# "Financial Sector Development and Pecuniary Growth: Evidence from India and the Republic of Korea"

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*Abstract: Pecuniary growth is the basic indicator by which a nation is always acknowledged, we can identify the pecuniary growth by measuring the GDP of the country. A nation is generally regarded as more developed if its growth is more. Simultaneously, overall pecuniary development of any nation takes place. A profusion of works indicates the existence of causation between growth of economy and "financial sector development". Further an endeavor has been made for exploring the causation amongst financial sector enhancement and development of economy with special reference to India and Republic of Korea. Causality test was employed with the help of VAR. Further in the work it has been found that deepening of financial sector shows unidirectional relationship, financial sector efficiency leads to no causality and financial sector stability shows partial causal relationship with "Pecuniary Growth" in Indian context. While on the other hand, in case of republic of Korea almost no causality was found in financial sector deepening, bidirectional and unidirectional causality in case of financial sector efficiency and partial causality was found in financial efficiency with "Pecuniary Growth". Thus, vigorous results were evaluated and examined which supported the literature.*

*Keywords: "financial sector development", "Pecuniary Growth", Vector Auto-Regressive Model.*

## I. INTRODUCTION

From the former works, we discovered the implication of the "financial sector" progress in the progress of any nation. Further the expansion of financial sector is directly proportional to the growth and pecuniary development. There is a favorable bearing of enhancement of financial segment on progress of economy; financial enhancement (legal, national, etc.) positively influences growth of any economy. Further to recognize the causativeness amongst growth of financial segment and growth of economy, in case of perfectly financially integrated nations, distinction in the dimension of local financial market cannot be exploited (Guiso et.al, 2004).

Further it is increasingly recognized that absorbent capabilities or enabling circumstances of any nation are crucial to assist pecuniary factors such as financial enhancement deliver a censorious limit beyond which its effect on efficiency and growth will be achieved (Bolbol et.al, 2005).

Growth of the financial segment and development of economy have been longed searched are researched for varied reasons for finding suitable combinations that can suggest for the pecuniary viability and overall development in real terms. The "Financial Development" is a complex term as no particular and accurate definition is available to define the term. The "Financial Development"'s have been explained in many ways by a number of researchers. Broadly speaking "Financial Development" can be categorized into four major terms namely "financial deepening", "financial stability", "financial accessibility" and "financial efficiency". The issue of financial depth has been attracting attention of researchers to establish a consensus and direction, Ogbuagu & Ewubare, 2017 States the long-run influence of deepening of financial sector on fluctuations in exchange rates and growth of economy. Carbo-Valverde & Sanchez, 2013 cited that the linkage between financial sector enhancement and progress of economy works during periods of financial instability.

## II. ASSESSMENT OF LITERATURE

Eschenbach looks over various conceptual and pragmatic pieces of literature, to identify relations among the two variables i.e. domestic financial growth and growth of economy and has reported favorable relation among the two. Long back, Gupta, 1986 did work for India, South Korea and showed that pecuniary activity positively affects the "Financial Development" and progress of a country in imitation for the two nations. Later Athukorala, 1998 did the same work for India and found that "financial saving" "total domestic saving" "total private saving" "private investment" "real interest rate" "higher real interest rates" foster financial as well as total saving, and encourage investment.

King and Levine, 1993 did a work specifically for Korea and quoted that reforms in financial sector have favorable impact on degree of financial enhancement. Adding to it, Benhabib and Spiegel, 2000 did similar work for Argentina, Chile, Korea, and Indonesia and depicted that pointers of financial progress have a significant favorable association with growth; several variables of financial nature are related to various constituents of growth.

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Gregorio & Guidotti, 1995 concluded that the credit facilities offered by the bank to the privately-owned enterprises have a positive relationship with GDP in enormous countries, but degree of its influence differs from country to country and showed unfavourable results in the context of Latin America.

