
Banking Sector Development, Inflation and Economic Growth of Pakistan: The Nexus

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Abstract

Study has been conducted to analyze the causal relation among banking sector development, inflation and economic growth of Pakistan. Study undertake the yearly data from 1960 to 2018 where as data has been collected from world bank indicators. Banking sector development has been analyzed with help of five different variables BRM, CLP, DCP, DCB and BSI where as Inflation has been measure with help of inflation and economic development has been measure with GDP growth in percentage. Intiallyunitroot test has been applied on as collected data is in time series where GDP is found stationary at level I(0) and other avriables found stationary after taking first difference I(1).Johansson co-intergration test has been applied to identify the relationship between variables VECM granger causality test has been applied to identify the direction of relationship between variables. Results shows thatBidirectional causality found between INF and BRM while unidirectional causality found from GDP to INF, INF to GDP, GDP to CLP, INF to BSI, CLP to INF and INF to DCB Study conclude that not all the variables are integrated with eachother only few of selected variables of banking sectors have relation with GDP and INF.

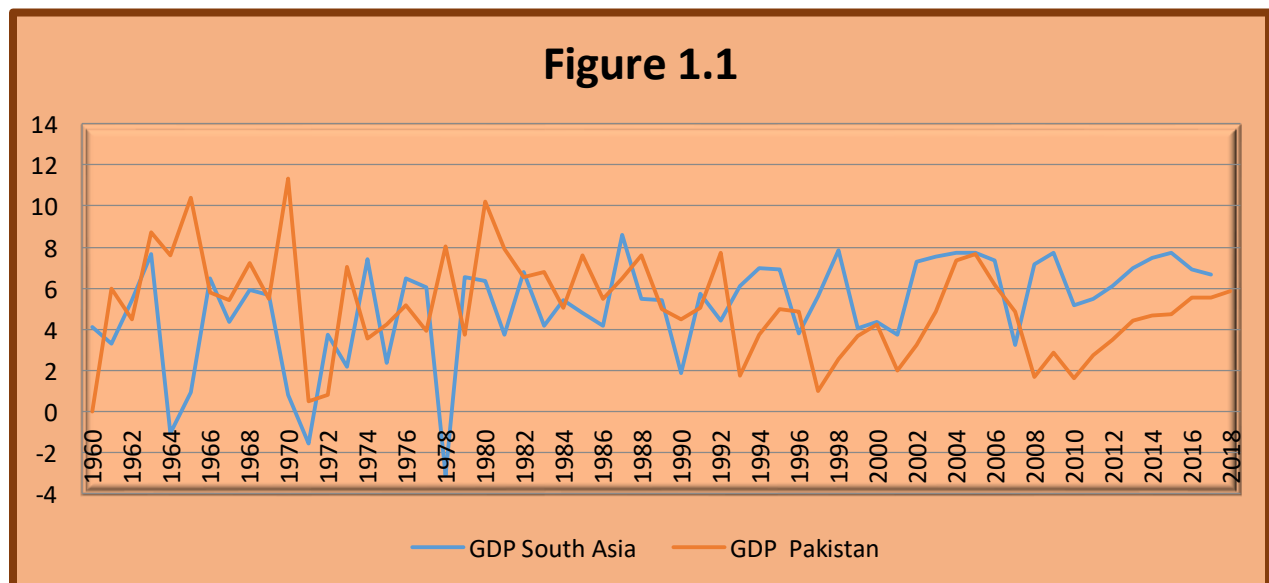
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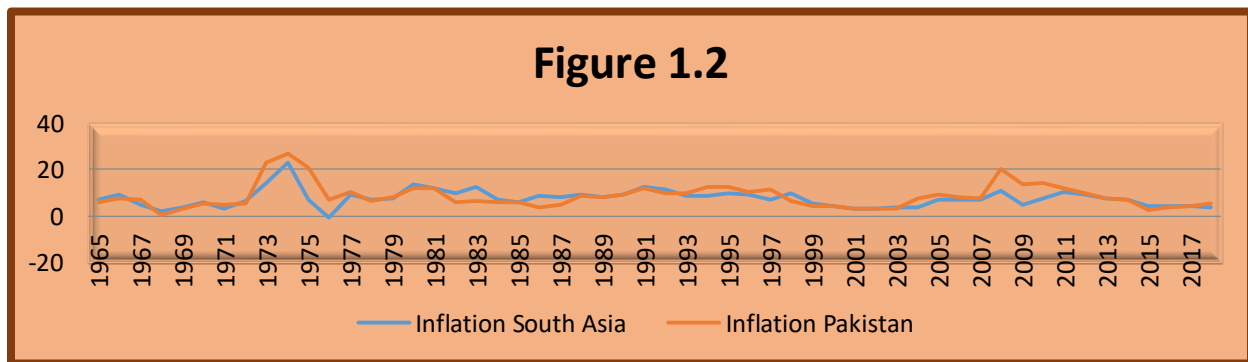
1. Introduction:Economic growth considered the most challenging task of the countries and determine as a crucial objective of every country across the world even world strongest economies having the same objective to sustain their position in the global economy. In today's world where developing countries facing issues such as high level of the unemployment rate, the standard of living, level of inflation, settlement of these problems is a prerequisite need to obtain nation demands by satisfying human willingness, and that only occurs through financing investments and Industrial production. (Abusharbeh, 2017).

From 1947 to date Pakistan faced multiple challenges that have a huge impact on its economy badly and the country unable to perform as it has to be. As per World Bank Current GDP Volume of Pakistan Is 307 Billion Dollar with GDP growth of 3.3% with a decline of 2% as compared with FY 18. (Bank, 2019) Economy of Pakistan was well known due to its Agriculture products and mainly dependent on agriculture sector till the end of 19th century and Pakistan were known as closed based economy after that when economy of Pakistan became open for world this decision create a good increasing trend in economic development graph and although industries working within the territory of Pakistan have potential to gain access to international market at good pace and Pakistan industrial sector did well to achieved its targeted economies like USA Europe and China and Governemnt of Pakistan also took good initiative for economic developments such as FTA free trade agreements with targeted economies to encourage bilateral trade opportunities and also try to gain foreign direct investments for the development of economy of Pakista. after that economy of Pakistan start developing in the service sector and capture its share in it where right now the economy of Pakistan is mainly dependent on service sector followed by the industrial sector and agriculture sector. Previous Data shows the economic contribution sector for the last two decades where the service sector dominates with more than 50% of the total GDP share and industrial sector fall below 20% which is quite alarming situation from an employment perspective. Historical data shows the economic growth of Pakistan from 1960 to 2018 where unstable growth has been witnessed and the average economic growth of Pakistan from 1961 till 2018 is 5.20%. During this period, rapid shifts have been observed as Pakistan successfully attained more than 10% growth only three times during this period. That unstable economic performance has been backed by multiple economic and non-economic events at different time frames like after 9/11 while Pakistan joined War against terror economy of Pakistan start declining and at stage its growth fall below 2% during 2008 and 2009. (Bank, 2019). Banking Sector of Pakistan is known as Backbone for financing and investment activities banking sector of Pakistan has been categorized as Public Sector Banks, Banks operate for commercial Operations, banks operate with Specialized operations, Domestic Banks, International Banks and, Islamic Banks (SBP, 2019). The Core function of the Banking industry to lend money to creditors and generate deposits from public sector money landed by banking industry help to evolve economic activities in countries like Pakistan have specialized financing as Per SBP Regulation Banks have to develop their credit portfolio according to sector-wise like SBP Promote banks to provide credits to Small medium enterprises SME's. Export considered an essential part of any economy in light of that Government of Pakistan announced a scheme for export financing name Export refinance scheme the purpose of this scheme to provide credit facilities to strengthen the exports by providing low-cost loans on easy terms and conditions through banking channels. Furthermore, the banking industry of Pakistan consists of commercial and conventional Banks as most of the banks fall under the medium size banks and big banks. Medium size banks and large size banks providing a good strength to economic activities and their main operational task is to provide financial assistant to support all sort of economic

activities perform within the territory of Pakistan. Target population for whole banking industry is Public and private sector companies, individual and partnership base business, Non profit organizations, government institutions and individuals. As per the information of the World Bank (World Economic Indicators), it shows that while Comparing the GDP of South Asia with the GDP of Pakistan in Figure 1.1 it shows that the GDP of Pakistan to perform while comparing with GDP of South Asia. Both the GDPs start with the same point of 4% and within few years Pakistan reached its highest point of 10% and the GDP of South Asia falls below 0%. After the successful growth GDP of Pakistan again fall below the GDP of South Asia after 1991 and remain in worst condition until the condition and fail to achieve its original position of starting time.

