

## The Role of Bank-Based Finance in Economic Growth of Pakistan

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**Abstract:** This study examines association between financial development and economic growth in Pakistan by taking annual data from 1973 to 2009. In multivariate framework, Johansen cointegration approach is applied. A composite index of bank based financial development is formulated with principal component analysis by taking four different indicators of bank based financial development. It is found that financial development exerts positive impact on economic growth in the long run. However, both these variables are independent in the short run. Therefore, this study explains beneficial supply leading role of financial development exists for economic growth in the long run.

**Key words:** Financial Development • Economic Growth • Pakistan

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### INTRODUCTION

Sustained economic growth is an utmost desire of every economy. Various determinants are identified in the literature which contributes their shares in growth process. Among the other factors, financial development is also considered an important element that can propels output growth [1]. Financial intermediation by banks exerts positive impact on economic growth through technological innovations [2].

The relationship between financial development and economic growth can be explained as demand follows and supply leading hypotheses [3]. Demand following hypothesis means economic growth of an economy leads financial development whereas supply leading hypothesis proposes linkage from financial development to economic growth. He explains that these linkages depend on the stages of economic development where supply leading or active role of financial development usually appears at initial stage of development in the economy and demand following role of finance occurs in latter stage of economic development. Seminal contribution of King & Levine [4] paved the way for extensive debate on finance and growth relationship in recent era. Levine [5] demonstrates that transaction and information costs create demand for financial institutions & markets and through the functions of managing risk, mobilizing savings and efficient allocation of financial resources,

these financial entities are beneficial for technical innovations and capital accumulation. These two developments contribute positively in economic growth. In addition to that, Lucas [6] claims finance does not have any prudent role in economic growth and finance role is “badly overstressed” in growth literature.

Various empirical studies have been carried-out about finance and growth nexus in cross country analysis framework. However, this relationship may not be unanimous across the countries because economic policies and role of institutions vary from country to country. Moreover, efficient implementation of the policies may also vary among the countries [7]. In order to formulate the right policy regarding this issue, it is imperative to find causal linkage between financial development and economic growth because the policy implications are different for different findings.

The researchers used different variables related to banks and stock markets as indicators of financial development. However, intermediary role of banks is vital as compare to the role of stock and bond markets because of their efficiency in information gathering and monitoring costs [8]. Gregorio & Guidotti [9] claims, in developing countries, banking sector has overwhelming role in financial intermediation. As far as bank based financial development measure is concerned, literature shows that there is no single agreed indicator and different measures have been used for this purpose.

Banking sector of Pakistan has long history of its intermediary role in this country and over the period of time, drastic changes have occurred in this sector. Although prior to 1990s, banks were heavily regulated by government, however, after that various prudent measures have been taken in order to enhance the performance financial intermediaries and deep penetration of this sector into the economy. One of the core goals of the banking reforms was to increase intermediary role of banks and financial development.

The prime aim of this study is to examine bank based financial development and economic growth relation by using annual data from 2003 to 2009. This study departs from the previous studies on this issue for Pakistan due to the following reasons. *First*, a few studies have been conducted to check this nexus in Pakistan. These studies used different proxies of financial development and no amicable conclusions can be drawn from those studies. *Second*, we apply four different measures of financial development and prepare a composite financial development index with the amalgamation of these indicators.

The remainder of the paper is organized as follows. The next section provides brief review of some selected literature. Section 3 describes model specifications, data and methodological issues. Section 4 reveals the results and section 5 concludes the papers with summary and conclusions.

**Review of Previous Literature:** Bank-based financial sector performance has received immense attentions of the researchers over the years. Different authors have examined different aspects of the financial development in cross-country and country-based analyses. There is vast literature; however, we provide a brief review of those studies that have relevance with our study and first of all some cross-country studies are reviewed.