Further the reason for the said difference was the financial liberalization result in a weak regulative environment. The paper further states that the transference after financial progress towards progress depends upon efficacy reasonably than the size of investment. Demetriades and Luintel, 1996 for India found that financial deepening of Indian banks regulates restrained financial deepening and bidirectional causation between financial and pecuniary activity. Estrada et al., 2010 financial enhancement has a noteworthy favorable bearing on progress, specifically in the countries which are in the phase of development.

Sinha and Macri, 2004 also examined links among two variables i.e financial progress and pecuniary progress of any country. Time sequence data was used for the work of eight Asian nations including India. A further result showed a favorable relation between both the variables for India.

Andersen and Tarp, 2003 questioned whether financial progress increased formal financial sector intermediation. Acaravci et al., 2009 cited the causation amongst financial progress and progress of the economy of Sub-Saharan African nations. The outcomes discovered there is no linkage for between financial progress in addition to pecuniary progress in long run.

Hassan et al., (2011) considered the control of financial progress on pecuniary progress specifically in limited income nations categorised on the basis of geographic regions, where they found that for emergent nations financial progress and pecuniary progress were positively linked and had a two-way causation among both the variables but for the destitute regions showed unidirectional causation from growth to finance. Paper further came to the inference that the financial system was necessary for a well-functioning condition for the growth but not sufficient as there are other factors involved too for reaching pecuniary progress.

Adu et al., 2013 cited that long-term growth consequence of financial progress specifically in context of Ghanaian economy, the researcher explored how progress's result of "Financial Development" is responsive to the decision of choosing representatives where lending to the privately-owned enterprise and aggregate domestic lending foster progress, however "broad money stock" to GDP ratio is not conducive for progress. Further indicators developed from examining the prime component affirmed the sensitivity of the impact of representatives. Findings suggested the relevancy of "Financial Development" for growth rely on evidence which represents "Financial Development".

Menyah et al., (2014) cited in their work of twenty-one African nations for examining the causation amongst financial progress and pecuniary development, taking four indicators of financial progress into consideration, where it was found that due to the insignificant exertions at financial progress and trade liberalization, the causal relationship could not be established.

Asghar and Hussain, 2014 investigated causation amongst financial progress and pecuniary progress especially in developing nations and concluded the existence of bidirectional causation amongst financial progress and FDI. Rana & Barua, 2015 used a panel data tactic for examining the link between "Financial Development" and pecuniary progress specifically for 5 developing South Asian nations - Bangladesh, India, Nepal, Pakistan, and Sri Lanka and found positive relationship between the variables. Contrary to this, Akbas, 2015 established weak and unfavorable causation amongst pecuniary progress and financial progress for these developing nations. Similar research was done by Asghar and Hussain, 2014 for developing countries earlier which also explored a strong long-run relation amongst financial growth and pecuniary progress particularly in emergent economies. In the same year Sani, 2014 investigates the causation amongst financial depth and the pecuniary performance of five large Asia-Pacific Countries which consist of China, India, Korea, Australia, and New Zealand and too found bidirectional long-run causation between financial depth and progress of economy. Later, Joshi 2016 examined the relationship for India and determined the existence of strong link between financial deepening (FD) and EG.

Durusu-ciftci et al., 2017 established an understanding on how "Financial Development" contributes towards the growth of economy, using the Solow –swan growth model, the paper established a theoretical method and explained that debt which is a part of credit markets and equity which forms the part of stock markets forms long-run indicators of GDP per capita. The paper further empirically explained the link that exists between the financial deepening of financial marketplace and their effect on "Pecuniary Growth" by undertaking panel data examination, which discovered that both the networks had a favourable long-lasting impact on "steady-state level of GDP per capita", and further the "credit markets" had contributed to a greater extent.

## III. OBJECTIVES

• Institute the causal connection of "Pecuniary Growth" with financial sector deepening, financial sector efficiency, and financial sector stability.

