empirically the relationship between Financial Development and Economic Growth and their causality in the context of Assam, a state in India. The method of Principal Component is employed to construct a financial depth indicator (IFD) that serves as a proxy of financial development in the study. Using time series techniques, the stationarity properties of the data sets are tested, followed by Johansen and Juselius Cointegration analysis to examine long term relationship between the two variables. The study finds a cointegrating relationship between them. Further, Granger causality tests suggest that Financial Development causes Economic Growth in case of Assam. The impulse response function has been traced out for both the variables. It can be inferred from the study that, financial development in Assam needs to be plunged as it is an important channel through which economic growth nourishes.*

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## **1. Introduction**

Financial development is a multidimensional concept and constitutes a potentially important mechanism for long run economic growth. Recent studies have underscored close association between financial development and economic growth. Financial Development is broadly defined as an increase in the volume of financial services of banks and other financial intermediaries as well as of financial transactions on capital markets. Financial sector in earlier times were considered to play only a minor role in the process of economic growth, but with the development of a sophisticated financial system in every nation across the globe, contemporary economists conclude that the development of the financial sector of an economy can be an important aid towards the economic growth and may be a necessity.

In earlier times financial institutions played a passive role towards the economic growth of a nation. They came forward only when their services were demanded by the people of the nation while undertaking economic pursuits. As a result of this the supply of finance was concentrated in such economic activities where the borrowers were more involved and thus finance was concentrated in the hands of a few powerful people in the economy. The general mass did not receive much benefit out of such an endeavour of the financial institutions which is rightfully termed as the “demand following approach”. In later years and even in the present the financial institutions have spruced themselves up as catalytic agents of economic development. They now play a dynamic role and have emerged as entrepreneurs and innovators in their own right in the economy. They play a more direct role in the economy by formulating viable financial schemes and

thereby motivating people to take up more financial transactions. Such activities of the financial institutions are making significant contribution towards economic development of a nation. This approach of the financial institution is termed as the 'supply leading approach'.

The study of the relationship between financial development and economic growth can be traced back to the work of Schumpeter (1911) who argued that financial services are paramount in promoting economic growth. However, until 1960 the impact of financial sector's development on the process of economic growth of a nation did not gain sufficient weight in literature. The later works of economist like Goldsmith (1969), McKinnon (1973) and Shaw (1973) threw light on this aspect of economic growth which have succeeded in drawing attention and interest of many economists in modern times. But it was the findings of a study by King and Levine (1993) that has thrived to generate renewed interest in the effect of finance on economic growth and there has been considerable research into this relationship since then. The study attempted to answer the two questions related to the finance-growth nexus, namely: the correlation between financial development and economic growth; and the direction of causality between financial development and economic growth.

The direction of causality between financial development and economic development has always been a matter of great controversy. Patrick (1966) posited that the direction of causation could either run from economic development to financial development (demand-following phenomenon), or it could run from financial development to economic development (supply-leading phenomenon). Patrick's conclusion was that the supply leading phenomenon was likely to be predominant in the early stages of development and then as the economy develops the demand-following phenomenon begins to gain prominence (p. 177). Besides there is another possibility that a state's financial development and economic growth is not causally related

(Graff, 1999). This implies that neither financial growth causes economic growth nor economic growth causes financial development and that the empirically observed correlation between them is merely the result of a historical peculiarity. That is to say, the real sector is governed by the real factors; whereas the financial sector is rooted in the history of financial institutions. (Graff, 1999)

On the one hand, growth provides the ability and acts as a catalyst for the development of the financial structure. Financial development is caused by long run economic growth when real growth has taken place so that the expansion of financial institutions is only a result of the need of the expansion of the real economic activities (Demetriades and Hussein, 1996). On the other hand, the latter facilitates higher growth rate through efficient allocation of limited resources of the economy. The expansion of financial institutions can foster economic growth by increasing savings and borrowing options and the reallocation of capital (Beck et al., 2000; Xu, 2000; Levine et al., 2000; Neusser and Kugler, 1998; Levine, 1997). In this study an initiative is undertaken to find out which of the above arguments hold good in case of financial development and economic growth in Assam in a VAR framework.

