Financially Intermediated Growth in Developing Economies: Evidence from the Pakistani Economy

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Abstract

This research investigates the financially intermediated growth in Pakistani economy. The study utilizes the chronological literary developments in the area of financial intermediation and growth and attempts to empirically verify the linkage using Auto Regressive Distributive Lag (ARDL) Approach. It investigates the empirical evidence of linkage between financial intermediators and growth of economy in short and long term. Alongside this, the Granger Causality tests were utilized for the lead-lag relationship in the study. The results indicate that financial intermediation indicators and economic growth do not find any significant influence in the Pakistani long run case. The model utilized for the study was stable and statistically fit. However; the variables did not find any significant relation with growth. While in the shorter version, the variable of Bank Credit to Bank Deposit was statistically significant. The structural dummy of financial liberalization was found statistically insignificant. Lastly, the causality tests reflect the presence of a uni-directional relationship running from growth towards financial intermediation indicators. Thus, the financially intermediated economic growth stays a myth for the low income and developing Pakistani economy.

Keywords*:* Financial Intermediaries, Intermediated Financing, Financial Liberalization, Economic Growth

Introduction

The financial sector in actual fact provides an indisputable service for any economy. All developed economic units have superior systems of intermediation and they have these systems structurally diversified. The emerging economies need to improve their financial systems and customize it for utilization as a catalyst to boost economic growth. Pakistan needs to utilize its financial infrastructure better to mobilize funds for economic growth. We can take lessons from the developed economies. The U.S Financial System, which has been identified as Market Based System in literature, has focused on Capital market intermediation. The absence of a relatively less rooted banking system in the U.S has been attributed to the regulatory and legal regulations passed in the U.S. The McFadden Act (1927) banned inter-state banking. This had in point of fact stopped banks to operate in a single state resulting in affecting banking (Rajan & Ramcharan 2011). The Glass-Steagall Act (1934) legally separated commercial and investment banks (Kroszner & Rajan 1994).

Diversified financial systems have been operational in different countries. The empirical evidence identified in literature provides support both for the prevalence of Market and the Bank originated systems. The bank originated systems have been focused upon frequently by emerging economies for outburst growth. Policymakers in these economies cite examples of Germany and Japan having a bank-based financial system (Vitols, 2005). This has been accredited to the ability of the banking system to accelerate economic growth. The role of financial intermediaries, the institutions in the financial arena and contracts obtainable, offer

prospects to the participants to transfigure growth at all three tiers of firm, industry and economy.

Levine, Loayza & Beck (1999) raised some critical questions. Do better functioning intermediaries ameliorate information asymmetries and facilitate transactions to exert a fundamental pressure on economic growth? Educational research identifies links to the works of Leland & Pyle (1977) for position of intermediaries in economic growth. Pakistan has seen many significant incidents which has been an impediment in its growth. Amongst the few highlights, we can consider Pakistan's controversial role in war on terror, arguably corrupt governmental regimes, military involvement, influences of non-democratic forces in policy making (foreign influences) and many more. The presence of a regulatory framework having potential to address the financial market needs, require more consistent and effective implementation. This paper attempts to identify the empirical statistics and inferences can be drawn on these basis regarding the relationship that exists in financial intermediation variables and growth of economy in Pakistan.

The research aims to study the influence of macroeconomic financial intermediation on economic growth. It provides empirical evidence of the long term and short term influence of macroeconomic intermediation on the growth in Pakistan. The study also tries to identify the lead lag connection among financial intermediation indicators and growth in economy. It also attempts to provide evidence of whether the structural change of financial liberalization after 1990's influenced the economic growth pattern in Pakistan. Thus the study has great significance for the Pakistani economy.

The banking sector plays a pivotal role as it assists in activation of savings from savers, and distribution of funds for industrious uses. Jaffe & Levonian (2001) and research from Wachtel (2001) identify banks being important for efficient allocation of funds and generation of economic activities. Cameron, Patrick & Crisp (1967) state that an efficient financial system can result in the economy to grow at a rapid pace. Economic managers thus devise such policies which enables the presence of a level field for banks.