## IV. RESEARCH METHODOLOGY

### About the Work

As the work was empirical so we concentrated on analyzing the connection amongst "Financial Development" and Growth of Economy in Indian context and the context of South Korea. Further to analyze the causation between "Pecuniary Growth" and "financial sector development", the indicators or variables should be chosen wisely. Because of the data availability and consistency, we analyzed the Indian and South Korean yearly data. Further, the work considered all the "financial sector development" and "Pecuniary Growth" variables from the duration between 1996 to 2017. Out of this "financial sector development" has been divided into three groups' namely financial sector deepening, efficiency and stability.

For deciding the proxies of these groups we have used the common practices which were used by previous works. Sala-i-Martin (1992); King & Levine (1993) ; Roubini ; Pierre and Terhi (2010) have used 4 out of which 2 proxies have been used in our work namely "ratio of bank deposits", "claims on private sector by banks on deposits".

A standard estimate of growth of economy is "growth rate of GDP per capita" and for this work we have used "GDP per capita at constant price". Secondary data was used for the work which was placid from the official website of World Bank. Further data investigation was done by applying "Augmented Dickey fuller", "Unit root test" and subsequently VAR (Vector Auto-Regressive) Model was also used and through VAR causality was carried out.

### A. Unit Root Test

A stationary series is one when it's mean and variances are stationary over a period. The property of stationarity of time-series has a significant impact on the behavior and the characteristics of the data series. If a series is not a constant one then the tenacity of shocks will be infinite hence leading to incorrect estimation of the terms. In contrast in a stationary time series the shocks decline to zero over time. Non-stationarity in a time series may create problem of spurious regression. By spurious regression we mean that even though the variables are independent, the R- Square may still be very high. In the case of a non-stationarity of time series the standard OLS premises of asymptotic work will be invalid. In simple words T ratio will not be following T distribution and thus hypothesis cannot be tested efficiently.

"Augmented Dickey-Fuller" and "Unit root test" is the most generally accepted test for examining if the time series statistics of the variables is stationary or non-stationary.

### Table-I: Unit Root Test for India

| Variables | T-Stats | Probability | Order of Integration | Unit Root |
|---|---|---|---|---|
| BankDep | -3.928679 | 0.0077 | 1st Difference | Stationary |
| BankNonInt | -5.678797 | 0.0003 | 1st Difference | Stationary |
| BankOvd | -6.762003 | 0.0000 | 1st Difference | Stationary |
| BrMoney | -4.295741 | 0.0049 | 2nd Difference | Stationary |
| ClaimsonPvtSector | -9.154104 | 0.0000 | 1stDifference | Stationary |
| GDP | -3.475579 | 0.0195 | Level | Stationary |
| LiqLib | -4.250307 | 0.0039 | 1stDifference | Stationary |
| MktCap | -4.424714 | 0.0027 | 1stDifference | Stationary |
| ZScore | -6.083479 | 0.0001 | 1stDifference | Stationary |

### Table II: Unit Root Test for South Korea

| Variables | T-Stats | Probability | Order of Integration | Unit Root |
|---|---|---|---|---|
| BankDep | -5.389310 | 0.0003 | 1stDifference | Stationary |
| BankNonInt | -6.622941 | 0.0000 | 1stDifference | Stationary |
| BankOvd | -3.735486 | 0.0112 | Level | Stationary |
| BrMoney | -7.057380 | 0.0000 | Level | Stationary |
| ClaimsonPvtSector | -5.262498 | 0.0000 | 1stDifference | Stationary |
| GDP | -5.572084 | 0.0003 | 1stDifference | Stationary |
| LiqLib | -5.342836 | 0.0004 | 1stDifference | Stationary |
| MktCap | -7.343324 | 0.0000 | 1stDifference | Stationary |
| ZScore | -5.781013 | 0.0001 | 1stDifference | Stationary |

To scrutinize the dynamic link between Pecuniary progress and Financial enhancement of India, unit root tests were employed between both the variables. Further ADF test was applied with and without intercept until the stationarity in the data series is achieved. The ADF test uses next regression:

" $\Delta X_t = \theta + (\rho - 1) X_{t-1} + X_{pi=1} \beta_i \Delta X_{t-i} + u_t$ (A1)"

The null proposition: $(\rho-1) = 0$, i.e. $X_t$ retains a unit root.