While comparing the data in figure 1.2 data for inflation of Pakistan and Data for South Asia Graph shows that Pakistan is moving more or less parallel to South Asia only minor deviations has been witnessed throughout the period till 2007 where Democratic government has taken charge to run the country and implement some strategies to cope up the economic challenges which enforce the higher inflation in Pakistan and Pakistan inflation were higher than inflation of South Asia that rate remains higher till 2011 and normalized after that and follow the same trend of South Asia and till the end of 2017 moving parallel to it.





Problem Statement: The service sector including the financial sector continuously increasing from the last two decades but the economy of Pakistan is taking its pace and found unstable during the growth of the service sector. Although the banking industry of Pakistan providing good credits to industry to cope with their financing needs the impact of this financing cannot be identified in economic growth. While inflation is a factor that had an impact on the economy and banking sector development. How these three factors integrated or interlink with each other. The study will help to identify the relationship between all three mentioned variables of the study.

Objective of the Study: The core objective of the study is to identify the relationship between indicators of banking industry development and inflation with the economic growth of Pakistan. The study will also help to identify the cointegration between all three variables.

Significance of the study: The study will be helpful for a policymaker to undertake the importance of the banking industry's role in economic development and its relation with the inflation index of country and its impact on economic growth and banking sector development and economic growth. The study will also be helpful for the banking industry and regulators to formulate policy that compels banks to undertake the decisions which directly or indirectly accelerate the economic growth of Pakistan.

Research Question: The study will help to identify the causal relationship between banking industry growth, inflation, and economic growth of Pakistan. The study will also help to answer the following questions.

- What is the relation between Banking sector development and Economic Growth?
- What is the relation between Banking Sector development and Inflation?
- What is the relation between inflation and economic growth?

Hypotheses:

- H1: Banking Sector development does not impact on Economic Growth.
 H2: Economic Growth Does not impact on Banking Sector Development
 H3: Banking Sector Development does not impact on inflation
 H4: Inflation does not impact on Banking Sector development
 H5: Economic Growth does not impact on inflation
 H6: Inflation does not impact on Economic Growth

2.Literature Review

2.1 Economic Growth

(Abusharbeh, 2017) conducted the study on The Impact of Banking Industry Development on Economic Expansion: Empirical Analysis from the Palestinian Economy. The study undertakes the variables to analyze the growth of the banking development as Credit facilities, Total bank branch network, Depositor funds, and interest rate. For measuring the growth total GDP has been taken into account for this study. Hypotheses for the study have been designed according to banking growth indicators as mention earlier were all independent variables having a positive impact on GDP except interest rate. Least square model and linear regression examination have been used for the study to analyze the data where results of the study revealed 90% of GDP growth has been identified through these factors of the banking sector as R square values found 0.905 and all the selected variables having significant relationship except interest rate and no autocorrelation has been found between variable which shows that model is fit. The study further stated that GDP is strongly influenced by the banking credit facilities study also stated that more funding to the economic sector will enhance the economic conditions of Palestine and that will also help to enhance the local production in the public and private sectors.

(Ahmed & Lubna, 2019) conducted the study on Banking industry expansion and Economic development in Bangladesh A practical Analysis banking industry growth has been analyzed with help of banking indicators such as credits provided to private sector industry, Domestic level credit, and Broad supply of money while GDP has been analyzed with help of Per capita GDP. The unit root test has been applied where The ADF (Augmented Dickey-Fuller) test shows that data found nonstationary form at level stage $I(0)$ to avoid the issue of stationarity of data study used took the first difference of all selected variables $I(1)$ by using ADF test.. With the help of Johansen co-integration statistical test long term relation between Dependent and independent variables found. For examining the causal relation Granger Causality test applied where results of the test show bidirectional and unidirectional between financial development and economic growth in Bangladesh from 1980 to 2016. The VEC estimate has been observed to find out the speed of adjustments in long term relationship the results support the long term relationship running from financial development to economic growth. The study further concluded that banking sector development has a positive impact on the economic growth of Bangladesh and the Private sector having a strong influence on the Economic development of Bangladesh.

(Shahid et al., 2015) conducted the study on development of economic sector and banking industry expansion in Pakistan's objective of the study to examine the economic financial development of Pakistan. Variables to measure the banking sector are Money supply, Credit to Private Sector domestically, Domestic Credit by Banking Sector and Deposit Liabilities (BDL) Percentage to GDP has been considering for these variables whereas 32-year time-series data from 1980 to 2012 has been considered for the study. Augmented Dickey-Fuller ADF, Johansen cointegration, (OLS) regression, and Granger causality test has been applied on data whereas results of the study revealed that Positive and statistically significant relationship exists between

Financial Development and Economic growth while BDL having positive but statistically nonsignificant relation. M2 also shows statistically nonsignificant but negative relations found. While Granger causality test shows bidirectional and unidirectional relation has been found between FD and ED.

(Odinakachi et al., 2020) conducted a study on Analysis of Bank Sectorial Lending and Its Influence on Economic Growth in Nigeria variables to banking sector lending are taken in accounts as Allocation to Manufacturing Sector MAN and Allocation to Agriculture sector AGR while economic growth has been analyzing through GDP volume. Unit root property of data was examined by using static test of ADF test while OLS regression has been used to analyze the affiliation between data. The results of the study revealed that the manufacturing sector allocations show a positive relationship with Economic Growth and that relation found statistically significant. Impacts of agriculture sector allocation harm Economic Growth while that relationship is not statistically significant in this study.

(Mushtaq, 2016) conducted a study on Causal relation among major banking industry activities and economic escalation: pieces of evidence from Pakistan where total cash Deposits of banking industry and Bank Credits % of GDP are considered for banks' major activities and annual GDP growth was taken in account for analyzing GDP growth. The utmost possibility estimation model is been used to determine the co-integration among variables while VECM Granger causality model have been used to determine the direction of causality in the short term and long term. After applying the ADF test it has been found that data is not stationary and after taking the first difference data became stationary. Results of the study revealed that no relation between Bank deposits and economic growth has been found but banks' credit and economic growth found integration and relation exist between these two variables and unidirectional causality from GDP growth to banking credit has been found.

(Pradhan et al., 2017) conducted study on Asian economies where as relationship among three variables has been analyzed where two of the variables belongs to economic development such as Growth of economy is measure with help of GDP and total trade is measure by volume of import and export where as third variable used for study belongs to banking sector. Study use five different variables to measure the banking sector depth like Broad money supply about national income BRM, Claim on the private sector about the national income, Domestic credit to the private sector about national income DCP, Domestic credit provided by the banking sector about the national income and Banking sector depth index BSI. While the total volume of trade Import plus export has been considered for trade openness while GDP has been considered for economic growth activity. Five different models constructed from variables as GDP, OPE, and each model consist of one variable from BSD as BSI, BRM, CLP, DCP, or DCB. While three different tests have been applied to achieve the objective of the study where at the very first stage stationary of data has been checked and the first difference has been taken into account. In the second stage causality, the granger test has been applied to data by using the VECM technique for type of relationship exist in data. Results of VECM show that long-run relations found between

GDP, Trade openness, and BSD. While in another module where there is no relation found from Trade openness and GDP to BSD. Further results of the short-run show unidirectional causality between $BRM \Rightarrow OPE$, $CLP \Rightarrow GDP$, $OPE \Rightarrow CLP$, and $DCB \Rightarrow OPE$ while bidirectional causality found in $OPE \Leftrightarrow BSI$, $OPE \Leftrightarrow BRM$, and $OPE \Leftrightarrow DCP$. The study further recommended that countries looking for stable and long-run economic growth must be focused on banking sector development.