The financial landscape of Pakistani banking sector had changed significantly in the mid 70's with the nationalization of commercial level banking institutions. Besides this nationalization, origination of subsidized loan schemes, beginning of a composite system of credit limits, and the obligation to control interbank rates were the dominant variations. Governmental intrusion in the business affairs of banks was also observed. National banks were instructed to have room for firstly the government and its institutions while the needs of the private sector, which is the engine of economic growth, it was met hardly ever.

Due to the above mentioned change in the financial landscape of Pakistan, the banking efficiency was affected. By the end 80's, the banking sector had become hardly favorable to meet rising financial needs. According to Bonaccorsi & Hardy (2005), the position of government banks, state-owned/sponsored schemes for different specified sectors, elevated domestic level borrowings by the state, and a directorially restricted structure, contributed to financial domination. To decrease the unpleasant impact, the formula of financial reforms was necessary. Hence, to sufficiently react to

deprived performance of financial sector, a complete restructuring plan was started in early 90s.

The objectives of the financial reforms of 1990's include; the facilitation of the efficient and effective monetary management through introduction of non-direct monetary controls; removal of distortions and segmentation of financial markets by creation of a homogenous market for participation of all individuals and institutions; encourage the development of the secondary market for short as well as long run; and reduction of transaction costs.

Thus this study is beneficial for the policy regulators of growing economies to utilize the empirical evidence and restructure their financial policies for a rapid growth of economy. Therefore this study has great significance for emerging economies.

The study is limited to the empirical evidence from Pakistan. It takes into consideration two phases of the financial timeline i.e. Pre-liberalization phase (before 1990) and Post-liberalization phase (post 1990). The time horizon of the study ranges from 1970 to 2015.

Review of Literature

The text regarding the relationship of financial intermediaries and macro level growth can be tracked to Schumpeter (1911) stating that a good system encourages technical innovations resulting in the growth of economies. The regulatory reforms in the country regarding improvement of its financial systems help to extract benefits in terms of raised levels of economic growth. Academic research around the world can be traced frequently in the last quarter of the 20th century as well as the 1st decade of the 21st century.

Mckinnon (1973) and Shaw (1973) state that financial intermediaries' development lead towards economic growth. The

works of Brealey, Leland & Pyle (1977) propose that an intermediary removes information asymmetries and better allocating funds. Miller (1986) acknowledges the precedence of financial innovations altering the canvas of financial markets and providing medium for economic expansion. The research by Greenwood & Jovanovic (1990) and the research works by Bencivenga & Smith (1991) explicitly model the services provided by intermediaries. These models provide the evidence of positive linkages of financial intermediaries with economic growth. King & Levine (1993) identified existence of a negative effect of government intervention on relationship between financial intermediation and economic intensification. This shall also be empirically investigated during the present study. In the Pakistani context, the research in this area needs to be explored since the political setup has been an ever changing dynamic portrayal due to intervention by dictatorial regimes and fragmented policy making.

The 21st century literature addresses the causality issues as well. Levine (2005) finds the evidence that growth in the economy is not based type of financial system, rather on the ability of the system to carry out its functions productively. Levine (1997; 2005), research works by Trew (2006), and the evidence provided by Demirguc-Kunt & Levine (2008) provide substantiation of functions of financial intermediation in growth at the economic level. Badun (2009) also provide a confirmation of the linkage between intermediation and growth. Ewah et al. (2009) investigated the relationship between the capital market efficiency and economic growth in Nigeria.

Chee & Nair (2010) used data from 44 Asia and Oceania countries for the study on financial sector development on economic growth. Waheed & Younus (2010) investigated the effects of

financial sector development and its efficiency on economic growth from developing and developed countries.

Ahmed & Wahid (2011) investigated the financial structure and economic growth link in African countries. Mahran (2012) employed an autoregressive distributed lag methods and the error correction model (ECM) to study financial intermediation and economic growth in Saudi Arabia. Ali (2013) investigated the long run and short run linkages between economic growth and financial development in Sudan employing Autoregressive Distributive Lag (ARDL) techniques.