Several studies have addressed the potential links between financial development and economic growth in case of India as well. The empirical researches carried out so far suggest that there is a nexus between financial development and economic growth in India. In the Indian context, Misra (2003) studied the credit-output nexus by using data of 25 Indian states during the period of 1981-2000. This study tested for causality in Vector Error correction framework and concluded that there is a significant support in favour of the credit-output nexus in Indian States. It further confirmed a significant presence of causation from output to credit which implied that economic growth leads to financial development. The study also asserted that lack of credit off-take is due to growth fatigue, requiring

a serious attention on the credit-output nexus in India. But such a small data-set may lead to certain difficulties. A larger data set may provide sufficient degrees of freedom to assess the credit and output link. Hence there is a need of addressing such an issue in the developed and under-developed Indian states to get a clearer picture of the relationship.

Table 1 presents a review on some empirical studies on the finance and growth relationship

**Table 1**  
**Recent Empirical Studies on the Finance-Growth Relationship**

Authors	Period	No. of countries	Data	FD indicators	Direction of causation
King and Levine (1993a, 1993b, 1993c)	1960-1989	80	Cross-section	i)liquid liabilities of financial system divided by GDP, the ii)ratio of bank credit divided by bank credit plus central bank domestic assets, iii)ratio of credit allocated to the private enterprises to total domestic credit,iv) credit to private enterprises divided by GDP	FD→EG
Gregorio & Guidotti(1995)	1960-1985	80	Pooled cross section	Bank Credit	FD→EG
Bethelmy & Varoudakis (1995)	1960-1985	91	Panel	M2	Bi-directional

Demetriades & Luintel (1996a)	1961-1981	India	Time Series	Bank deposit liabilities	Bi-directional
Demetriades & Luintel (1996b)	1962-1982	Nepal	Time Series	Bank deposit liabilities	Bi-directional
Rajan & Zingales (1995, 1998)	1980-1990	55	Panel	i) the ratio of credit to private sector to GDP, ii) accounting standards	FD→industrial growth→EG
Levine & Zervos (1998)	1976-1993	41	Time Series	i) ratio of market capitalization to GDP, ii) ratio of total value of trades to GDP, iii) turnover ratio,	Stock market development→EG Banking dev.→EG
Rousseau & Wachtel (2000)	1980-1995	47	Panel	Liquid liabilities, SM cap, SM value traded	Stock markets→EG
Beck et al (2001)	1960-1995	63 CC 77 panel	Cross section and Panel	Private credit	FD→EG
Chakraborty (2007)	1996-2005 (Quarter.)	India	Time Series	i) total bank credit, ii) total market capitalization, iii) turnover as percentage of GDP	EG→FD

Table 1 presents some of the recent studies that strived to determine the direction of causality between financial development and economic growth. It is quite clear from Table 1 that most of the recent studies have found that the direction of causation runs from financial development to economic growth. Six out the 10 studies mentioned here support the view; while three studies show a bi-directional relation and only one of them found that causation runs from growth to finance. Moreover, two studies have specifically mentioned about the role of stock markets in their discussion on financial development.

## **2. Objectives of the study**

The study has been taken up in view of the following objectives-

To analyse the level of financial development of Assam, a State of India.

To determine the presence of any long term relation between financial development and economic growth of Assam and determine the direction of causality

To trace the response of the variables of the study- economic growth and financial development

## **3. Hypothesis of the study:**

There exists a significant long term relation between financial development and economic growth of Assam.

## **4. Data and Methodology:**

The study uses time series data for the time period ranging from 1985 to 2009 (annual data sets) to test the nexus between financial development and economic growth of Assam. The variables in the study are Gross State Domestic Product (GSDP) and a Financial Development indicator (IFD). GSDP is the variable that captures the economic growth of Assam as measured by real GSDP. IFD reflects

financial development as measured by a composite indicator of four different financial variables used in the study, following the Financial Depth Indicator introduced by Ang and Mckibbin (2007), which involves principal component analysis (PCA) to combine measures of financial development. The data for real GSDP, which is used as the dependent variable in the study, is obtained from various issues of Economic Survey, Assam. On the other side, data for financial variables are obtained from Reserve Bank of India's database on Indian economy available at RBI website.