King and Levine (1993) [4] explore the relationship between financial development and economic growth by taking data of 119 developed and developing countries. This study uses four different bank based financial variables and concludes that financial development positively contributed to economic growth. Gregorio and Guidotti (1995) [9] make an attempt to find the relationship between financial development and economic growth with an analysis of large cross-country sample based on about 100 countries. They claim financial development positively correlated with growth but this impact varies across countries. This study further explains efficiency of

financial development matter for economic growth rather than volume. Levine *et al.* [10] uses bank specific indicators of finance and claim financial development in banking sector propels economic growth. Calderon and Liu (2003) [11] exploit pooled data of 109 industrial and developing countries for causality analysis between finance and growth. This study claims financial deepening more strongly influences economic growth of developing countries. They also explain financial development enhances economic growth with the channel of rapid capital accumulation and productivity growth and particularly latter channel is comparatively stronger. Zang and Kim (2007) [12] take the data set of Levine *et al.* (2000) [10] and apply causality test. This study claims economic growth enhances financial development.

The results of time series studies also vary from country to country. The following studies explain active role of finance for economic growth. Ahmad and Ansari (1998) [13] examine the relationship between financial intermediation and economic growth for three South Asian countries namely; Pakistan, India and Sri Lanka under bivariate framework and claims that financial intermediation enhances economic growth in Pakistan. Darrat (1999) [14] examines the relationship of financial development and growth for three Middle East countries by taking two different bank based indicators. They empirically claim that financial intermediation has key role for economic growth in these countries and more specifically this linkage is long run basis. Yang and Yi (2008) [15] examine the relationship between financial deepening and economic growth in Korea and claims that financial development causes economic growth.

Some studies demonstrate demand following role of finance. Demetriades and Hussein (1996) [16] empirically explore the relationship between financial development and growth for 16 countries including Pakistan and conclude that growth leads to finance in Pakistan. Tang (2003) [8] conducts a study by using bank credit as a proxy and reveals that economic growth propels financial development in Malaysia. Odhimambo (2008) [17] carried out a study to find dynamic causal linkage between finance and growth in Kenya and unveils that demand following hypothesis is valid in Kenya. Feedback relationship between financial development and growth is proved by some researchers in causality analysis framework. Demetriades and Luintel (1996) [18] empirically claim that financial development has potential to propel economic growth and in turn economic growth also drives financial development in India. Al-Yousif (2002) [7]

investigates the interaction of financial development and economic growth for thirty developing countries by using both panel and time series data. This study strongly defends mutual causal relationship between these two variables. Besides the above studies, some researchers also claim that finance and growth are independence. Akinboade (2000) [19] examines the relationship between financial deepening and economic growth in Tanzania by using ratio of bank deposit liabilities to nominal GNP as an indicator and concludes with the remarks that financial development and growth are independent. Handa and Khan (2008) [20] analyze this nexus by using data of thirteen countries separately in time series analysis framework. This study uses two different proxies of banking sector and claims that in Pakistan there is no relationship between these variables.

**Model Specifications, Data and Methodological Issues**

**Model Specifications and Source of Data:** To assess the association between financial development through banking sector and economic growth in Pakistan, this study formulate a model based on some vital variables. Model formulation is an upheaval task because identification of important variables is a laborious job. Afzal (2004) [21] illumines that there are numbers of variables which can affect economic development and growth of a country, such as; level of investments, human development, exports, foreign investment, stability condition of the country, monetary or fiscal stance of the country etc. Potential variables for economic growth may be country specific. It is very difficult to incorporate all such factors in a model. To initiate, this study takes the following basic production function.

$$Q = f [ L, K ] \tag{1}$$

where, Q represents output which is function of labor (L) and capital (K). The prime focus of this study is to envisage the relationship between financial development and economic growth; therefore, financial development indicator is also included in the model. As already mentioned, there is no single and agreed measure. Following Ang and McKibbin, 2007 [22], we prepare a composite indicator of financial development (IFD) with the help of Principal Component Analysis (PCA) and this composite index is based on four different measures. The impact of trade openness (TO) on economic growth has important implications. In addition to that, trade openness can also have association with financial development and economic growth through direct or

indirect ways [23]. Due to the reasons this variable should be part of the model in order to avoid any specification biasness. With the inclusion of IFD and TO variables, an expanded version of equation 1 is as under.