Peia & Roszbach (2013) re-examines the empirical relationship between financial development and economic growth in 26 countries. It is concluded that the leading role of financial intermediation in industrialized countries appears to vanish when we consider a period in which the financial sector has developed extensively. Arabi (2014) employed Johansen approach to cointegration and vector error correction Model to examine the dynamic relationship between economic growth and financial development in Sudan.

Pradhan et al. (2014) employed the panel vector autoregressive model to investigate the causal relationship between banking sector, stock market development and economic growth in 26 ASEAN Countries. Sahoo (2014) used ARDL and Granger causality approach to examining the role of financial intermediation in Indian economic development from 1982-2012.

Ayadi et al. (2015) explored the impact of financial development, bank efficiency, on economic growth across the Mediterranean using Fixed-effect panel model from 1985–2009.

A tabulated evidence of the relevant literature is provided below in Table 1 (A):

Table 1 (A). *Tabulated Evidence of the Relevant Literature*

Author	*Research Method*	*Financial Indicators*	*Finding*
De Gregorio & Guidotti (1995)	Panel analysis Cross-section analysis	Bank Private Credit to GDP	Constructive linkage between intermediation and country growth. It changes in accordance to demographics, time spans, and levels of revenue.
Berthelemy & Varoudakis (1996)	Cross-section analysis	Money + quasi-money to GDP	Financial underdevelopment is a hurdle for countries with high human capital.
Odedokun (1996)	Time-series data analysis	Credit issued to private sector divided by GDP	Intermediaries promote growth across countries and regions.
Ram (1999)	Correlation and time-series	Liquid liabilities to GDP	No assertion can be made that financial development has a constructive outcome on economy.
Deidda & Fattouh (2002)	Cross-section analysis	Ratio of liquid liabilities to GDP	In countries with low level of income, there is insignificant relationship of financial enhancement and growth.
Koivu (2002)	Panel data base analysis	Private Credit to GDP Interest rate margin	There is no significant between private sector credit and growth in economy. The causality goes from the growth of economy to financial growth.
Calderon & Liu (2003)	Panel data base analysis	Private Sector Credit to GDP M2 to GDP	Financial deepening throws in additionally to connection in the developing countries
Favara (2003)	GMM panel analysis	Liquid liabilities/GDP Private sector credit/GDP	The association of financial expansion and growth in economy is feeble and not linear.
Christopoulos & Tsionas (2004)	Dynamic panel analysis	Bank deposits to GDP	Causality in long-run goes from development of financial system to growth.

Rioja & Valev (2004)	Dynamic panel analysis	Commercial bank to central bank loans Liquid Liabilities to GDP Private Credit to GDP	Countries having lower development in financial aspects do not have a clear outcome on growth. There are positive or nonexistent linkages.
Shan (2005)	Time-series data base analysis	Total Loan Credit to GDP	There exists little proof of development of financially led growth.
Demetriades & Law (2006)	Cross-country; Panel analysis	Private Loans to GDP Domestic loans by banks to GDP Liquid Liabilities to GDP	Enhancement in financial institutions helps deliver more expansion benefits in middle-income economies.
Fang et al. (2011)	Cross-section and panel analysis	Private Credit M3-M1 Liquid Liabilities to GDP	Historically there is a weak linkage between intermediation and growth. The effect of financial depth has disappeared.
Beck et al. (2008)	Comparative cross regressions	Enterprise Loans to GDP Household Loans to GDP Bank Loans to GDP	Lending to enterprises drives the constructive impact in the economy. The finance-growth relationship is not linear.