For carrying out the estimations in the study, the GSDP data-set is converted into its log form. On the other hand, the financial variables used in the study are - (1) the number of bank branches per thousand population (NB), (2) The ratio of outstanding credit of all the scheduled commercial banks of the state to the different sectors to the GSDP (ROTG), (3) The share of the financial system in GSDP (SIG), and, (4) credit-deposit ratio of all scheduled commercial banks of Assam (CDR). The use of multiple indicators for financial development helps better understanding of the various aspects and processes of financial development. For further statistical and econometric analysis, however, a composite indicator has been constructed out of these multiple indicators of financial development by using Principal Component Analysis. The Principal Component Analysis (PCA) is a mathematical procedure that uses an orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of uncorrelated variables called principal components. This transformation is defined in such a way that the first principal component has as high a variance as possible (that is, accounts for as much of the variability in the data as possible), and each succeeding component in turn has the highest variance possible under the constraint that it be orthogonal to (uncorrelated with) the preceding components.



The study adopts the Vector Autoregressive Model (VAR) to analyse the relationship between financial development and economic growth in Assam. Granger Causality test is applied in the Vector Autoregressive Regression (VAR) framework to determine the direction of causation between the two variables. The analysis is carried out in three steps. First, the two variables- GSDP and the composite indicator of financial development IFD are tested for stationarity by using the Augmented Dickey-Fuller test. Second, Co-integration test is applied to test the presence of any association between the two variables by using Johansen Juselius methodology. Third, Granger Causality test is performed to find the nature of causality. Besides, Impulse Response Function is portrayed, which helps to trace the effects of a shock to one endogenous variable on to the other variables in the VAR.

### **5. Financial Development in Assam**

Assam possesses the largest economy in the Northeast region of India. In recent years the urge for economic growth of Assam has gained much importance and captured the attention of the leaders and policy makers in so far as India stands out to emerge as a global economic power with its fast growing economy. A number of policy initiatives have been considered with a view to transform the economy of the state from being one of the slowest growing states of the country. These policy initiatives include measures like establishment of manufacturing industries, promoting small scale industries, developing the tourism industry, and so on. They, however, in turn require a well developed system of power, transportation, and communication infrastructure and all of these require the financial development of the state. So development of the credit structure has become a necessity for the state in present competitive times.

The credit sector of Assam took a concrete shape only during the early part of the twentieth century. As a matter of fact, prior to this there was no such credit system in Assam. It may seem quaint but the economy never felt the need of one in so far as Assam had a self sufficient economy that was mainly based on the barter system. It was only during the early British period in India, when their coins and currency system came into circulation in Assam that its old indigenous barter system was gradually dispensed with. Some indigenous credit facilities also began to develop in the economy after their advent. The credit facilities were provided by the money lenders, indigenous banks, friends and relatives of land lords. The Government also provided some loans in times of natural calamities but the proportion of such loans was quite insignificant. There were still no banking establishments in Assam. Loans were conducted by the wealthy class, land holders and shop-keepers who combined their regular trade with money lending. These money lenders retained their predominant hold even after banking institutions like the co-operative credit societies and bank loan officers, etc., came into being. It was only in the forties of the twentieth century that some commercial banks incorporated outside Assam opened branches in a few towns of Assam. The development of the commercial banks in the State was however poor. The relative position of the credit sources changed with time as a consequence of various control measures and Acts passed in regard to money-lending and expansion of the other credit facilities after independence. In the rural areas of the state it was mainly the co-operative credit societies that had been meeting the credit needs of the rural populace while in the urban areas the commercial banking facilities were available. The banking facilities gradually extended to the semi-urban areas of the state as well. There has been noticeable expansion of bank offices in the State after nationalisation of the 14 big commercial banks in July, 1969 and with the introduction of the "Lead Bank scheme". The number of bank offices in Assam reached

354 in 1977 against only 74 in 1969 showing a marked improvement in the coverage of population per bank office; the average number of population covered by each bank office being 41 thousand in 1977 against 188 thousand in 1969. Banking facilities are however still inadequate in Assam and are mostly confined to urban and semi-urban areas. In comparison to other states Assam still lags far behind in this respect. This is a source of reinforcing the hold of money lenders in the state which in turn constitutes a hurdle of the financial development process of Assam.

