

Financial Liberalization and Macroeconomic Performance: Empirical Evidence from Pakistan

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Abstract

This paper attempts to examine the impact of financial sector liberalization on macroeconomic performance in Pakistan by using time series econometric analysis over the period 1972-2006. The study undertakes bi-variate and multi-variate models for empirical analysis. In Pakistan, financial sector liberalization was started with the reforms of macroeconomic structural adjustment programs especially by the end of 1980s. The results suggest that there is significant positive impact of financial liberalization variables on economic growth and investment. The findings of this study also reveal that there exists long-run and short-run relationship between the indicators of financial liberalization and economic growth and investment in Pakistan. The results are also consistent with some of the previous studies as described in the literature. Finally, it is concluded that there is an ardent need to stabilize the performance of financial system in Pakistan through political stability and good governance by taking some extra measures. The Strengthening of the State Bank's capacity for supervision and prudential regulations is necessary.

Keywords: Financial Liberalization; Economic Growth; Investment; Time Series Models; Pakistan
JEL Classification: G19; O11; O53; E44; C22

I. Introduction

The issue of financial liberalization has received an enormous attention globally since the last quarter of 20th century. Financial liberalization can be characterised by introducing some effective, market oriented functioning reforms, domination of private financial sector intermediation, effective regulations for risk management, and policy measures for restructuring of financial institutions. The theoretical evidence suggests that financial liberalization can confer diverse consequences in practice. Since where the financial liberalization leads to capital openness, it also escorts the process of underpinning of the functioning of financial institutions in terms of prudential structure and operational effectiveness, and consequently having some affirmative effects on the macroeconomic performance. Financial evolution also entails several risks in terms of trade deficit through domestic currency appreciation, high inflation rates and current account deficit

among others. Nevertheless, financial liberalization remains the emerging and hotly debated topic of today's empirical research in financial economics especially in terms of effects and consequences.

A large number of theoretical and empirical studies have been produced on financial liberalization and capital flows globally. Shumpeter (1911) emphasized that financial intermediaries' services are essential for economic development and growth. Robinson (1952) reported that financial development pursues economic growth or causation between them may be bi-directional. Later on, J. Gurley and E. Shaw (1955; 1956; 1960; 1967) explicated relationship between the developments of financial structure and economic growth, and argued that financial evolution is a positive function of real wealth. Therefore, the significance of financial and monetary structure as determinant factors in economic development shifts accepted wisdom about the role of monetary and financial policies.

Goldsmith (1969) concluded that financial ratios are positively correlated with the real income and wealth, in an empirical study of 35 developed and developing countries. His results were also consistent with the theoretical framework of Gurley and Shaw. However, Mc Kinnon (1973) and Shaw (1973) contributed with their innovative theoretical analysis based on the rationale for financial sector liberalization as a significant source to promote financial development and consequently economic growth. On the other hand, new growth theories (Romer, 1986; Lucas, 1988; Barro, 1990; King and Levine, 1993; Japelli and Pagano, 1994) traced out steady state growth rates obtained and controlled by social marginal productivity of capital, investment and the saving rates. Thus the endogenous growth literature implies that a well-functioning financial system may have positive effect on growth through investment. A strong financial system may escort to an improved ability to assess investment projects for sustainable economic progress (Hansson and Jonung, 1997) while underdeveloped financial systems can make countries more crisis-prone (Bhagwati, 1998 and Calvo et. al, 1993).

Empirical literature has given substantial support to financial repression theory and its implications.¹ While there are several who do not find any relationship between financial development and economic growth, and some find direction of causation runs from growth to financial development or both ways². Nevertheless, majority of the studies have been conducted largely by considering cross-country aggregate data sets and found positive effects of various financial developments on economic growth. Since after the late 80s several developing countries have made financial liberalization as a part of macroeconomic structural adjustment reforms, these reforms were aimed at developing market oriented and private dominated financial system performing efficient intermediation with strict enforcement of prudential regulations.

In Pakistan, financial sector liberalization was also commenced under the broader macroeconomic structural adjustment programs like other developing countries in the early 1990s. Pakistan has successfully transferred a significant part of financial sector from public to private ownership along with some other financial, trade and industrial policy measures in a short span of time. The broad indicators of financial development in terms of broad money, total bank deposit liabilities, amount of clearing house, currency and private sector credit as percent of GDP have showed an upward trend over time after the implementation of the financial liberalisation policies. There are various theoretical and empirical studies (Haque and Kardar,

¹ See, for instance, Wang (1990), Obstfeld (1994), Fry (1995), De Gregario and Guidotti (1995), Wachtel and Rousseau (1995), Demetriades and Hussein (1996), Levine (1997), Quinn (1997), Rodrik (1998), Kraay (1998), Klien and Olivei (1999), Edwards (2001), Aziz et al. (2002), Ansari (2002), Arestis (2002), Shan and Morris (2002), Anderson and Trap (2003), Kelly and Mavrotas (2003) and Fase and Abma (2003).

² For critiques of the orthodox finding see, Galetovic (1996), Andersen and Trap (2003) and Lawrence (2005 & 2006)

1993 & 1995; Khan, 1995; Hasan and Sajid, 1996; Haque, 1997; Khan, 1998; Husain, 1998; Husain, 2002; Khan, 2003; Imi, 2004; Husain, 2005; Khan et al., 2005) conducted on the financial sector reforms and their effects in Pakistan so far. However, majority is limited to only descriptive type of analysis and remaining were found with the problems of limited data and omitted variables bias. Nevertheless present paper tries to fill this gap in the literature by considering Pakistan's experience with the most latest available data and by including more variables on financial liberalization in a time series multivariate model.