$$Q = f [L, K, IFD, TO] \tag{2}$$

Output (Q) variable is replaced with real per capita GDP (GROWTH). Afzal (2004) [21] argues abundant untrained and uneducated labor force is the major characteristics of most of the developing countries; therefore, human resource development (HD) variable might be a good measure instead of labor force for growth models for such countries. Education provision makes the masses more productive and in turn, the masses can pay their productive share in economic development. This study substitutes labor force variable with HD variable measured as education expenditures. We use gross fixed capital formation in private sector (PRINV) as a proxy of capital. Through financial intermediary role, banks accumulate surplus savings and channelize these into productive investments of private sector. After substitutions and replacement of above variables, the model forms:

$$GROWTH = f [HD, PRINV, IFD, TO] \tag{3}$$

Equation 3 transforms into the following econometric model for empirical estimation purpose.

$$\ln GROWTH_t = \alpha_0 + \alpha_1 \ln HD_t + \alpha_2 \ln PRINV_t + \alpha_3 IFD_t + \alpha_4 \ln TO_t + \xi_t \tag{4}$$

where, *ln* represents natural log, dependent variable of the model is GROWTH which real per capita GDP. In dependent variables, HD is measured as real education expenditure of government, PRINV is real gross fixed capital formation in private sector, IFD represents financial development index prepared through PCA with amalgamation of four measures of bank based financial development. The last variable in equation 4 is TO which is a composition of exports and imports in real form and  $\xi$  is error term and subscript 't' stands for time series data. Positive signs of all the variables are expected and all variables except IFD are in natural log form.

**Composite Financial Development Indicator:** Preparation of composite index of financial development through PCA is a prominent feature of this study. Literature on finance – growth nexus illuminates that there is no agreed

single measure of bank based finance. Keeping this in view, this study uses four different indicators of financial development. Following, Shaw (1973) [24], our first indicator is ratio of  $M_2$  to GDP. This is a monetization ratio and represents financial deepening of banking sector. Ratio of schedule banks assets to assets of schedule banks and central bank have also been used as a measure of financial development. This study also used the same as a second measure. Following Bell and Rousseau (2001) [25], we choose ratio of schedule banks assets to GDP as a third proxy. This indicator sheds light on expansion of assets of banking sector with respect to overall economy. Apart from that, some researchers used ratio of overall bank credits to GDP as a measure of financial development. But in developing countries, government sector also excessively borrows from banks and due to this reasons, this measure may not provide clear picture of bank based financial development. However, instead of the overall bank credits, ratio of bank credit to private sector to GDP has been extensively used in finance literature. Therefore, this study also uses the same variable as a fourth proxy. It is worth mentioning that all four measures are in logarithm forms. Some researchers used different indicators of finance in single model, but in this case, problem of multicollinearity and high correlations occur which can affect empirical results. Some studies applied PCA to prepare single financial development index by using different measures because formulation of this index overcome the multicollinearity problem [26]. Following them we also prepare a composite indicator of financial development with PCA approach.

This study uses annual data from 1973 to 2009. Nominal variables are converted into real form with GDP deflator. Data on GDP, private gross fixed capital formation, assets of schedule banks & State Bank of Pakistan (SBP) and GDP deflator are extracted from Handbook of statistics, SBP and various annual reports of SBP whereas data of exports, imports,  $M_2$ , private credits of banks and populations of Pakistan are gathered from various issues of Economic Survey of Pakistan, Fifty years of Pakistan Statistics, published by Federal Bureau of Statistics and Annual reports of International Financial Statistics.