Source: *Compiled by the authors*

In comparison to past, the presence of a powerful institutional framework in practice enables the borrowers and savers to financially intermediate. The role of government may however not be ignored as it provides this regulatory framework. On the other hand, the Pakistani government is also involved in heavy deficit financing which curtails the lending power of the financial intermediaries. Literary evidence in Paksitani context can be obtained from the

works of Shabbir (1997) who conducted cross-country theoretical evidence. Hashmi & Haider (2012) address the need for theoretical and empirical evidence comparing the U.S, U.K, and the Pakistani real sector growth. The Pakistani economy having a history aging approximately 67 years has observed several chapters in its financial systems. 50's and 60's observed the nurturing of Developmental Financial Institutions (DFIs). While in the 80's and 90's a plethora of these institutions faced quandaries due to pitiable management and deprived financial reserves. While 2008 henceforth, there has been decrementing trend in the authentic and financial markets of Pakistan. Lamentable security conditions, considerable rise in CPI and manufacturing items, budding inhabitants power calamity, the worldwide monetary disorder and unstable political circumstances have affected Pakistani economy. The study presents its readers the hypothesis that there is a paramount impact of financial intermediation variables on the economic magnification in Pakistan which has observed several impediments in its magnification.

A literary reading for the current study includes (Rousseau & Wachtel, 1998), (King & Levine, 1993), (Bencivenga & Smith, 1991), (Greenwood & Jovanovic, 1990), (Gurley & Shaw, 1955), (Jung, 1986) and others. The current study accounts for the long and the short run effects of the financial intermediation on the economy. It focuses on advanced dynamic modeling techniques to observe the effects of intermediation at the macroeconomic level and its relative implications for the expansion of economy.

Data Description and Methodology

This section discusses the methodology utilized in the paper. Literature identifies that Mukherjee & Naka (1995) and Zhao (1999)

uses VECM to examine the affiliation amongst the proxies in long run. While, in the Pakistani context, VECM has been utilized by Nishat et al. (2004) and Hussain & Mahmood (2001) to explore the longer version causal relationship. The study by Mishra (2004) examines the long-run vibrant relationship by employing the VAR Model. This research additionally utilizes the causality to study the direction of the relationships using Granger Causality Technique. This paper utilizes the technique used by Akmal (2007) who investigates the relationship by utilizing the ARDL technique to study cointegration

This study investigates the long-term dynamic interaction between the Economic Magnification and Macroeconomic financial Intermediation variables by employing annual data 1970 to 2015. The macroeconomic financial intermediation variables used include the following as a proxy for the representation of financial intermediation at the macroeconomic level. These are generic in nature and frequently used in literature. The Bank Credit to Bank Deposit (BCTOBD), Central Bank Assets to GDP (CBATOGDP), Bank Private Credit to GDP (BPCTOGDP), Bank Deposit to GDP (BDTOGDP), Liquid Liabilities to GDP (LLTOGDP) and Deposit Money Bank Assets to GDP (DMBATOGDP). For the endogenous variable i.e. economic growth, GDP Per Capita has been utilized, this gives a more compact description of growth in the economy.

To examine the relationship among indicators of financial intermediation and economic growth, the below identified model has been used:

$$\text{Ln GDPPERCAP}_t = \propto_0 + \propto_1 \text{LnBCTOBD}_t + \propto_2 \text{LnBDTOGDP}_t + \propto_3 \text{LnBPCTOGDP}_t + \propto_4 \text{LnCBATOGDP}_t + \propto_5 \text{DMBATOGDP}_t + \propto_6 \text{LLTOGDP}_t + \propto_7 \text{Dummy}_t + \mu_t \ldots\ldots\text{Equation (1)}$$

GDPPERCAP = Gross Domestic product Per capita

BDTOGDP = Bank Deposit to GDP

BCTOBD	=	Bank Credit to Bank Deposit
BPCTOGDP	=	Bank Private Credit to GDP
CBATOGDP	=	Central Bank Assets to GDP
LLTOGDP	=	Liquid Liabilities to GDP
DMBATOGDP	=	Deposit Money Bank Assets to GDP
Dummy	=	Structural Dummy for Financial Liberalization
	D=0	(Pre Liberalization Phase 1970-1990)
	D=1	(Post Liberalization Phase 1991-2015)

The widely used methods to study the long run relationships among time series data include Engle & Yoo (1987) test, Phillips & Hansen (1990) test and Johansen (1988, 1991). Due to the problems with these tests, ARDL approach to observe the effect of cointegration has become accepted. This research uses ARDL following Pesaran & Shin (1996).