2.0.2 Inflation

(Nazir et al., 2018) conducted a study on development of Banking industry Inflation and Growth of economic sector study based on panel causality and cointegration approach. The study used data of six main countries of Asia such as Pakistan China India Bangladesh Sri Lanka and Bangladesh. Banking sector development measure through five variables such as Domestic credit issued by banking sector, liquidated liabilities of banking sector, credits avail by private region, assets claim and Broad money supply (BMS). To avoid the problem of multicollinearity each variable of banking sector development used individually. At the very first stage study applied the LevinLIN Chu one of the commonly used test also known as LLC test to determine the order of integration and panel co-integration test applied to determine the association between variables after that granger causality test applied to determine the relationship between variables on all equations. Results of LLC test reveal that variables became in stationary form after taking first difference $I(1)$ and variables also found in cointegration form at same stage. Whereas results further reveal the presence of long-run equilibrium among GDP inflation and five indicators of banking sector development. Long run and bidirectional relation found between GDP inflation all five variables of banking sector development except Liquid Liabilities (LL)

(Bashir et al., 2016) conducted a study in Pakistan to identify the determinants of Inflation Demand and supply-side study collected the time series data from 1972 to 2014 following factors has been considered for demand and supply-side analysis External Debt and study conclude that co-integration confirm the existence of long-run relationship among variables of Demand and supply-side while long-run estimation present that demand-side variables such as EX, GX, RDS, and BM are increasing the inflation of Pakistan on average and the population is reducing the inflation of Pakistan. Meanwhile, factors of supply-side such as GR, INDSE, DEBT, and IMP are increasing inflation and ELECG and FDI reducing inflation in the long run.

(Eggoh & Khan, 2014) conducted study on the nonlinear relationship between Inflation and economic growth while panel data has been collected from 1960 to 2009 for 102 countries following variables has been considered for study GDP per capita growth, Initial GDP, Population Growth, Trade openness, Investments, Government investments, Government expenditures financial depth and inflation. Descriptive results of the study show that Deviation for the mean is higher this compels to have a more homogeneous sub-sample which shows an increase in government consumption, investment, and investment with increasing income level while output growth and investment volatility with increasing income level. The study also concluded that inflation and nonlinear relationship and threshold estimate decreases with an

increase in the level of income that shows that inflation tolerance is higher in developing countries and then in developed economies.

(W. Madurapperuma, 2016) conducted a study on the impact of inflation on Economic growth in Sri Lanka data from 1988 to 2015 collected for selected variables such as RGDP and CPI. Researchers examine the long run and short-run relationship between GDP and CPI. The results of the study stated that both the variables found stationary after taking the first difference. the results of the relationship between variables show that GDP and CPI have long run inverse relationship found in Sri Lanka ADF and PP test Augmented Dicky-Fuller test and Philips-Perron test shows that GDP and CPI are Co-integrated and valid for long-run relationship and Johansson test also confirms the rejection of the null hypothesis of study which is there is no Co-integration between GDP and CPI. The estimated coefficient of error correction term is (-0.49) is found statistically significant and inverse relation is proved by a negative sign.

2.0.3 Banking Sector Development

(Ho & Odhiambo, 2013) conducted a study on Banking industry development and economic expansion. where Real GDP Per Capita considered as dependent variables and DCBP/GDP Domestic credit issued by banks % of GDP and BD/GDP Banks deposit as % of GDP are considered as Independent variable. ARDL Test has been applied on data where results of the study show that proxy of demand and supply use to measure the relationship between economic growth wherein both conditions when domestic credit provided by the bank used as proxy a supply leading distinct role has prevailed and demand leading role prevailed while banks deposit has been used.

(Bayar et al., 2019). conducted the study on banking sector instability and economic growth evidence from turkey where the study considered variables to measure banking sector instability by commercial and consumer loans to be liquidated by deposit banks and loans to be provided by deposit banks to the private sector whereas economic growth is measure by industrial production index. Monthly data from 2006 to 2018 considered for the study where at very first stage stationary of data has been checked and after that co-integration of variables has been checked where results revealed that no co-integration found between variables. The empirical analysis of data shows that instability in banking sector affects economic growth negatively in the short term while the banking sector instability affects economic growth positively in long term relations. The study further recommends that future studies to work on the deterrents of the banking sector to identify their impact on economic growth.

(Sibindi, 2014) conducted a study on the impact of banking sector development on economic growth in Zimbabwe. Banking sector development measure by real broad money to GDP ratio (YM2) and real domestic credit to GDP ratio (YCREG) while economic growth has been measure through real gross domestic product GDP. Granger causality test has been applied to data to determine the relationship between endogenous and exogenous variables where the vector error method VEC method has been used for this purpose. Data has been tested through three different phases at the very first stage stationarity of data has been tested with the help of the

ADF test where after taking the first difference data found non-stationary. After that co-integration analysis has been done with the help of the Johansson test. After that granger causality test applied to determine the direction of the relationship between variables where the study concluded that there is a long-run relationship between banking sector development and economic growth.

(Omoruyi & Osawmonyi, 2013) conducted a study on Banking sector development and economic growth in Nigeria where banking sector development has been measure with help of four variables such as PSC Private sector credit/GDP ratio, BLL liquid liability ratios for banks, BA total assets of deposit money banks /GDP ratio while GDP growth has been measure with the help of Real Gross Domestic Product RGDP. At very first stage unit root test has been applied where the ADF test was used by a researcher where data were found stationary after that OLS Ordinary least square Regression has been applied on data where results of test shown that model is highly significant and no autocorrelation were found in data. OLS results further also revealed that 0.69 or 69% RGDP is explained by banking sector development. Which intimate that selected model can be used for the formulation of policy. Results of the study also show that all the selected variables PSC, BLL, and BA having a significant impact over Economic growth while PSC and BA having positive relationships and BLL have a negative relation with RGDP. After that Granger causality has been applied on data to examine the direction of the relation between a dependent variable and explanatory variables. None of any variables found bidirectional relation in the model. While the direction of the causality is from RGDP to Banking sector development.

(Zeqiraj et al., 2020) analyze the banking sector performance and economic growth of southeast European countries. The study considered unbalanced panel data and Banking performance is measure with help of return on assets ROA and return on equity ROE for this purpose Human capital, Inflation, trade openness, fixed capital investment, and institutional quality has been considered for the study while economic growth has been measure with help of RGDP real gross domestic product. 15-year data has been considered for study from 2000 to 2015. At the very first stage, descriptive statistic checked for data for highly volatile variable and variance adjusted by the covariance of the mean where inflation institutional quality are highly volatile and Human capital is least volatile. After that correlation matrix of variables has been established results of correlation expressed that only institutional-quality having a positive correlation with RGDP while other variables Human capital HC, Banking performance BP, trade openness having a negative but significant relationship with RGDP.

(Wamboye & Nyaronga, 2018) conducted study on Banking Services, Institutions and economic growth in Sub-Saharan Africa (SSA) Data for 47 SSA Countries collected following variables considered for the study Gross domestic products GDP per Capita for economic growth, Banks Credit, FDI foreign Direct Investment, Governance, Interaction, population, Trade, Saving, HDI Human Development Index, Control of Corruption, Credit* Corruption, Political stability, Credit*Political stability, Regulatory Quality, Credit*Regulatory Quality, Rule of Law,

Credit*Rule of Law, Voice and Voice*Credit. Data for selected variables have been collected from three different sources ADI Africa Development Index, GFDD Global Finance Data Base, and WGI World Governance Index. The study concluded that Bank service and quality of governance on their vigorously promote the growth of the economy. While financial development shows that bank service and governance measure impel the economic growth but only in such a country where a higher level of financial development taken place That shows African countries to benefit from banking services and other then banking sector other financial sector development must be implied to promote their economies. In other word study also concluded that banking sector development could not show positive results until it's linked with the financial sector system. In the case of Governance quality,The following factor found those having a strong impact on the growth of economy like Government effectiveness, rule of Law, Voice & accountability and Regulatory quality So SSA countries should be given preference to these variables to achieved higher level of economic growth level.