By the end of the Third Five Year Plan only seven scheduled commercial banks were in operation Assam with or without branches. The total number of branches of all these banks stood at 42 in 1965, which were located in important towns of the State. With the introduction of the 'Lead Bank Scheme' in December, 1969, by the Reserve Bank of India for expanding banking facilities in the unbanked areas, the pace of expansion of banking offices in the country including Assam accelerated. But in comparison to other states such expansion drives in Assam have been rather a time affair.

The volume of deposits of scheduled commercial banks and their advances to different sectors of the economy of the State have increased considerably over the past few years. Their deposits which stood at Rs. 66.54 crores in December, 1972 have gradually risen to Rs.49545 crores in March 2010. Similarly, the advances of these banks had also increased from Rs. 30 crores in December, 1972 to Rs. 18311 crores in March 2010. However, advances made to the rural sector had shown little increase. It has been observed that "agriculture and allied activities (including plantation)" and industry are the two notable sectors receiving major share for credits from the commercial banks of the State. These two sectors accounted for 48.2 per cent and 33.1 per cent respectively of the total outstanding bank credits in the State in December, 1975. In 2009-10 the total outstanding credit to the total

priority sector accounted for 54.11 per cent while industries accounted for 9.82 per cent.

In respect of general and life insurance industry in Assam, there were a few private insurance companies who had been doing general business in Assam with or without their branches over here prior to independence. New India Assurance Company, Ruby General Insurance Company of India, Hanover Insurance Company, Hindustan General Insurance Society Limited, etc. were some of the general life insurance companies which had their branch office at Guwahati and field-staff spread over the various district headquarters. At the same time, Bombay Mutual Life Insurance Society, Oriental Life Assurance Company, Empire of India, National Indian, National Brawbans Life and some others were doing life insurance business in Assam through agents or field staff. It was only after independence of the country when life insurance was nationalised on 31<sup>st</sup> March, 1956 that for providing life insurance in the north-eastern region, a divisional office was established at Guwahati and under it branches offices were set up in every district headquarters and in some cases at sub divisional headquarters as well. At present this sector is making a steady progress in their business in Assam.

In Assam, the widening network of Scheduled Commercial Banks has been instrumental in the mobilization of savings and investments in the State. It is observed that after the nationalisation of banks in 1969, there has been a rapid increase in banking network throughout the entire North Eastern Region that in turn recorded a growth rate of 85.74 per cent during the period 1969-1991, out of which concentration of growth of bank branches was highest in Assam with 65.24 per cent. In 1997 the total number of commercial banks in Assam was 904, which increased to 1369 in 2009. The total deposits and advances of all scheduled commercial banks in Assam as in December 1982 were Rs. 591 crore and Rs. 243 crore respectively. These figures increased to Rs. 39,427 crore and Rs.15, 115 crore

respectively in 2009 March. In Assam the network of Scheduled Commercial Banks have widened the horizon of Social Banking policies and programmes, which support all the vital sectors of the economy.

Financial development of Assam is thus crucial for the state's economy and there is ample scope for the same in the state. Though the conditions have improved over the years and more specifically after India's independence, there is still a long way to go in this aspect. Finance being an integral part of every economic activity, financial development of the economy has become a necessity in modern times.