Firstly unit root is tested as identified by Ouattara (2004) then other investigative tests are used to detect for autocorrelation, Heteroscedasticity and normality of data but none of these econometric issues are found significantly influencing the data set.

The data is found I(0) and I(1) therefore the approach of ARDL to co-integration is applied.

An ARDL representation equation is as below:

$$\text{Ln GDPPERCAP}_t = \propto_0 + \Sigma \propto_i \text{Ln GDPPERCAP}_{t-1} + \Sigma \propto_i \text{Ln BCTOBD}_{t-1} + \Sigma \propto_i \text{Ln BPCTOGDP}_{t-1} + \Sigma \propto_i \text{Ln CBATOGDP}_{t-1} + \Sigma \propto_i \text{LnDBMATOGDP}_{t-1} + \Sigma \propto_i \text{LnLLTOGDP}_{t-1} + \Sigma \propto_i \text{LnLLTOGDP}_{t-1} + \Sigma \propto_i \text{DUMMY} + \mu_t \quad \text{(Equation 2)}$$

The third stage entails the estimation of ECM. It determines the velocity of modification of proceeds to symmetry.

$$\Delta \text{ LnGDPPERCAP}_t = \beta_0 + \Sigma \beta_i \Delta\text{LnBCTOBD}_{t-1} + \Sigma \lambda i \Delta\text{LnBPCTOGDP}_{t-1} + \Sigma \delta_i \Delta\text{LnCBATOGDP}_{t-1} + \Sigma \varphi_i \Delta\text{LnDBMATOGDP}_{t-1} + \Sigma \eta_i \Delta\text{LnLLTOGDP}_{t-1} + \Sigma \gamma_i \Delta\text{LnLLTOGDP}_{t-1} + \Sigma \zeta_i \text{DUMMY} + \text{ECM} + \mu_t \quad \text{(Equation 3)}$$

Lastly, the steadiness of short and the long term coefficients are analyzed by utilizing CUSUM and CUSUMSQ tests.

Empirical Results

The Table 1(B) informs about the results of unit root test utilized to verify the order of integration. The ADF and PP Test have been used. It inspects the incidence of a unit root.

Table 1(B). *Unit Root Analysis* using *ADF Test Statistics*

Variable	*Description*	*t-statistics*	
		AT LEVEL [I(0)]	AT FIRST DIFFERENCE [I(1)]
BCTOBD	Bank Credit to Bank Deposit	-0.406039	-6.71229
BDTOGDP	Bank Deposit to GDP	-3.353685	-16.39774
DMBATOGDP	Deposit Money Bank Assets to GDP	-3.257147	-5.777768
BPCTOGDP	Bank Private Credit to GDP	-3.910964	-4.028953
CBATOGDP	Central Bank Assets to GDP	-1.702931	-5.80198
LLTOGDP	Liquid Liabilities to GDP	-2.880593	-4.951333
GDPPERCAP	GDP Per Capita	2.970526	-4.978281
Test Critical Values			
5 % LEVEL		-2.921175	-2.922449

Table 1(B) shows that 4 series are stationary at I (0). At the first difference i.e. I (1), further 3 series become stationary. Then the causal association among the macroeconomic variables is examined by employing ARDL technique. Then the duration of lag is identified. Lag length criteria and test values are given in Table 2 (A) and 2 (B).

Table 2(A). *Lag Length Selection*

Lag	*AIC*	*SC*	*HQ*
0	13.82213	13.86074	13.83678
1	9.822597*	9.899814*	9.851893*
2	9.849326	9.965151	9.89327

Table 2(B). *Diagnostic Tests*

Test Statistic	*LM Version*	*F Version*
A. Serial Correlation	CHSQ (1) = 1.199 [0.274]	F (1,33) = 0.924 [0.343]
B. Functional Form	CHSQ (1) = 2.946 [0.086]	F (1,33) = 2.368 [0.133]
C. Normality	CHSQ (2) = 16.559 [0.274]	Not Applicable
D. Hetroscedasticity	CHSQ (1) = 0.0418 [0.838]	F (1,42) = 0.040 [0.843]

Above results show that there is no econometric problems of autocorrelation, functional form, conflict to normal distribution and Heteroscedasticity.