### MATERIALS AND METHODS

Most of time series data contain stochastic trend which is generally called unit root. More technically non stationary data possess time variant mean and variance. There is general consensus that estimation of non stationary data with Ordinary Least Square technique produces spurious results, therefore, to handle such a

situation, certain time series econometric techniques have to be exercised. In this case, first thing is to analyze whether the concerned time series data are stationary or not. Once it is confirmed that a series has unit root then the next task is to check whether the series become stationary at first differenced or not and various unit root tests are available in literature for this purpose. Among them, Augmented Dickey Fuller (ADF) and Philips & Perron (PP) tests have been widely used in empirical literature. This study uses both these tests to assess stationarity of the data?.

Unit root analysis paves the way to decide which types of econometric methodologies have to be applied. If data are stationary at level then regression analysis is feasible. However, those data which are non-stationary at level but stationary at first difference may share common trends [27]. They devised cointegration test to find long run relationship between non stationary data. Ender (2004) [28] explains that test is based on two steps and this is the one of the major drawback of this test. If the error occurs at first stage, then that error contaminates the results of second stage. Johansen & Juselius (1990) [29] proposed a test which is based on maximum likelihood technique for cointegration analysis. This test overcomes the demerits of above mentioned cointegration test. This study uses Johansen cointegration test to find long run relation in the model. Brief details of this test are as under:

**Consider:**

$$\Delta Y_t = \Pi Y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Y_{t-i} + \varepsilon_t \quad (5)$$

where,

$$\Pi = -(I - \sum_{i=1}^{p-1} A_i) \quad (6)$$

$$\Gamma_i = - \sum_{j=i+1}^p A_j \quad (7)$$

Information about long run relationship among variables is available in the matrix  $\Pi$  which can be sorted through rank(s) analysis. In this cointegration technique the ranks are identified with the value of LR test based on the trace statistics and maximum eigen value.

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^k \ln(1 - \hat{\lambda}_i) \quad (8)$$

$$\lambda_{max}(r, r+1) = -T \sum_{i=r+1}^k \ln(1 - \hat{\lambda}_{r+1}) \quad (9)$$

During this analysis process the following three types of situation can be faced i.e. if rank (r) = n then all variables in Y are I(0), if rank (r) = 0; no co-integration exists and if rank (r) ≤ (n-1) then the conclusion is that there are (n-1) cointegration relationships. This process confirms whether cointegration among the variables exists or not? If cointegration exists among the variables then long run and short run analyses can be made in VECM framework. However, if cointegration does not prevail then first differenced VAR or equations can be used for further analysis.

**Empirical Results:** Before estimation of the model, we prepare a composite index through PCA by using the information of above mentioned four indicators of financial development. The results of this analysis are presented at Table 1. First part of this table shows that details of percentage share of four principal components which unveils that first principal component captures 82.4 percent variation in four indicators whereas second principal component contains on only 11.3 percent variation.

Details about share of four financial development indicators in variance are available at second part of Table 1. It is evident that all indicators pay almost equal share in variance of first principal component which is almost around one fourth of each. Following, Huang, (2006) [26], this study uses first principal component as an index of overall financial development in banking sector.

After ascertaining the issue of financial development indicator, unit root tests have been carried out. This study applies ADF and PP tests and the results of these tests are given at Table 2. It is evident from ADF test that all the variables are non-stationary at level for both constant and constant with trend cases. Though, this test casts doubt about the issues of HD variable but PP test resolves this issue and non-stationarity of the all variables is confirmed from latter test. However, both these tests illuminate that all the variables are stationary at first difference which shows that all are integrated at level one - I(1). These findings pave the way for examining long run relationship through cointegration analysis.