## 6. Results & Discussion:

### (i) Composite Financial Development Indicator:

The study uses Principal Component method to combine the four selected measures of financial development. According to this procedure the  $j^{\text{th}}$  factor  $F_j$  can be expressed as

$$F_j = W_{j1}Y_1 + W_{j2}Y_2 + \dots + W_{jp}Y_p \quad \text{----- (1)}$$

Where  $W_j$  s are the factor score co-efficients and  $p$  is the number of variables

**Table 2**

### Results of the Principal Components analysis

Principal component	Eigen values	% of variance	Cumulative variance
1	2.744	68.589	68.589
2	0.783	19.578	88.167
3	0.429	10.725	98.892
4	0.044	1.108	100.00

Variables	Factor Scores
NB	-0.277
ROTG	0.931
SIB	0.923
CDR	-0.207

The Eigen values in Table 2 indicate that the first principal component explains about 69% of the standardized variance. Hence, the first principal component is a more relevant measure of financial development, as it explains the variations of the dependent variable better than any other linear combination of explanatory variables. Therefore, only information related to the first principal component is considered to form a composite indicator. For each year in the analysis here, the factor scores are obtained by multiplying the standardized values by the corresponding factor score coefficients using equation 1. Thus a composite financial development indicator is obtained.

*(ii) Unit root test:*

The pre-requisite of a time series analysis is the stationarity of each individual time series over the sample period. The study uses ADF unit root test to investigate stationarity of each time series as proposed by Dickey and Fuller (1981). The ADF unit root test requires the estimation of the following regression

$$X_t = \alpha + \beta t + \rho X_{t-1} + \varepsilon_t$$

Where,  $\alpha$  is the intercept,  $\beta$  is the co-efficient of lagged term,  $\rho$  is the number of lagged term chosen to ensure that  $\varepsilon$  is white noise. The optimal lag length is chosen by using the Akaike Information Criteria (AIC). Based upon this estimate the hypotheses of the test are

$H_0: \rho = 1$ , i.e., there is a unit root – the time series is non-stationary.

$H_1: \rho < 1$ , i.e., there is no unit root – the time series is stationary.

Table 3

## Unit Root Test Results

Series	ADF test statistic (2 <sup>nd</sup> difference)	Critical values	Accept/ Reject	Stationarity	Order of integration
GSDP	-3.8579(3)**	-3.0294	Reject	Stationary	I(2)
IFD	-4.3363(3)**	-3.0294	Reject	Stationary	I(2)

\*\* indicates significance at 5% level. It represents rejection of null hypothesis of unit root at 5% of the critical values. The figures within parenthesis are lag lengths. The lag selections are in compliance with the Akaike Information criteria.

The results of ADF unit root test show that the null hypothesis of the presence of a unit root is rejected for both the variable of study when they are transformed into their second differences. That is, both the series are stationary on second differencing. Therefore GSDP and IFD are integrated of order two i.e. they are I(2). After confirming stationarity of the two series, the study proceeds to conduct co-integration test to ascertain that the variables are co-integrated.

(iii) *Co-integration test:*

Co-integration analysis is performed to investigate long term relationship between financial development and economic growth. For this VAR based co-integration test, the methodology developed by Johansen (1988) and Johansen and Juselius (1990) are deployed. It involves two steps- “trace test” and “maximum Eigenvalue test” as follows:

(a) The trace test ( $\lambda_{\text{trace}}$ ) is represented as follows:

$$\text{Trace} = -T \sum_{r+1}^n (\log \lambda_i) \quad \text{-----} \quad (1)$$

In equation (1) the null hypothesis is that the cointegration vectors is  $\leq r$  as against the alternative hypothesis that the cointegration vectors  $= r$ .

(b) The maximum Eigen value test ( $\lambda_{\max}$ ) is represented as follows:

$$\lambda_{\max} = -T \log(1 - \lambda_i) \quad (2) \quad \text{-----}$$

In equation (2) the null hypothesis is that the cointegration vectors =  $r$  as opposed to the alternative hypothesis that the cointegration vectors =  $r+1$ .

According to this procedure based on ‘Maximum Likelihood method’ and ‘eigen value statistics’, co-integration is said to exist if the values of computed statistics are significantly different from zero. The variables if found to be co-integrated, implies the existence of a linear, stable and long-run relationship among variables. This means that the variables tend to move together in its steady state path in the long run.