Results of the "Augmented Dickey-Fuller" test was done to examine the constancy in the data series. We have identified that the total value of the ADF test indicator is more as compared to the crucial value at 5% level in all the substitutes of "Financial Development". Therefore the lag differenced series can be taken to be stationary. In Table I, the hypothesis that "Pecuniary Growth" and "Financial Development" has a unit root can be excluded and accept the hypothesis that time series data of variables is fixed at first difference and at level. The same case goes with table II as well, as Bank Overdraft and Broad money show the stationarity at Level and all other proxies are taken in lagged difference.

### B. The causative association amongst "Financial Development" and "Pecuniary Growth"

Aimed at checking the causation, regression equations are applied. The table below shows the outcome of the indicators of "Financial Development" and "Pecuniary Growth". We have divided the indicators of "Financial Development" into three groups namely "financial deepening", "financial efficiency", and "financial depth".

### Table III: Causal Association amongst Financial Deepening and "Pecuniary Growth" in India

| No | Null Hypothesis | Observation | lags | INDIA | | | S. KOREA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | $X^2$ | Prob. | Causality | $X^2$ | Prob. | Causality |
| 1 | GDP is not granger caused by BankDep | 20 | 2 | 0.025706 | 0.0072 | Unidirectional | 0.456158 | 0.7961 | No Causality |

| No. | Null Hypothesis | Observation | lag | $X^2$ | Prob. | Causality | $X^2$ | Prob. | Causality |
|---|---|---|---|---|---|---|---|---|---|
| | BankDep is not granger caused by GDP | 20 | 2 | 0.366744 | 0.8325 | | 2.876094 | 0.2374 | |
| 2 | GDP is not granger caused by BrMoney | 20 | 2 | 0.060423 | 0.0002 | Unidirectional | 3.460744 | 0.1772 | No Causality |
| | BrMoney is not granger caused by GDP | 20 | 2 | 1.904314 | 0.0859 | | 3.119603 | 0.2102 | |
| 3 | GDP is not granger caused by ClaimsonPvtSector | 20 | 2 | 0.767756 | 0.0012 | Unidirectional | 3.477944 | 0.1757 | No Causality |
| | ClaimsonPvtSector is not granger caused by GDP | 20 | 2 | 4.050866 | 0.1319 | | 2.339993 | 0.3104 | |
| 4 | GDP is not granger caused by MktCap | 20 | 2 | 0.766248 | 0.0067 | Unidirectional | 14.27844 | 0.0008 | Unidirectional |
| | MktCap is not granger caused by GDP | 20 | 2 | 2.710504 | 0.2579 | | 1.571845 | 0.4557 | |

In the above table III, financial deepening indicators show unidirectional causality relation with "Pecuniary Growth". BankDep, Broad money, Claims on Pvt Sector, Market Capitalization affects pecuniary progress in short duration of time i.e., within 1 year at 5% level of significance.

**Table IV: Causal Association amongst Financial Efficiency and "Pecuniary Growth" in India**

| No. | Null Hypothesis | Observation | lag | INDIA | | | S. KOREA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | $X^2$ | Prob. | Causality | $X^2$ | Prob. | Causality |
| 1 | GDP is not granger caused by BankNonInt | 20 | 2 | 1.690782 | 0.4294 | No Causality | 8.161837 | 0.0169 | Bidirectional |
| | BankNonInt is not granger caused by GDP | 20 | 2 | 2.988133 | 0.2245 | | 8.122234 | 0.0172 | |
| 2 | GDP is not granger caused by BankOvd | 20 | 2 | 5.219396 | 0.0736 | No Causality | 0.932636 | 0.0273 | Unidirectional |
| | BankOvd is not granger caused by GDP | 20 | 2 | 4.820141 | 0.0898 | | 4.524204 | 0.1041 | |