(Berthelemy & Varoudakis, 1996) conducted a study on Economic expansion, Convergence Club, and the role of fiscalprogress following variables has been considered for study Real GDP per Capita, Money Supply, the population of Secondary school enrollment, Trade openness Import + Export, Government consumption or Expenditures Average the annual number of coups and a dummy variable is used for OPEC countries. Data has been collected from 1960 to 1985 for a total of 95 countries. After the results of OLS regression shows that all estimated coefficient has expected sign and all are significant except government expenditures. The study further concludes that the conjunction of financial sector positive influence on real sector external effect and capital efficiency through the volume of saving a cumulative process and found to be a potential source for poverty traps. For countries that belong to a financially underdeveloped list trade openness does not seem to impact a positive influence on economic growth. While in these countries government expenditure has a positive impact on economic growth. These results show countries having strong economic growth have a strong financial system and their policies are streamlined with it.

(Poshakwale & Qian, 2011) conducted the study on competitiveness and competence of the banking industry and Economic expansion in Egypt. The period covered in this study is from 1992 to 2007 for 45 Egyptian Banks while data collected from Bank scope which is a database covering more than 29000 banks worldwide and financial statements of respective banks. The study also gathers some data from world economic indicators for macroeconomic indicators following variable has been used for the analysis of data Interest income Interest expense, Loan loss provision, Operating expense, Net profits, Total loans,Other earning, assets Deposits, Other funds, Total assets, Financial capital, Loss provision uponloans, Equity to assets ratio, liquid assets tototal assets ratio, Return on assets, Income concentration, GDP growth rate, GDP per capita, real interest rate, Inflation rate, 4-bank concentration, and Industry concentration. The study used the number of well establishedtheoretical paradigm and econometrics approach in investigation and concluded that analysis is completed in three steps first industry completion

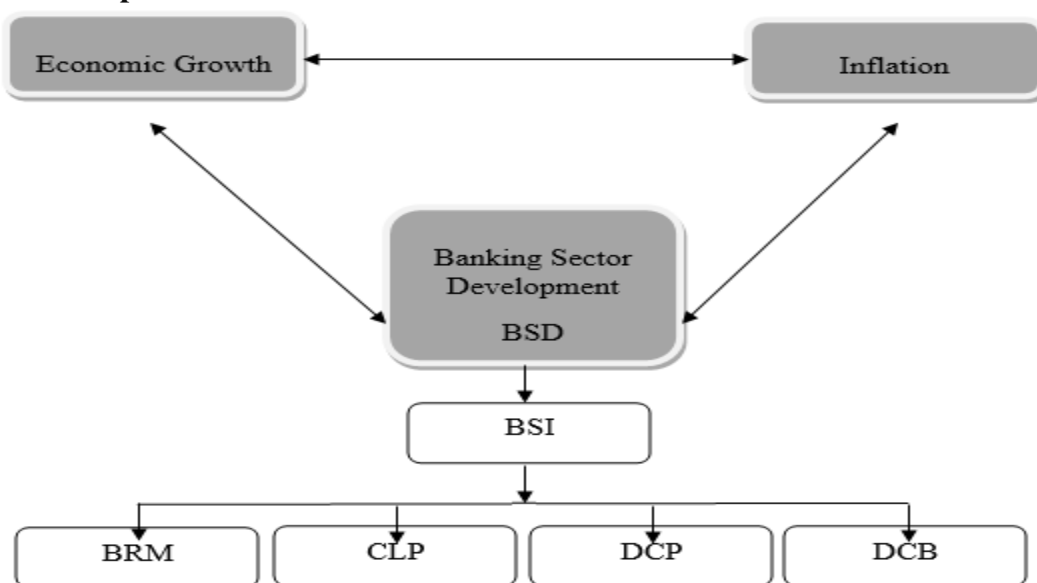
and productive competence of Egypt banking industry has been analyzed results of this analysis shows that monopolistic competition observed in Egyptian banking sector study also discovered that government banks are less competitive as compared to private banks and foreign banks also less competitive as compared to domestic banks. In the second stage, the productive efficiency of banks has been analyzed with the help of parametric and nonparametric approaches where shows that the inefficiency of Egyptian Banks is around 30%. The study also found that Private Banks are more profitable as compared to government banks and financial reform has a positive and significant impact on the production competence of the Banks of Egypt. After that in the last stage relationship between industry rivalry, Product competence and economic development have been analyzed with the help of Granger Causality which shows a significant relationship between productive efficiency and economic growth in the short run. Findings also suggest that there is a significant causal relationship found between efficiency and competition in the short-run while no evidence of long-run relation between competence economic development has been found. Industry competition measures are negatively affecting the cost-efficiency measure on a long-run basis. The study suggests that policymakers should continue with financial reforms for the betterment of the financial sector which is impacting the economic development at least in the short run.

(Shivagami & Prasad, 2016) Conducted study on Impact of Banking sector reforms – An Analysis study stated that the banking sector in India flourish rapidly as during 1969 only 173 banks were operating in the Indian Economy and at the end of 2003 that number rose to 288 and the total number of branches change from 8202 to 66259 respectively. The study further reveals that although these numbers showing a positive increasing trend of banking sector growth but in absolute terms rate of growth decline during the post-reform period of 1993 to 2003. The deposit growth rate and credit growth rate increase tremendously after the reform period. The same trend observed in terms of total deposits and total credits also. Just after the reforms of India state bank of India and its associate banks record a significant increase in profit but public sector, private sector, and foreign banks record huge losses and cut in profit just after the reforms. After a few years of reforms especially at the beginning of the 20th century from 2001 to 2001 all the public sector, private sector, and foreign banks record excellent results and show huge profits. The study further concluded that Gross profits of scheduled commercial banks were witnessed at 0.35% of the working fund and the reason behind that gap between lending and borrowing has been reduced to below 1% during 1991-1992. Earnings growth were identified as lower than business growth of banks and decline in assets quality (Loan quality) concerning internationally accepted standards related to Capital adequacy, Bad debts, and income recognition banking system were nearly bankrupt on that time and reforms implemented by the government on a timely basis and banking sector of India considered good enough after some span of time and successfully recovered from the bankrupt situation.

(Voronova et al., 2016) the study conducted on Determinants of Russian Banking Sector Developments as Drivers of Economic Growth Data has been collected from 2007 to 2016

Results of the study shows that Pearson correlation found between variable while the correlation with whole GDP and share of GDP share of the financial sector with banking sector variables has been checked where results show that the strongest correlation can be observed while variables have been tested with GDP in Russia as a whole while GDP from Financial sector only found significant with Profit of the banking sector. The study concluded that the Russian banking sector has significant with macroeconomic indicators and profits, capita, and aggregate risk of credit organization of Russia. Russian banking sector identifies and evaluates the relationship of Profits and GDP as well as share capital, profitability, and adequacy of regulatory capital the accuracy of which can be evaluated as per coefficient of determination which is 0.998.

2.2 Conceptual Framework



BRM (Total money supply concerning state income)

CLP (Claim over the private sector concerning the state income)

DCP (Domestic credit to the private sector concerning state income)

DCB (Domestic credit issued by the banking industry concerning the state income)

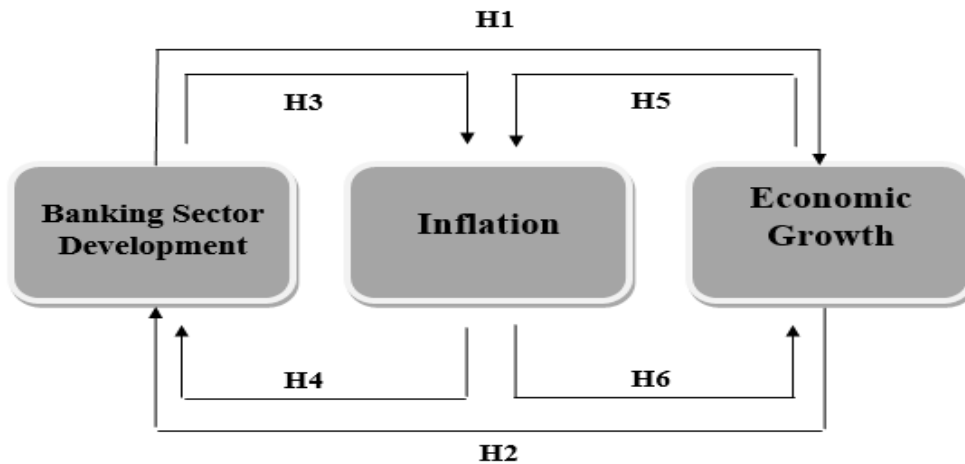
GDP (Gross domestic Products Growth in Percentage)

INF (Yearly Inflation Rate)

BSI (Banking Sector Index)

(Pradhan et al., 2017)&(Nazir et al., 2018)

2.3 Proposed model for Hypothesis



3. Research Methodology

3.1 Research Data

To test the hypotheses of the study data has been collected from world Bank Economic Indicators. Yearly data for all selected variables will be considered for the study. Data will be considered from 1960 to 2018 for all three variables while the source of data will be world economic indicators for hypothesis testing. Economic Growth will be measured with the help of Gross domestic Products Growth rate which is available in Percentage. Inflation will be measured as the change in consumer price index annually. Banking Sector Development will be measured through four different variables as defined in World economic indicators as follows: BRM (Total money supply concerning state income), CLP (Claim over upon private sector concerning the state income), DCP (Domestic credit issue for private sector concerning state income), and DCB (Domestic credit issued by the banks concerning the state income). Banking sector Index (BSI) Index of all four variables has been created with the PCA approach.