**Table 4**

**Results of the Johansen’s Test of Cointegration- Results for GSDP and FDI (Assuming intercept (no trend) in co-integration equation and test VAR)**

Null hypothesis	Eigen value	Trace Statistic	5% Critical value
$\lambda_{\text{trace test}}$			
$r=0$	0.6115	19.8359	14.880**
$r \leq 1$	0.38650	10.2599	8.0700**
$\lambda_{\text{max test}}$			
$r=0$	0.61115	30.0958	17.8600**
$r \leq 1$	0.38650	10.2599	8.0700**
** Implies rejection of the null hypothesis of no cointegration at 5% critical level			

The results of the cointegration tests show that the null hypothesis of “no cointegration” is rejected using both trace test ( $\lambda_{\text{trace}}$ ) and maximum Eigen-value test ( $\lambda_{\text{max}}$ ). This means that the two variables are cointegrated. It suggests the presence of a long term relationship between GSDP and IFD.



*(iv) Granger Causality tests:*

This study uses Granger Causality Test suggested by C. W. J. Granger (1969) for testing the causality between financial development and economic growth in Assam, in the VAR framework. A time series, X, is said to Granger-cause another time series, Y, if using past values of X improves the prediction of current values of Y. This can be tested by running a regression of Y on past values of Y and X.

The null and alternative hypotheses of the test are:

$H_0$ : No causal relation between financial development (IFD) and economic growth (GSDP)

$H_1$ : Causality between financial development (IFD) and economic growth (GSDP)

The above hypothesis are tested in the context of the VAR of the following form of bivariate linear auto-regressive model of variables  $\mathbf{x}_t$  (GSDP) and  $\mathbf{y}_t$  (IFD)

$$\mathbf{y}_t = \sum_{i=1}^n \alpha_i \mathbf{x}_{t-i} + \sum_{j=1}^n \beta_j \mathbf{y}_{t-j} + \mathbf{u}_{1t} \quad (1)$$

$$\mathbf{x}_t = \sum_{i=1}^n \alpha_i \mathbf{y}_{t-i} + \sum_{j=1}^n \delta_j \mathbf{x}_{t-j} + \mathbf{u}_{2t} \quad (2)$$

Where, it is assumed that the disturbances  $U_{1t}$  and  $U_{2t}$  are uncorrelated.

**Table 5**

**Results of Granger Causality test**

Lag	GSDP→IFD		IFD→GSDP	
	AIC	F-Statistic	AIC	F-Statistic
1,1	-22.4787	2.6225	52.2455	35.1215**
2,2	-22.0744	2.0554	49.8871	8.2698**
3,3	-22.6983	1.4183	46.4907	4.3217**

\*\* indicates significant at 1%

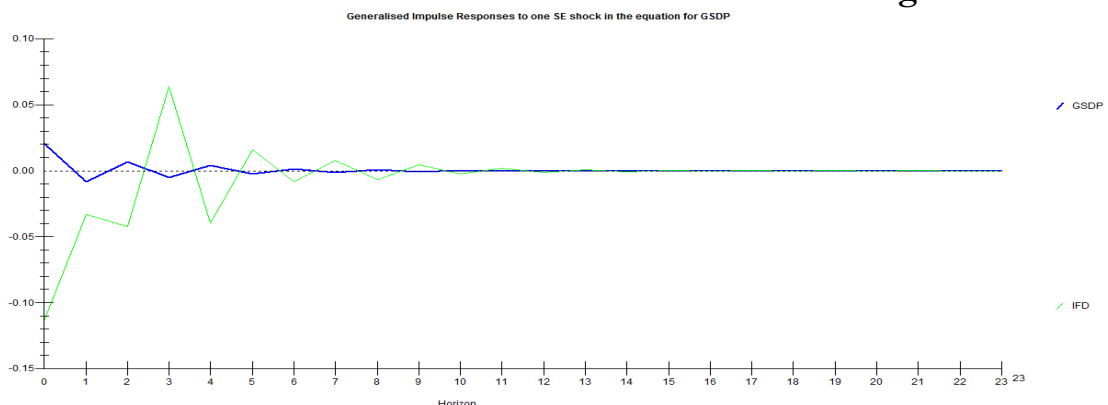
The test result suggests lag order of 3 as optimal lag based on Akaike information criterion. The null hypothesis 'IFD do not granger-cause GSDP' is rejected at 1% level of significance. However, there is no

evidence of causation from IFD to GSDP as the null hypothesis cannot be rejected. Thus, the results suggest a unidirectional causal linkage between financial development and economic growth. The nature of the causal relation may be stated as ‘Financial Development (IFD) Granger causes Economic Growth (GSDP)’.