Table 3 exhibits results of Auto Regressive Distributed Lag Model based on Schwarz Bayesian Criterion.

Table 3. *Autoregressive Distributed Lag Estimates (1,1,0,1,0,0,0,0) on Schwarz Criterion*
Dependent is LNGDP

Regressor	*Coefficient*	*Standard Error*	*T-Ratio [Prob.]*
LNGDP (-1)	0.678	0.163	4.140 [0.000]
LNBD	-0.689	0.403	-1.707 [0.097]
LNBD (-1)	0.540	0.248	2.173 [0.037]
LNBPC	-0.563	0.395	-1.424 [0.164]
LNDMBA	-0.478	0.341	-1.400 [0.171]
LNDBMA(-1)	0.903	0.303	2.976 [0.005]
LNBCTOBD	0.703	0.251	2.801 [0.008]
LNCBA	-0.106	0.091	-1.175 [0.248]
LNLL	-0.061	0.293	-0.211 [0.834]
Structural Dummy	0.029	0.028	1.032 [0.309]
R-Squared	0.395	R-Bar-Squared	0.235
S.E of Regression	0.097	F-Stat F[9,34]	2.471 [0.027]
Mean of Dependent Variable	0.051	S.D of Dependent Variable	0.111
Residual Sum of Squares	0.320	Equation Log Liklihood	45.917
Akaike Info. Criterion	35.917	Schwarz Bayesian Criterion	26.996
DW-Statistic	2.172	Durbin's h-statistic	*NONE*

The results of co-integration reflect that the computed F is 2.471 thus co-integration is present. Table 3 shows that financial intermediation significantly explicate magnification in the Pakistani economy. The R-Bar-Squared is 0.395 which betokens the presence of high quantity of sodality among variables. F statistics is withal having paramountcy at 0.05 designating overall fit.

Table 4 exhibits the analysis of long term coefficients utilizing ARDL. Results designate to none of the variables show a consequential long run effect on economic magnification in Pakistan.

Table 4. *Long Run Coefficient using ARDL (1,1,0,1,0,0,0,0) selected based on Schwarz Bayesian Criterion*
Dependent LNGDP

Regressor	*Coefficient*	*Standard Error*	*T-Ratio [Prob.]*
LNBD	-0.462	1.297	-0.356 [0.724]
LNBPC	-1.747	1.611	-1.085 [0.286]
LNDMBA	1.318	1.692	-0.779 [0.441]
LNBCTOBD	2.181	1.458	4.496 [0.014]
LNCBA	-0.329	0.322	-1.023 [0.314]
LNLL	-0.192	0.920	-0.209 [0.836]
Structural Dummy	0.091	0.088	1.033 [0.309]

Adjustment of above association is detailed in the table below which captures the shorter aspects of connection.

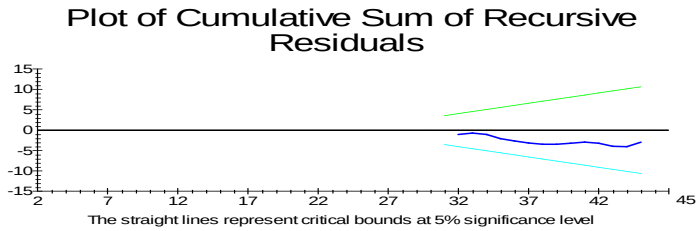
Table 5. *Adjustment Representation for ARDL Model, ARDL (1,1,0,1,0,0,0,0) based on Schwarz Criterion*
Dependent is dLNGDP