3.2 Research Variables

As per the above definition, Research Framework research consists of three variables: Banking Sector Development, Inflation, and Economic Growth. Definitions of all three variables are defined below. While banking sector development is defined with the help of four variables as defined above: BRM, CLP, DCP, and DCB.

Variables	Definition
GDP	The escalation rate of capita Income in Percentage Income is defined as growth domestic product this is our measure for Economic Growth. (Pradhan et al., 2017)
Inflation	Inflation is defined as Change in the price index of consumer product prices (Nazir et al., 2018)
BRM	Money supply Defined as the ratio of gross domestic product GDP which is the sum of currencies including currency outside banks, Deposits such as demand and term deposits where international deposits also included in it while central bank deposits are not

	included in it..Certificate of deposits and commercial papers are also part of BRM. (Pradhan et al., 2017)
CLP	Claims over the private sector expressed as a ratio of gross domestic product claims over the essential government which include loans to essential government institutions (net of deposits) (Pradhan et al., 2017)
DCP	Domestic Credit to Private sector expressed as a percentage of gross domestic product credit provided to the private sector such as via loans, purchase of non-equity securities trade credits, and other accounts receivables those establish claimed for payments. (Pradhan et al., 2017)
DCB	Domestic Credit to Banking Sector expressed as a percentage of gross domestic product DCB includes all the credits provided to different sectors on a gross basis except for the central government which is on a net basis. The banking sector includes monetary authorities, deposit money banks, other banking institutions like the mortgage, and building loans.
BSI	Banking Sector Index is formulated with the PCA approach.

3.3 Statistical tools

To test the developed hypotheses following statistical test will be applied on data with the help of E-views version 9.0. At very first stage testing of the unit, the root will be performed as the study (Levin et al., 2002) Stated that (LLC) test to check the stationarity of time series data where ADF (Augmented Dicky Filler) test allow identifying the heterogeneity of time series data. In the second stage, the co-integration of data will be checked and the cointegration test will be applied to identify the long-run equilibrium relationship between variables. After that, if the integration of order one identified after that cointegration analysis will be performed to identify the long-run relation of variables. In such a condition Johansen Vector's autoregression test of cointegration will be applied on data (Johansen, 1988). To identify the direction of the correlation between the variable Granger Causality test will be applied accordingly.

3.4 Econometrics Modeling and estimation strategy:

To determine the long-run relationship among all three variables Economic growth GDP, Inflation INF and Banking sector development following three econometric equations will be developed.

Equation 1

$$\Delta GDP = n_{1j} + \sum_{k=1}^p \alpha_{1ik} \Delta GDP_{it-k} + \sum_{k=1}^q \beta_{1ik} \Delta INF_{it-k} + \sum_{k=1}^r \delta_{1ik} \Delta BSD_{it-k} + \lambda_{1i} ECT_{1it-1} + \varepsilon_{1it}$$

$$H_0: \beta_{1ik} = 0; \delta_{1ik} = 0; \lambda_{1i} = 0 \quad \text{for } k = 1, 2, \dots$$

p/q/r

$$H_0: \beta_{1ik} \neq 0; \delta_{1ik} \neq 0; \lambda_{1i} \neq 0 \quad \text{for at least one } k$$

Equation 2

$$\Delta INF = n_{2j} + \sum_{k=1}^p \alpha_{2ik} \Delta GDP_{it-k} + \sum_{k=1}^q \beta_{2ik} \Delta INF_{it-k} + \sum_{k=1}^r \delta_{2ik} \Delta BSD_{it-k} + \lambda_{1i} ECT_{2it-1} + \varepsilon_{2it}$$

H₀: $\beta_{2ik} = 0; \delta_{2ik} = 0; \lambda_{2i} = 0$ for k = 1,2,...

p/q/r

H₀: $\beta_{2ik} \neq 0; \delta_{2ik} \neq 0; \lambda_{2i} \neq 0$ for at least one k

Equation 3

$$\Delta BSD = n_{3j} + \sum_{k=1}^p \alpha_{3ik} \Delta GDP_{it-k} + \sum_{k=1}^q \beta_{3ik} \Delta INF_{it-k} + \sum_{k=1}^r \delta_{3ik} \Delta BSD_{it-k} + \lambda_{3i} ECT_{3it-1} + \varepsilon_{3it}$$

H₀: $\beta_{3ik} = 0; \delta_{3ik} = 0; \lambda_{3i} = 0$ for k = 1,2,...

p/q/r

H₀: $\beta_{3ik} \neq 0; \delta_{3ik} \neq 0; \lambda_{3i} \neq 0$ for at least one k

Where in above all three equations

Δ is a first divergence operator functional to the variables

Leg lengths has been define with p q and r

i represent the country where we are using data of one country so i = 1

t donates the years in panel (t = 1,2,3.....T)

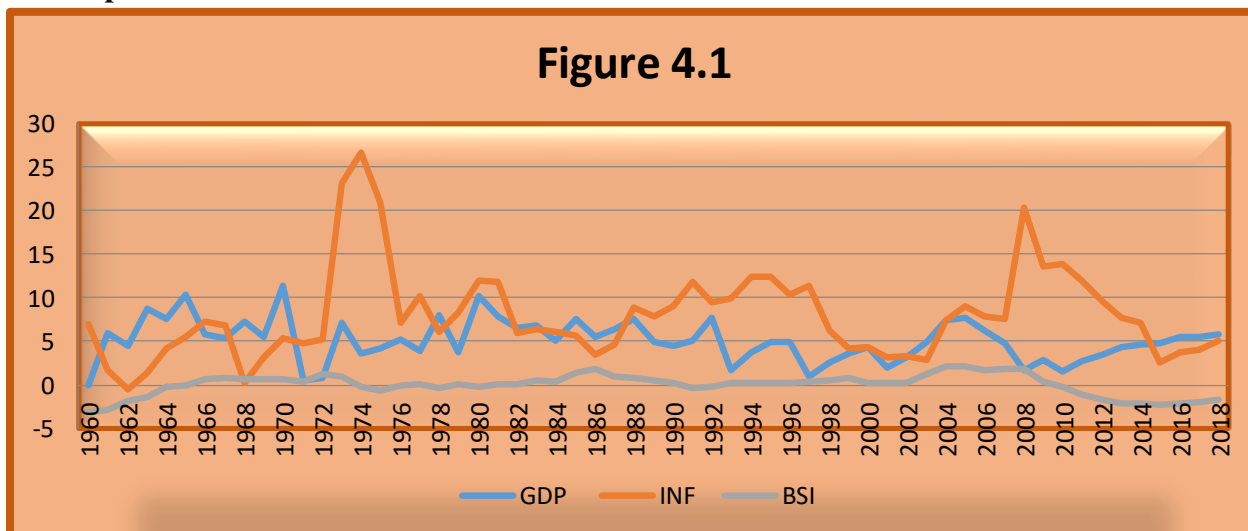
ECT is an error term

ε define normally distributed error term of the equation.