*(v) Impulse Response Function:*

An Impulse Response Function traces out the effect or the response of the dependent variable in the VAR system, through time to an unanticipated change in itself or in the interrelated variables. It is studied after Granger Causality is established between the variables concerned. The Impulse Response Function is presented through figures.

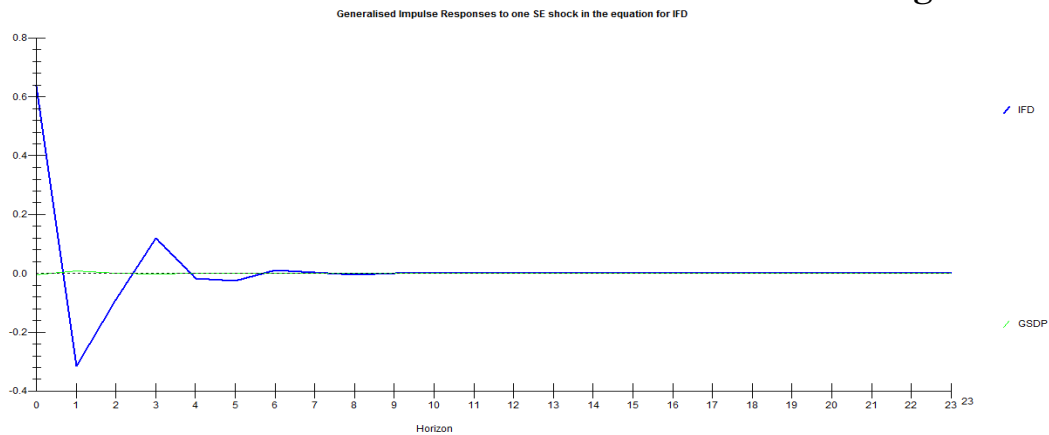
**Figure 1**



*Source: See text for method and basic source of data*

Figure 1 presents the impulses of GSDP and IFD in response to shock in GSDP. The findings from the figure are (i) GSDP responded by a fall below the base at  $t=1$ , rose above after  $t > 1$  and kept fluctuating till  $t \leq 7$ . IFD rose at  $t=1$  and moved above the base at  $t \geq 2$ , fell below base at  $t=4$ , (ii) GSDP remained closer to the base level after  $t \geq 7$ . IFD exhibited convergent oscillation about the base level for  $t \leq 12$  and thereafter remained closer to the base level.

Figure 2



Source: See text for method and basic source of data

Figure 2 presents the impulses of GSDP and IFD in response to shock in IFD. The findings from the figure are

- i) IFD responded immediately by a fall below the base at  $t=1$ , rose above the base at  $t=3$ , kept fluctuating till  $t \leq 8$  and then remained close to the base.
- ii) GSDP remained close to the base all through.

## 7. Conclusion:

In the paper, the dynamics of the causal relationship between financial development and economic growth in Assam was analysed in the VAR framework using annual data for the period 1985 to 2009. The data reveals the presence of a long term relationship between the two in Assam. Besides, the empirical analysis depicts the evidence of a unidirectional causality running from financial development to economic growth in Assam. It suggests that financial development has an effect on economic growth in Assam. Hence, the contribution of financial development to economic growth is considerable. It may therefore be recommended that policies ought to be directed to accelerate improvements in the financial sector. In developing

economies, the financial sector is mainly dominated by commercial banks with stock markets playing very minor roles. Hence to speed up the financial development of such economies, efforts should be directed towards more improvements in the banking sector. This can be achieved by augmenting borrowing and investment activities of banks, giving a wide range of prospects to potential customers. Besides, the stock market activities also need to be encouraged, with a view to endorse their position in the economy.