Johansen cointegration demands an appropriate lag length at which this test is to be applied. Selection of lag length of VAR should be through certain lag selection criteria in order to have parsimonious model. Four different criteria – SIC, FPE, HQ & AIC, illustrate lag 1 for unrestricted VAR. It is also equally important that the selected VAR should be free from autocorrelations etc., therefore, this study exercises LM test for autocorrelation,

Jarque Bera test for normality of residuals and White test for heteroskedasticity. All these tests confirm that selected model is free from any types of such problems. To find out rank(s),  $\lambda_{trace}$  and  $\lambda_{max}$  tests are applied and results of these tests are mentioned at Table 3. This table depicts one cointegration vector in the model because first null hypothesis of no rank is rejected by  $\lambda_{trace}$  and  $\lambda_{max}$  tests at 1 percent & 5 percent significant level respectively. However, second null hypothesis is not rejected even at 10% level of significance by both these tests. This particular analysis guides us that there is one cointegration vector which contain long run relation, hence, normalized cointegration equation is given below.

$$\begin{aligned} \ln\text{GROWTH} &= 13.22 + 0.171 \ln\text{HD} + 0.390 \ln\text{PRINV} + 0.026 \\ \text{IFD} &- 0.770 \ln\text{TO} \quad (10) \\ t\text{-stat} &(-3.14) (-4.63) (-3.06) (6.04) \end{aligned}$$

The results of equation-10 illumine that all the variables of the model are significant as is evident from t-stat values. Human resource development exerts positive impact on economic growth as priori expected. Private investment variable also significant and contain positive sign which shows beneficial role of this variable for economic growth of this country. Financial development indicator is nucleus variable of the model and this equation explains that financial development beneficial for economic growth. Though its impact for economic growth is low as compare to other variables of the model but highly significant which confirm the importance financial development for this country. This findings consistent with the results of Yang and Yi [15]. Last variable is trade openness and it contain negative sign and also significant. To confirm appropriateness of cointegration relation, a graph of this relation which is presented at Appendix -1 and this graph confirm suitability of this relationship.

Weakly exogenous analysis is based on the binding restriction on speed of adjustment ( $\alpha$ ) of the concerned variables and the results of this analysis are presented at Table 4. This analysis helps to assess which variable(s) pay its role into error correction process. It reveals that null hypotheses of weak exogeneity of economic growth and trade openness variables are rejected at 10 percent and 1 percent respectively, therefore, it can be concluded that these variables are endogenous whereas remaining other three variables are exogenous in the system. Apart from that, loading factors of both variables contain correct negative signs. This analysis confirms that financial development enhance economic growth in the long run

Table 1: Results of PCA

PCs (Nos.)	Eigenvalues	Var. Proportion	Cum Values	Cum. Proportion
1	3.298	0.824	3.298	0.824
2	0.452	0.113	3.750	0.937
3	0.189	0.047	3.939	0.985
4	0.061	0.015	4.000	1.000
Measures	First PC	Second PC	Third PC	Fourth PC
BCBA	0.4872	-0.6568	0.1225	0.5623
BA	0.5304	-0.1915	0.3329	-0.7558
BC	0.5084	0.1710	-0.8420	-0.0574
M2	0.4720	0.7090	0.4065	0.3307

Note: BCBA, BA, BC & M2 are logarithm of ratios of schedule bank assets to banks and SBP assets, schedule bank assets to GDP, bank credit to private sector to GDP and M2 to GDP respectively

Table 2: Results of Unit Roots Test

Variable	ADF test		PP test	
	$\tau_\mu$	$\tau_\tau$	$Z(t_\mu)$	$Z(t_\tau)$
<i>ln</i> GROWTH	0.0818 (0.960)	-2.2670 (0.440)	0.0818 (0.960)	-1.9406 (0.613)
<i>ln</i> HD	-0.5742 (0.863)	-3.4604 (0.061)	-0.2793 (0.918)	-1.8337 (0.667)
<i>ln</i> PRINV	-0.3888 (0.901)	-3.0522 (0.133)	-0.1741 (0.933)	-3.0522 (0.1329)
IFD	-2.0969 (0.247)	-2.6700 (0.254)	-1.6262 (0.449)	-2.1058 (0.525)
<i>ln</i> TO	-0.6346 (0.850)	-2.6832 (0.249)	-0.8263 (0.780)	-2.5505 (0.304)
$\Delta$ <i>ln</i> GROWTH	-4.4237 (0.001)	-4.3836 (0.007)	-4.4441 <sup>a</sup> (0.001)	-4.4064 <sup>a</sup> (0.007)
$\Delta$ <i>ln</i> HD	-3.1058 (0.036)	-3.0245 (0.141)	-5.1617 <sup>a</sup> (0.000)	-5.0896 <sup>a</sup> (0.001)
$\Delta$ <i>ln</i> PRINV	-7.3949 (0.000)	-7.2538 (0.000)	-9.0627 <sup>a</sup> (0.000)	-9.1905 <sup>a</sup> (0.000)
$\Delta$ IFD	-5.1970 (0.000)	-5.0704 (0.001)	-3.6280 <sup>b</sup> (0.010)	-3.377 <sup>c</sup> (0.071)
$\Delta$ <i>ln</i> TO	-5.0358 (0.000)	-4.9395 (0.002)	-5.8224 <sup>a</sup> (0.000)	-5.6529 <sup>a</sup> (0.000)