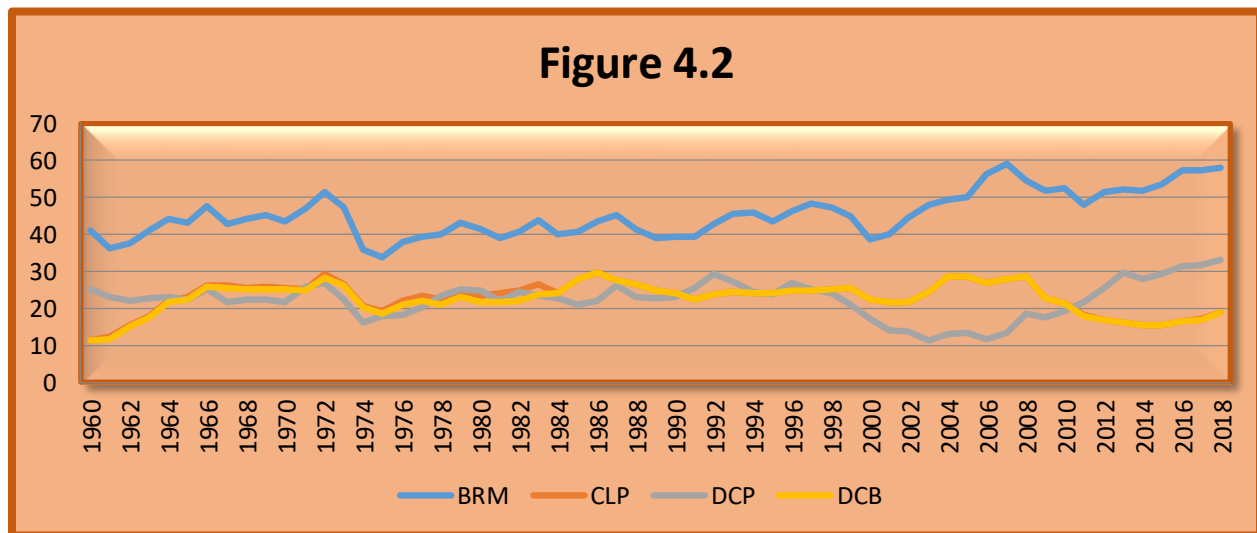
4. Statistical Results and Interpretation

This chapter will consist of data analysis and the results of the statistical test. Data will be tested in the following sequence at the very first stage Graphical representation of data will be presented and discussed accordingly. Inthe second stage, Descriptive analysis will be performed and the results of Descriptive analysis will be discussed accordingly after that Pearson Correlation test will be applied on data to examined the correlation between variables. After that following three tests will be performed at stage three where Unit root test / ADF test will be applied on data and results will be discussed accordingly and incase variables found in order on one so Johansson co-integration approach will be applied and after that granger causality will be applied on data to identify the causality directions of selected variables.

4.1 Graphical Presentation of Data



Data from 1960 to 2018 considered variables of the study presented with help of graph in figure 4.1 which shows that data no consistency has been found in all variables and no extraordinary changes have been found in the variable. GDP growth was tremendous from 1965 to 1970 after that a political event GDP decline nearly Zero and take pace again recovered its position in 1980 after that GDP growth found quite unstable and no consistent behavior of GDP growth identified in graph reason behind that is Political instability and many other reasons. Inflation also shows the high variation concerning time and the Economy of Pakistan witnessed the highest inflation rate while the GDP of Pakistan was at the lowest position. After that inflation once again touch the peak level after 2008 while the new government took the charge after the long military regime and economy of Pakistan entered in Democratic regime although after that second democratic government finally controlled the inflation and its start declining from 20% to below 5%. Banking sector index which consistently near to zero throughout the time and after 2008 it's laid down below zero and observed negative change in BSI



Data for BRM, CLP, DCP, and DCB has been presented graphically in figure 4.2 where results show that DCB and CLP show quite similar trends throughout the period and graph line of these two variables moving parallel from 1960 to 2018 although both of these variables witnessed nearly 30% during 1966 to 1970, 1986 and 2002 to 2008 after that both the variables start declining and after 2008 till 2018 graph shows a declining phase of these two variables but during last two years of data these two variables shows very slow growth and start moving upward. BRM shows quite unstable growth from 1960 to 2000 although successfully catch the peace and start growing after 2000 and suddenly stop growing after 2008 and decline from 60% to 50% within two years after 2008 after 2010 BRM again take upward trend with very slow pace reach nearly its previous optimal point. DCP was in worst condition after 2000 till 2010 during these ten years Pakistan was going through the tough economic period and economic activities in Pakistan were quite low.

4.2 Descriptive Analysis

Table 4.2.1 Descriptive Analysis							
	GDP	INF	BSI	BRM	CLP	DCP	DCB
Mean	5.199278	7.959071	-8.47E-11	45.28684	22.97736	22.44048	22.58964
Median	5.061568	7.158324	0.211358	44.12181	24.15733	22.82521	23.61733
Maximum	11.35346	26.66303	2.105889	58.86769	29.78608	33.15651	29.78608
Minimum	0.468373	-0.51646	-3.11006	33.66790	11.14825	11.19886	11.14825
Std. Dev.	2.334035	5.265717	1.227868	6.047256	4.298060	4.953725	4.279852
Skewness	0.258756	1.445447	-0.65938	0.479315	-0.83266	-0.38074	-0.70669
Kurtosis	3.089945	5.639224	2.998267	2.523774	3.118908	3.006063	3.043486
Jarque-Bera	0.678274	37.66848	4.275370	2.816665	6.852425	1.425556	4.915570
Probability	0.712385	0.000000	0.117928	0.244551	0.032510	0.490280	0.085624

	GDP	INF	BSI	BRM	CLP	DCP	DCB
Sum	306.7574	469.5852	-5.00E-09	2671.924	1355.664	1323.988	1332.789
Sum Sq. Dev.	315.9677	1608.211	87.44427	2121.020	1071.452	1423.285	1062.394
Observations	59	59	59	59	59	59	59

As per above mention table, 4.2.1 provide the results of descriptive analysis where the mean value of GDP growth is above 5% which is greater than standard deviation while maximum GDP during the period is 11.3% and lowest GDP found to be as 0.46% which is below the S.D. standard deviation value of GDP shows that GDP value is not much deviated from its mean value. Skewness value of GDP is 0.25 which indicates that data of GDP is symmetric and nearly normally distributed. Kurtosis value of GDP is 3.08 which is approximately 3 so the GDP kurtosis will be considered as meso kurtosis.

The mean value of inflation is 7.95 which is higher than the standard deviation value which is 5.26 while the value of S.D indicated that data is not widely spread from its mean value. The maximum value for inflation is 26% and the lower inflation value is -0.51. While the value of skewness is 1.44 which is greater than one so the data for inflation is highly skewed and the value of kurtosis is 5.6 which indicates that inflation data have leptokurtosis.

The mean value for BRM is 45.28 and CLP, DCP, DCB having the same mean value of 22. Standard deviation value for BRM, CLP, DCP, and DCB as 6.0, 4.2, 4.9, and 4.2 respectively which indicated that data for all four variables are not widely spread from its mean value and all the S.D quite less than its mean value. The highest values for BRM, CLP, DCP, and DCB as 58, 29.7, 33,1 and 29,7 respectively, and lowest values for mention variables as 33, 11, 11, and 11 respectively. BRM has positively skewed data and CLP, DCP, and DCB have negatively skewed data while Kurtosis value indicated that BRM has platykurtosis while CLP, DCP, and DCB have mesokurtosis.