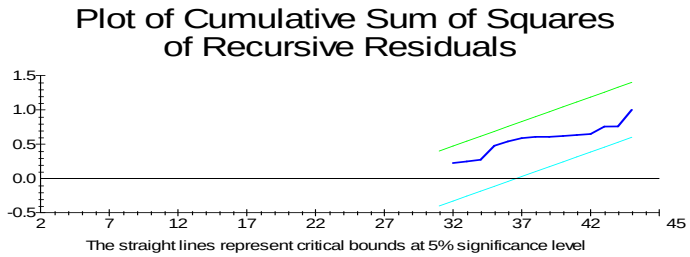
Regressor	*Coefficient*	*Standard Error*	*T-Ratio [Prob.]*
dLNBD	-0.689	0.404	-1.707 [0.096]
dLNBPC	-0.563	0.395	-1.424 [0.163]
dLNDMBA	0.478	0.342	-1.399 [0.170]
dLNBCTOBD	0.703	0.251	2.801 [0.008]
dLNCBA	-0.106	0.091	-1.174 [0.248]
dLNLL	-0.061	0.293	-0.211 [0.834]
dStructural Dummy	0.029	0.028	1.032 [0.309]
ECM(-1)	-0.322	0.164	-1.970 [0.047]
R-Squared	0.641	R-Bar-Squared	0.546
S.E of Regression	0.097	F-Stat F[7,36]	8.666 [0.000]
Mean of Dependent Variable	0.001	S.D of Dependent Variable	0.144
Residual Sum of Squares	0.320	Equation Log Liklihood	45.917
Akaike Info. Criterion	35.917	Schwarz Bayesian Criterion	26.996
DW-Statistic	2.172		

ECM = LNGDP + 0.46206*LNBD + 1.7473*LNBPC - 1.3183*LNDMBA - 2.1813*LNBCTOBD + 0.32991*LNCBA + 0.19184*LNLL - 0.091168*SD …… (Equation 4)

The adjustment model predicated upon ARDL establishes that adjustment in only BCTOBD Bank Credit to Bank Deposit has consequential short term effect. The coefficient of ECM(-1) reflects the disequilibrium in the shorter term to be adjusted in the long run. As expected, the ECM (-1) is negative and statistically significant. Its coefficient suggests that amendment process is quite expeditious and 32% of the past year's disequilibrium will be rectified in the current year. The variable of Bank deposit to bank credit has been found to have significant adjustment in the long run.

Now, Cumulative Sum and Cumulative Sum of Squares plots are drawn. The following Figure 1 reflects the CUSUM of recursive residuals whereas Figure 2 shows the CUSUMSQ of recursive residuals.





It indicates that the model is structurally stable.

Pair-wise Granger Causality Tests

Having empirically tested the data set using ARDL, Causality testing was performed to analyze the lead-lag relationship between the series. Table 6 provides the statistics of Pairwise Granger causality Tests performed on the data set. The returns of the series was calculated by $R_t = (P_t-P_{t-1})/P_{t-1}$. The tests were than run on the new generated return series providing the following statistics.

Table 6. *Pairwise Granger Causality Tests*

Null Hypothesis	*F-Statistic*	*Prob.*	*Hypothesis*	*Causality*
ΔGDP per Capita does not Granger Cause Δ Bank Credit to Bank Deposit	4.3327	0.043	Reject	Uni-Directional
ΔBank Credit to Bank Deposit does not Granger Cause Δ GDP per Capita	0.12532	0.7249	Accept	
Δ GDP per Capita does not Granger Cause Δ Bank Deposit to GDP	11.1052	0.0017	Reject	Uni-Directional
Δ Bank Deposit to GDP does not Granger Cause Δ GDP per Capita	0.49636	0.4847	Accept	
Δ GDP per Capita does not Granger Cause Δ Bank Private Credit to GDP	9.37125	0.0037	Reject	Uni-Directional
Δ Bank Private Credit to GDP does not Granger Cause Δ GDP per Capita	0.42502	0.5177	Accept	
Δ GDP per Capita does not Granger Cause Δ Central Bank Assets to GDP	7.77544	0.0077	Reject	Uni-Directional
Δ Central Bank Assets to GDP does not Granger Cause Δ GDP per Capita	1.35989	0.2496	Accept	
Δ GDP per Capita does not Granger Cause Δ Deposit Money Bank Assets to GDP	6.43711	0.0146	Reject	Uni-Directional
Δ Deposit Money Bank Assets to GDP does not Granger Cause Δ GDP per Capita	0.25703	0.6146	Accept	
Δ GDP per Capita does not Granger Cause Δ Liquid	5.34608	0.0253	Reject	Uni-Directional