Note: i).  $\tau_\mu$ ,  $Z(t_\mu)$  &  $\tau_\tau$ ,  $Z(t_\tau)$  stand for only with constant and with constant and linear trend respectively.

ii). <sup>a</sup>, <sup>b</sup> & <sup>c</sup> denoted for 1%, 5% 10% level of significance respectively.

Table 3: Johansen Cointegration Test

$H_0$	$H_1$	Trace Statistic Value	5% C.V.	$H_0$	$H_1$	Max Eigen Value	5% C.V.
$r = 0$	$r \geq 1$	98.893 <sup>a</sup>	88.803	$r = 0$	$r = 1$	41.155 <sup>b</sup>	38.331
$r \leq 1$	$r \geq 2$	57.738	63.876	$r \leq 1$	$r = 2$	22.400	32.118
$r \leq 2$	$r \geq 3$	35.337	42.915	$r \leq 2$	$r = 3$	17.733	25.823
$r \leq 3$	$r \geq 4$	17.603	25.872	$r \leq 3$	$r = 4$	12.601	19.387
$r \leq 4$	$r \geq 5$	5.0023	12.518	$r \leq 4$	$r = 5$	5.0023	12.518

Note: <sup>a</sup>, <sup>b</sup> represents null hypothesis is rejected at the 1% & 5% level of significance respectively.

Table 4: Weak Exogeneity Analysis

Variables	LR Stat- $\chi^2$	P-Value	Conclusion	Value of $\alpha$
<i>ln</i> GROWTH	2.77	0.095	Endogenous	-0.133 (-1.816)
<i>ln</i> HD	1.87	0.171	Exogenous	0
<i>ln</i> PRINV	0.06	0.806	Exogenous	0
IFD	0.18	0.675	Exogenous	0
<i>ln</i> TO	15.24	0.000	Endogenous	-1.217 (-5.215)

Note: *t*-Stat values are parenthesis of the respective variables.

Table 5: Wald Test Restriction Based Short Run Causality

Dependent Variable	$\Delta$ <i>ln</i> GROWTH	$\Delta$ <i>ln</i> HD	$\Delta$ <i>ln</i> PRINV	$\Delta$ IFD	$\Delta$ <i>ln</i> TO
$\Delta$ <i>ln</i> GROWTH	-	0.006(0.937)	0.425 (0.515)	0.063 (0.802)	14.453 <sup>a</sup> (0.000)
$\Delta$ <i>ln</i> HD	0.498 (0.480)	-	0.790 (0.374)	0.040 (0.842)	3.179 <sup>c</sup> (0.075)
$\Delta$ <i>ln</i> PRINV	0.475 (0.491)	0.225 (0.635)	-	3.469 <sup>c</sup> (0.063)	4.959 <sup>b</sup> (0.026)
$\Delta$ IFD	0.869 (0.351)	7.771 <sup>a</sup> (0.005)	0.158 (0.691)	-	2.066 (0.151)
$\Delta$ <i>ln</i> TO	0.596 (0.440)	0.050 (0.823)	0.934(0.334)	0.008 (0.931)	-