Financial intermediaries offer more attractive and innovative instruments and incentives to encourage the mobilization of savings, lower the costs of project evaluation and origination through economies of scale, as well as provide opportunities to reduce risk management and promote liquidity level. Therefore, it is of immense value to all countries to gain insight into the finance-growth relationship.

#### References:

1. Ang, J.B. and McKibbin, W.J. (2007), Financial liberalization, financial sector development and growth: evidence from Malaysia. *Journal of development economics*, 84, 215–233.
2. Beck, T., Levine, R. and Loayza, N. (2000), “Finance and Source of Growth”, *Journal of Financial Economics*, 58 (1-2):261-300.
3. Demetriades, P.O and Hussein, K.A. (1996), “Does Financial Development Causes Economic Growth? Time Series Evidence from 16 Countries” *Journal of Development Economic*, 1996, pp. 387-411.
4. Dickey, D. A. and Fuller, W. A. (1981), "Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root", *Econometrica*, 49, 1057-72.

6. Goldsmith, R. (1969): *Financial Structure and Development*, 1969, New Haven, CT: Yale University Press.
7. Graff, M. (1999), "Financial Development and Economic Growth – A new Empirical Analysis". *Dresden discussion paper series in Economics*, 1999, Nr. 5/99 (Technische Universitat Dresden).
8. Granger, Clive W.J. (1969), "Investigating Casual Relations by Econometric models and cross-spectral methods, *Econometrica*, Volume 37, pp. 424-438.
9. Johansen S. (1988), "Statistical analysis of Cointegration vectors", *Journal of Economic Dynamics and Control*, 12:231-54.
10. Johansen, S. and Juselius, K. (1990), "Maximum likelihood estimation and inference on cointegration-with application to the demand for money", *Oxford Bulletin of Economics and Statistics*, 52: 169-210.
11. King, R. and Levine, R. (1993), Finance and Growth: Schumpeter Might Be Right. *Quarterly Journal of Economics*.
12. Levine, R. (1997), "Finance, Entrepreneurship and Growth", *Journal of Monetary Economics*, 1993b, Vol. 32, pp. 513-42.
13. Levine, R., Loayza, N. and Beck, T. (2000), "Financial Intermediation and Growth: Causality Analysis and Causes", *Journal of Monetary Economics*. 46 (1): 31-77.
14. Levine, R. and Zervos, S. (1998), "Stock Markets, Banks, and Economic Growth", the *American Economic Review*, June, pp. 537-558.
15. McKinnon, R. (1973), "Money and Capital in Economic Development, the Brooking Institution, Washington DC.
16. Mishra, B. S. (2003), "Allocative efficiency of the Indian banking system in the post reform period: A State level Analysis", *RBI Occasional Papers*, Vol. 24, No.3, 161-186.

17. Neusser, K. and Kugler, M. (1998), "Manufacturing Growth and Financial Development: Evidence from OECD Countries", *Review of Economics and Statistics*, 80 (4): 638-646.
18. Patrick, H.T. (1966), "Financial Development and Economic Growth in Underdeveloped Countries", *Economic Development and Cultural Change*, 1966, Vol. 14, pp. 174-189
19. Rajan, R. G. and Zingales, L. (1998), "Financial Dependence and Growth", *American Economic Review* 88, pp. 559-586.
20. Schumpeter, J.A. (1911), *Theorie der wirtschaftlichen Entwicklung* [Theory of Economic Development]. Munich: Duncker & Humblot.
21. Shaw, E. (1973), *Financial Deepening in Economic Development*. Oxford University Press, Oxford.
22. Von Furstenberg, G. M. and Fratianni, M. (1996), "Indicators of Financial Development", *North American Journal of Economics and Finance*, 7 (1): 19-29.
23. Xu, Z. (2000), "Financial Development, Investment and Economic Growth", *Economic Inquiry*, 38 (2): 311-344.