Liabilities to GDP			
Δ Liquid Liabilities to GDP does not Granger Cause Δ GDP per Capita	1.04649	0.3117	Accept

The pair wise Granger Causality Test shows that GDP per Capita causes a higher level of Bank Credit to Bank Deposits rather the other way around. The nexus between growth and finance reflect that where growth occurs, finance follows. Similarly, the economic growth in terms of GDP per Capita results in higher level of Bank Deposits to GDP. The causality remains same for the growth in terms of GDP per Capita which causes higher levels of Bank Private Credit to GDP. Since the per capita gross domestic product is higher, the proportion of bank private credit to GDP also rises. The central bank assets to GDP also rise with increase in the GDP per capita. The GDP per capita causes the rise in central bank assets. GDP per capita causes deposit money bank assets to GDP to increase. The rise in GDP per capita results in higher level of deposit money bank assets. Lastly, the Liquid Liabilities to GDP increase when the GDP per Capita increases. Thus, in all the above causality relationships the selected macroeconomic intermediated variables does not granger cause GDP per Capita rather the GDP per Capita results in higher levels of macroeconomic intermediated variables. The results of the above reflect a unidirectional causality which is supported by the findings of Koivu (2002) and Christopoulos & Tsionas (2004).

Conclusion

The empirical results of the study conclude that in the long run variables of Bank Deposits to GDP (BD), Bank Private Credit to GDP (BPC) , Central Bank Assets to GDP (CBA) and Liquid Liabilities to GDP (LL) has insignificant effect on growth. The

variables of Deposit Money Bank Assets to GDP (DMBA), Bank Credit to Bank Deposit (BCTOBD), and the Structural Dummy for the Financial Liberalization after the 1990's have a positive impact on economic growth however its impact also remains insignificant for the data set. This means that the financial liberalization of 1990's was insignificant in attaining the objectives it was aimed at. While for the short run, variable of Bank Credit to Bank Deposit (BCTOBD) has a positive significant impact on economic growth at 5% significance level. While the variable of Bank Deposits to GDP (BD) has a negative significant impact on economic growth at 10% significance level. R squared in this case is 0.64083. The model F stat reflects models fitness and no auto correlation is also present in the data as suggested by the DW statistic of 2.171. The plots of CUSUM and CUSUMSQ also support the structural stability. The causality test affirms that the causality in the data set runs from economic growth to indicators of financial intermediation and not the other way around.

The results reflect that in the Pakistani data set and with the variables under study, there exists an insignificant impact on economic growth. Even the structural dummy placed to observe the impact of financial liberalization in the country after 190's reflects an insignificant impact on growth. The results are in alignment with the study conducted by Ram (1999). The results of the study additionally find support from the works of Deidda & Fattouh (2002). In the Pakistani case, where the income level is low, the evidence reflects nugatory magnification. Koivu's (2002) panel analysis also shows no association between private sector credit and magnification of economy. Their study additionally suggests that causality runs from

the economic magnification to credit magnification not the other way around. Favara (2003) also hold the same proposition. Christopoulos & Tsionas (2004) found no evidence of causality between financial deepening and economic output. This argument also provides the support for the findings of Granger Causality tests. The evidence on insignificance of structural dummy finds support from the work of Rioja & Valey (2004). There are also positive or nonexistent linkages. Lastly, the study finds support from Beck et al. (2008) who states that bank lending to enterprises, not to households, drives the positive impact of financial development on economic growth and from the works of Rousseau & Watchtel (2007) who argued that the causality of financial depth on growth is weak with recent data. In fact, the effect disappears. The evidences conclude on the point that linkage between intermediated financing and growth in economy is not a universal phenomenon and finds an insignificant interaction with economic growth in the developing country of Pakistan.

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