Note: i). Wald Test Chi-square values are without parentheses whereas parentheses contain p-values.

ii). <sup>a</sup>, <sup>b</sup> & <sup>c</sup> denote for Significant level at 1%, 5% and 10% respectively

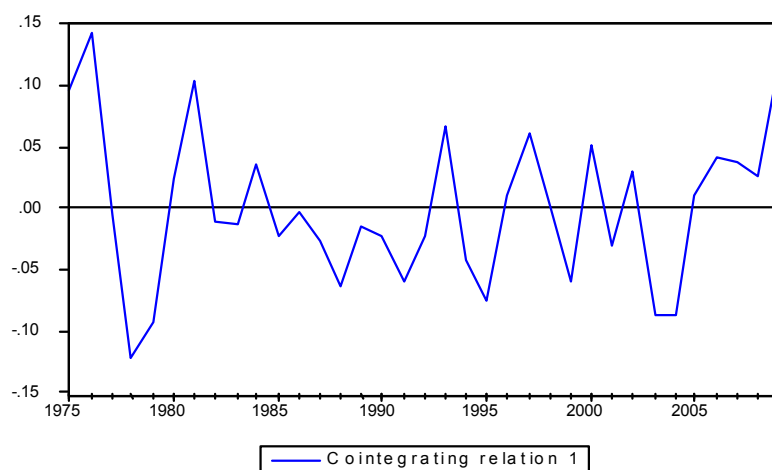


Fig. 1: Cointegration relation

because loading factor of economic growth variable is endogenous whereas reverse long run causality does not exist as loading factor of financial development is marked as exogenous. However, long run bidirectional causality between trade openness and economic growth exists as loading factors of both these variables are endogenous.

To check the robustness of the VECM findings, certain diagnostic tests are also applied. For autocorrelation analysis, LM test is exercised and this test confirms that the model is free from autocorrelations. The results of White test claims heteroskedasticity does not exist because the null hypothesis of no heteroskedasticity can't be rejected even at 10 percent significant level. Jarque-Bera test explains that normality in residual prevails because in this case, null hypothesis of normality is also not rejected at 10% level of significance. With the findings of these diagnostic tests, we safely arrive on this conclusion that the results of selected VECM model are robust.

Besides long run relationship between finance-growth in this country, this study also analyzes short run causality and the results of this analysis are given at Table 5. It has been observed that there are unidirectional short run causalities from economic growth, human resource development and private investment to trade openness. Private investment causes financial development which shows that in the short run demand of private investment propels bank based financial development. Another one sided causality exists from financial development to human resource development. It is worth noting that no evidence of short-run causal linkage between financial development and economic growth which elucidates that both these variables are

independent in the short-run. In sum, it can be concluded from the empirical analysis that financial development propels economic growth of this country in the long-run.

## CONCLUSION

The prime aim of this study is to envisage the association between financial development and economic growth of Pakistan. This analysis paves the ways for important policy implications. Supply leading role of financial development illuminates the need of further liberalization in financial sector and demand following role of finance guide to take measures for further growth enhancing policies. To meet the objective of this study, annual time series data from 1973 to 2009 are used. There is no consensus about the indicator of financial development and different studies used more than one measures. In recent literature, preparation of composite index is in vogue which contains underpinning information of more than one indicators of financial development. This study also constructed such an index with the help of principal component analysis by taking four measures of bank based financial development. Multivariate model is formulated and Johansen cointegration approach is applied to find the answer about the said issue. It is found that one cointegration vector exists in the model which carries long run information. This study claims that bank based financial development exerts positive impact on economic growth in the long-run. The results of dynamic short run causality analysis explains that although causal links among other variables exist but there is no short run causality between financial development and economic growth in Pakistan.

In broad conclusions, this study claims that supply leading role of finance exist which propels economic growth of this country in the long run. Considering active role of bank based financial development for economic growth of Pakistan, financial reforms process needs to be continued in order to further strengthen financial intermediary role of bank which ultimately beneficial for economic growth of this country.

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