Table IV depicts the no presence of causation amongst financial efficiency and "Pecuniary Growth". Bank Non-Interest and Bank Overdraft do not indicate any causation with "Pecuniary Growth". Interestingly in the above table 2.3, Z-Score being a measure of financial stability shows bidirectional causation and liquid liabilities has no impact on "Pecuniary Growth" in the short duration of time Whereas if we look on the other side that is South Korea then we explore the existence of two-way causation between Bank Non Interest and GDP, while unidirectional between Bank Overdraft and GDP.

**Table V: Causative Association amongst Financial Stability and "Pecuniary Growth" in India**

| No. | Null Hypothesis | Observation | lag | INDIA | | | S. KOREA | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | $X^2$ | Prob. | Causality | $X^2$ | Prob. | Causality |
| 1 | GDP is not granger caused by Zscore | 20 | 2 | 9.590350 | 0.0083 | Bidirectional Causality | 2.988861 | 0.2244 | No Causality |
| | Zscore is not granger caused by GDP | 20 | 2 | 6.081171 | 0.0478 | | 1.155402 | 0.5612 | |
| 2 | GDP is not granger caused by LiqLib | 20 | 2 | 0.685748 | 0.7097 | No Causality | 12.36439 | 0.0021 | Unidirectional |
| | LiqLib is not granger caused by GDP | 20 | 2 | 5.121092 | 0.0773 | | 2.157594 | 0.3400 | |

Table V shows bi-directional causality between Z score and GDP in the Indian context but when it comes to South Korea there exists no causality between the same. Apart from this we also found that no causality and Unidirectional Causality exist between Liquid Liabilities and GDP in India and South Korea respectively.

## V. FINDINGS

The empirical findings show that in general growth of the economy is driven by "Financial Development" indicators in case of India and Republic of Korea and the relationship is unidirectional in many cases and bidirectional in few.

Findings for the causation among the pointers of "Financial Development" and "Pecuniary Growth" are as trails:

Financial deepening indicators- "ratio of banking sector assets to GDP", "Banking sector deposits to GDP", "broad money to GDP", "Claims on private sector and market capitalization" strongly and promptly affects "Pecuniary Growth" in short duration of time in case of India while market capitalization promotes growth of the economy in short duration of time in republic of Korea.

Financial sector efficiency- in Indian context bank interest and bank overdraft do not cause "Pecuniary Growth" while in the situation of Republic of Korea, bidirectional causality and unidirectional causality were found in bank interest and bank overdraft on "Pecuniary Growth" respectively.

Further existence of two-way causation between Z score and "Pecuniary Growth" and no causation between liquid liabilities and "Pecuniary Growth" in India. Contrary to this we found out no causality and unidirectional causality of Z score and liquid Liabilities on "Pecuniary Growth".

## VI. CONCLUSION

Concluding, there is present an association amongst "Financial Development" and "Pecuniary Growth", this work suggests that Indian and South Korean policymakers need to continue with more rigorous expansion of financial sector. Further the governing authorities of both the economies should focus on implementation of the policies which dedicated it stabilize the macro-economy and create favorable macro environment through sound financial policies. Therefore focusing on expansion of financial sector is vital not merely for sustainable "Financial Development" but for "Pecuniary Growth" as well.

Additionally, to boost the financial efficiency of financial sectors resource allocation and its proper utilization of those resources and the further development of the capital market is also important for both the economies, as the capital market enhancement will diversify the "Financial Development" and reduce the dependency on only banking sector.

Finally, in the existing condition, India and Republic of Korea need to reinforce and improve the financial sector so that it can lead to "Pecuniary Growth" of their respective economies per se.

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