4.3 Pearson Correlation

Probability	GDP	INF	BSI	BRM	CLP	DCP	DCB
GDP	1.000000						

INF	-0.271418	1.000000					
	0.0376	-----					
BSI	-0.047323	0.153754	1.000000				
	0.7219	0.2450	-----				
BRM	-0.187384	-0.053822	0.025645	1.000000			
	0.1553	0.6856	0.8471	-----			

CLP	-0.012583	0.132903	0.966495	0.039908	1.000000		
	0.9246	0.3156	0.0000	0.7641	-----		
DCP	0.061150	-0.151778	-0.566824	0.159757	-0.346988	1.000000	
	0.6455	0.2512	0.0000	0.2268	0.0071	-----	
DCB	-0.053952	0.128518	0.969835	0.085242	0.988664	-0.357813	1.000000
	0.6849	0.3320	0.0000	0.5209	0.0000	0.0054	-----

Above mention, the table provides the results for the correlation between all the selected variables. Results of correlations show that the correlation between GDP and INF is significant as sig value is less than 0.05 but relation found as negatively correlated. The relation between GDP and BSI is negatively correlated but that relation is not found as significant because sig value is greater than the cut of value which is 0.05. GDP is negatively correlated with CLP, DCB, and BRM but that relation is not significant as sig value is greater than 0.05 while GDP is positively correlated with DCB but that relationship is also non-significant as sig value is greater than the cutoff of the value is 0.05. Inflation is negatively correlated with BRM and DCP while positively correlated with BSI, CLP, and DCB while sig value shows that inflation is not significantly correlated with BSI, BRM, CLP, DCP, and DCB as sig value is greater than the cut of value which is 0.05. BSI has a positive correlation with BRM, CLP, and DCB while negatively correlated with DCP while the relation of BSI and BRM is statistically non-significant as sig value is greater than 0.05 while the relation of BSI is highly significant with CLP, DCB, and DCP as sig values are less than 0.05. The correlation of BRM with DCB, DCP, and CLP is positive but non-significant due to higher sig value. Correlation between CL, DCP, and DCB is highly significant while CLP has a negative correlation with DCP and positive correlation with DCB. DCP and DCB are significantly correlated as the correlation between DCB and DCP are negative.

4.4 Unit root Test

Study based on time series in order to get rid from the issue of unit root ADF which is also known as dickey fuller test applied to check the stationarity of the data one by one on all selected variables where results of the Unit root test has compiled in table 4.4.1. All the variables tested at the level initial level for unit root test and Null hypothesis for the test is Variable has a Unit root. After that p-value of the ADF test has been considered for analysis and cutoff for rejecting the null hypothesis is 0.01 if the value of p is less than 0.1 so we will reject the null hypothesis. In case value of p found greater than 0.01 in this condition we have taken the first difference of variable to obtain a stationary stage of data. Results of the ADF test showed as listed in Table 4.0 all the variables included INF, BRM, CLP, DCP, DCB, and BSI found nonstationary at the initial level which is denoted by I(0) and the only GDP found stationary at Level I(0). After taking the first difference all the variables found in the stationary form which is denoted by I(1)

and Null Hypothesis has been rejected based on p-value which is nearly 0.000 for all the variables.

S.NO	Symbol	P value	Test result
1	GDP	0.0000	I(0)
2	INF	0.0000	I(1)
3	DCP	0.0000	I(1)
4	DCB	0.0001	I(1)
5	CLP	0.0000	I(1)
6	BRM	0.0000	I(1)
7	BSI	0.0001	I(1)

4.5 Test of Co-integration

After checking the unit root test we have found that all variables are stationary after taking the first difference except one so we will apply the Johansson cointegration test to find out the long-run association among variables. For applying the co-integration test following assumption has been made the existence of I (1) co-integration among the variables shows the possibility of granger causality among variables. For determining the causality among variables VECM approach will be used where relation association between variables will be determined accordingly. For checking the co-integration following models will be used Model 1 will describe the relationship between GDP, INF and BSI Model 2-5 will use BRM, CLP, DCP, and DCB instead of BSI respectively (Pradhan et al., 2017).

Model 1: GDP, INF, and BSI

Trace 0.05				
CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.319202	44.10511	29.79707	0.0006
At most 1 *	0.221090	22.18922	15.49471	0.0042
At most 2 *	0.130142	7.947229	3.841466	0.0048

Max-Eigen 0.05				
CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.319202	21.91589	21.13162	0.0387
At most 1	0.221090	14.24199	14.26460	0.0504
At most 2 *	0.130142	7.947229	3.841466	0.0048

Model 2: GDP, INF, and BRM

Trace 0.05				
CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.284002	34.24215	29.79707	0.0144
At most 1	0.191812	15.19974	15.49471	0.0553
At most 2	0.052285	3.060965	3.841466	0.0802

Max-Eigen 0.05				
CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.284002	34.24215	21.13162	0.0387
At most 1	0.191812	14.24199	14.26460	0.0504
At most 2 *	0.130142	7.947229	3.841466	0.0048

None	0.284002	19.04241	21.13162	0.0956
At most 1	0.191812	12.13877	14.26460	0.1055
At most 2	0.052285	3.060965	3.841466	0.0802

Model 3: GDP, INF, and CLP

Trace 0.05				
CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.324206	47.06736	29.79707	0.0002
At most 1 *	0.221510	24.73093	15.49471	0.0015
At most 2 *	0.167629	10.45821	3.841466	0.0012

Max-Eigen 0.05				
CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.324206	22.33643	21.13162	0.0337
At most 1 *	0.221510	14.27272	14.26460	0.0498
At most 2 *	0.167629	10.45821	3.841466	0.0012

Model 4: GDP, INF, and DCP

Trace 0.05				
CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.256458	32.02413	29.79707	0.0273
At most 1	0.191604	15.13330	15.49471	0.0566
At most 2	0.051423	3.009187	3.841466	0.0828

Max-Eigen 0.05				
CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.256458	16.89083	21.13162	0.1772
At most 1	0.191604	12.12411	14.26460	0.1061
At most 2	0.051423	3.009187	3.841466	0.0828

Model 5: GDP, INF, and DCB

Trace 0.05				
CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.325974	47.51734	29.79707	0.0002
At most 1 *	0.208190	25.03164	15.49471	0.0014
At most 2 *	0.185938	11.72594	3.841466	0.0006

Max-Eigen 0.05				
CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.325974	22.48570	21.13162	0.0321
At most 1	0.208190	13.30570	14.26460	0.0704
At most 2 *	0.185938	11.72594	3.841466	0.0006

Following 5 established models that have been tested for Johansson Co-integration now the

results of the test will be interpreted based on probability value in case the Prob value is less than 0.05 or 5%, Null hypothesis will not be retain for the test..

In model 1 all three null hypothesis has been rejected and co-integration has been found between GDP, INF, and BSI that shows there is a long-run relationship exists between these variables.

In model 2 results of Trace show that there is no integration found between GDP, INF, and BRM as probability value for at-most 1 and 2 co-integration has been rejected based on probability value define criteria.

In model 3 all three null hypotheses have been rejected as value for Trace and Max- Eigin both in support to reject the null hypothesis based on probability value define criteria of 5%. So all three variable GDP, INF, and CLP are co-integrated.

In model 4 results of the trace shows that only first null hypothesis of none co-integration has been retained on the basis on probability value define criteria of 5% so we can interpret that there is no co-integration exist between GDP, INF, and DCP

In model 5 all three null hypothesis has been rejected as value for Trace in support to reject the null hypothesis based on probability value define criteria of 5% so co-integration found between GDP, INF, and DCB

Summary of co-integration results has been shown under the below table where all the 5 models have been listed all together with Trace values and Max-Eigin value.

Summary of Co-integration Test			
Model	Hypothesis	Trace Probability Value	Max-Eigin Probability value
Model 1: GDP, INF, and BSI	None *	0.0006	0.0387
	At most 1	0.0042	0.0504
	At most 2 *	0.0048	0.0048
Model 2: GDP, INF, and BRM	None *	0.0144	0.0956
	At most 1	0.0553	0.1055
	At most 2 *	0.0802	0.0802
Model 3: GDP, INF, and CLP	None *	0.0002	0.0337
	At most 1	0.0015	0.0498
	At most 2 *	0.0012	0.0012
Model 4: GDP, INF, and DCP	None *	0.0273	0.1772
	At most 1	0.0566	0.1061
	At most 2 *	0.0828	0.0828
Model 5: GDP, INF, and DCB	None *	0.0002	0.0321
	At most 1	0.0014	0.0704
	At most 2 *	0.0006	0.0006

4.6 Granger causality

The empirical testing of Granger causality will be performed with the following steps and five different models will be used for Granger testing. Each step will adopt the different variables from BSD. Model 1 will describe the relationship between GDP, INF and BSI Model 2-5 will use BRM, CLP, DCP and DCB instead of BSI respectively (Pradhan et al., 2017)

Model 1: GDP, INF, BSI

VEC Granger Causality			
Dependent variable: D(GDP)			
Excluded	Chi-sq	Df	Prob.
D(INF)	2.357772	2	0.3076
D(BSI)	0.097866	2	0.9522
All	3.497773	4	0.4782
Dependent variable: D(INF)			
Excluded	Chi-sq	df	Prob.
D(GDP)	3.981631	2	0.1366
D(BSI)	0.907537	2	0.6352
All	5.105977	4	0.2766
Dependent variable: D(BSI)			
Excluded	Chi-sq	df	Prob.
D(GDP)	0.458329	2	0.7952
D(INF)	10.61368	2	0.0050
All	10.66972	4	0.0305

Model 2: GDP, INF, BRM

VEC Granger Causality			
Dependent variable: D(GDP)			
Excluded	Chi-sq	df	Prob.
D(INF)	1.151171	2	0.5624
D(BRM)	0.648297	2	0.7231
All	2.138195	4	0.7104
Dependent variable: D(INF)			
Excluded	Chi-sq	df	Prob.
D(GDP)	6.085481	2	0.0477
D(BRM)	24.39535	2	0.0000
All	29.82728	4	0.0000
Dependent variable: D(BRM)			
Excluded	Chi-sq	df	Prob.
D(GDP)	0.051917	2	0.9744
D(INF)	6.388816	2	0.0410
All	6.396257	4	0.1714

Model3: GDP, INF CLP

VEC Granger Causality			
Dependent variable: D(GDP)			
Excluded	Chi-sq	df	Prob.
D(INF)	6.821135	2	0.0330
D(CLP)	0.507884	2	0.7757
All	7.541462	4	0.1099

Dependent variable: D(INF)			
Excluded	Chi-sq	df	Prob.
D(GDP)	1.959600	2	0.3754
D(CLP)	7.138664	2	0.0282
All	7.993368	4	0.0918
Dependent variable: D(CLP)			
Excluded	Chi-sq	df	Prob.
D(GDP)	7.188359	2	0.0275
D(INF)	14.89205	2	0.0006
All	30.07457	4	0.0000

Model4: GDP INF, DCP

VEC Granger Causality			
Dependent variable: D(GDP)			
Excluded	Chi-sq	df	Prob.
D(INF)	2.080858	2	0.3533
D(DCP)	0.049413	2	0.9756
All	2.287281	4	0.6831
Dependent variable: D(INF)			
Excluded	Chi-sq	df	Prob.
D(GDP)	8.187184	2	0.0167
D(DCP)	2.748001	2	0.2531
All	10.12644	4	0.0384
Dependent variable: D(DCP)			
Excluded	Chi-sq	df	Prob.
D(GDP)	1.860614	2	0.3944
D(INF)	4.504777	2	0.1051
All	5.823894	4	0.2127

Model5: GDP, INF, DCB

VEC Granger Causality			
Dependent variable: D(GDP)			
Excluded	Chi-sq	df	Prob.
D(INF)	6.098314	2	0.0474
D(DCB)	0.492912	2	0.7816
All	7.109755	4	0.1302
Dependent variable: D(INF)			
Excluded	Chi-sq	df	Prob.
D(GDP)	0.488293	2	0.7834
D(DCB)	3.086104	2	0.2137
All	3.473821	4	0.4819
Dependent variable: D(DCB)			
Excluded	Chi-sq	df	Prob.
D(GDP)	4.596221	2	0.1004
D(INF)	10.86729	2	0.0044
All	22.37986	4	0.0002

In above mention table's results of Granger causality have been presented and all the established null hypothesis has been tested during VECM Granger causality tests. Each model contains 3 variables and while running while BSD is measure with help of 5 different variables BSI, BEM, CLP, DCP, and DCB so 5 different models have been established and tested accordingly so a total 30 null hypothesis has been tested for Granger causality. Results have been drawn for all the null hypothesis based on probability value mention above all 5 tables. A cut-off value for probability is 0.01 in the case hypothesis contains probability value equal to 0.01 or less the 0.01 so null established hypothesis will fail to retain or Rejected and if the probability value is greater than 0.01 established null hypothesis will be retained or fail to reject. Now all the Established model's results of Granger causality will be interpreted according to define criteria,

Granger Causality VECM Test Summary					
Model Causal Relationship Established	Model 1 Directional Results	Model 2 Directional Results	Model 3 Directional Results	Model 4 Directional Results	Model 5 Directional Results
GDP vs INF	NA	GDP => INF	INF => GDP	GDP => INF	INF => GDP
BSD vs GDP	NA	NA	GDP => CLP	NA	NA
INF vs BSD	INF => BSI	INF <=> BRM	CLP => INF	NA	INF => DCB

Granger causality VECM test results have been summarized in above mention table. Where results have been finalized on the basis probability value where cut-off value for Probability value is 5% and following granger causalities has been found where unidirectional and bidirectional causalities have been found in all five tested models. In model 1 INF Granger causes the Banking Sector Index BSI and Unidirectional causality has been found. In model 2 GDP Granger causes the INF and Unidirectional causality has been observed where bidirectional granger causality has been found between INF and BRM. In model 3 INF granger causes the GDP, GDP Granger causes the CLP and CLP Granger causes the INF and all three causalities have been found in the unidirectional dimension. In model 4 GDP granger causality INF with unidirectional causality. Whereas in model 5 INF granger causes the GDP and INF granger to cause the DCB and unidirectional causality has been observed.

5. Discussion & Conclusion

Selected variables have been tested through different statistical tests to achieve the objective of the study and to test the hypothesis of the study. Descriptive analysis shows that mean of all variables is greater than their standard deviation which means that data is not widely spread and close to its mean value. Correlation test shows that GDP only found correlated with CLP and negative correlations have been found between these two variables. Inflation failed to establish any correlation with any variable at a significance level of 5% while BSI is correlated with CLP, DCP, and DCB. BRM is not correlated with any of the variables. CLP is correlated with DCP and DCB and DCP found correlated with DCP. Unit root test has been applied on all the variables and all variables except GDP found stationary at level one I(1) and only GDP found stationary at the level I(0) after that Johansson co-integration test results show that co-integration between

variables found which shows that there is long term relationship exists between variable but co-integration test did not show the direction of the relationship between variable. As all the variables are stationary at level one so Granger causality VESM test applied on data and Results of VECM Granger causality shows that while the relationship between GDP and INF has been checked we found that GDP Granger Cause the INF and INF granger Cause the GDP with unidirectional in different models. These causalities have been supported by (Nazir et al., 2018) Where he conducted the study on INF GDP and BSD and found bidirectional causality between GDP and INF in Asian countries. While checking the granger causality of BSD and GDP results shows that GDP Granger causes the CLP. While checking the granger cause between INF and BSD results shows that bidirectional causality has been found between BRM and INF and unidirectional causality found between INF to BSI, CLP to INF and INF to DCB same results for INF and BSD has been found by (Pradhan et al., 2017).

Based on statistical results and analysis study conclude that change in inflation rate bring adjustments in Economic development of the country and the higher inflationary rate is also vital for banking sector development as during higher inflation rate while industry fails to meets its demand and supply of money so banking industry is the only source for their financing. During higher inflation rate banks should be focused on their landing facilities and policymakers should be focused on making policy to entertain the industrial for managing cash flow on lighter cost. Although inflation is also causing higher GDP growth this model is not suitable for long-run trends as higher inflation rates are not vital for economic developments especially while the incremental change in both the variables is not the same. Policymakers should have focus on developing policies for banking sector development with the low lending cost for industries to attain higher GDP growth in the long run.

Recommendations: Based on the results of the study and literature review following recommendation has been made to future researchers.

- A regression model must be applied to the same model to check the incremental change of Inflation GDP and Banking sector development.
- Banking sector development may measure with the help of many other variables such as total assets No of branches and Profit ratios. Results may differ if variables of Banking sector Development have been changed.
- The inflation index has been used for this while for GDP and banking Sector development Policy rate is another important factor that may be used as a measure for inflation for the same study.
- As shown in different graph some sharp fluctuations in data on the occasion of the different political events while using small tenure for the same study results may differ for the same.

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