The major objective of this paper is to examine the impact of financial liberalization indicators on the macroeconomic performance in Pakistan using time series econometric methodology. This paper is arranged as follows. Section II presents the brief summary of financial sector reforms and policies in Pakistan. The construction of variables, data sources, model specification and empirical econometric methodology issues are illustrated in section III. Section IV reveals the empirical findings and discussions. Finally, concluding remarks and some policy implications are given in the last section.

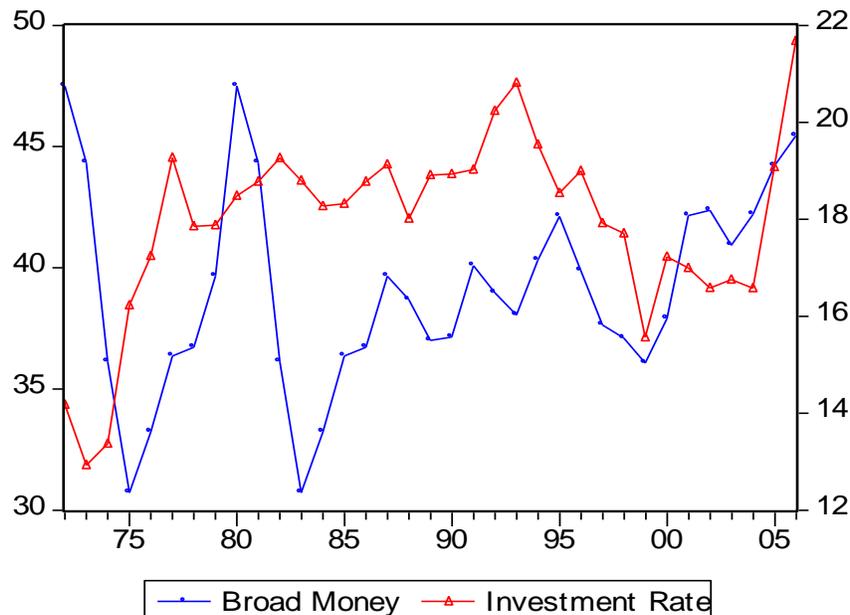
II. Overview of the Financial Sector Reforms and Policies in Pakistan

Pakistan's financial system was significantly distorted with the policy of nationalization of domestic banks and expansion of public sector development financial institutions in early 1970s. Since by the end of 80s it was realized that the objectives of nationalization policy have not been achieved successfully, public sector financial institutions have possessed higher shares in total assets, deposits, advances and investment. The pace of the financial system functioning was actually slowed down during this period because of stagnant and inefficient role of public sector. It was also observed that state-owned enterprises largely were suffered from inadequate liquidity and capital. Moreover, the share of investment banks, leasing and modarba companies remained minute even after passing five years period. Not only was the financial system becoming more stressful, supervisory system also losing its effectiveness due to active government interference.

During the 1990s, strong privatization policy coupled with financial and banking sector reforms could not increase economic growth due to poor governance, political instability among other several factors. The inflation rate remained in double digit until the late 1990s and created an environment of uncertainty for investors and lowers investment. Consequently, Pakistan got stuck with high nominal interest rates. However all financial and economic indicators have started to get improvement in later beginning of 2000s. The regulatory and supervisory functions of the State Bank of Pakistan have been significantly strengthened, and strict enforcement of prudential regulations has led to widespread recapitalization and a consequent improvement in the banking system. There was a major structural shift in the monetary policy in 2001 to meet the challenges posed by changes in the exchange rate regime, the need to increase liquid foreign exchange reserves and to enforce hard targets to keep government borrowing under strict control. The ratio of gross non-performing loans to total advances has been gradually declining. The financial sector reforms have restructured Development Financial Institutions through mergers and acquisition, closure, liquidation and reorganization (Husain, 2006).

The overall performance of financial sector has been improved because of the reforms in terms of capital adequacy, asset quality, profitability, and liquidity indicators. Financial sector development indicator, broad money as a as a percent of GDP and per capita income, a proxy of economic growth are depicted in Figures 1. Broad money and economic growth both move in the same direction except 1980s but overall have positive relationship. Higher values of broad money represent a deeper financial development and have significant positive impact on economic growth.

Figure 1 Trend of Broad money as a measure of financial liberalization and GDP per capita income as proxy of growth



III. Construction of Variables, Data Sources and Methodology

While there is considerable cross-country empirical evidence on observed financial liberalization-growth linkages in the world, most researchers have suggested in their studies that a country case study can give in-depth findings on the issue. Therefore, the question of a country case study based on time series econometrics needs to be investigated for an autonomous analysis and for important policy implications. Most of the existing studies in Pakistan are based on descriptive analysis, few have undertaken econometric analysis. The present study is not only different in terms of selection of variables, but also employs different methodology using latest data sets. In this study, an attempt is made to quantify the impact of financial sector liberalization undertaken in Pakistan on its macroeconomic performance. Since there are many variables and proxies to measure the financial liberalization globally, some significant and widely accepted indicators used in this paper are the ratios of broad money, private sector credit and stock market capitalization to real gross domestic product (GDP). In addition to these variables, trade openness and foreign direct investment in terms of net inflow are included as controlled variables in the empirical analysis. Macroeconomic performance can be assessed by undertaking two major variables, economic growth and investment in terms of gross fixed capital formation.

i. Construction of Variables

The construction of variables is explained in table 1.

Table 1 Detailed Description of Variables Used in the Study

Variables	Variables' Explanation and Hypothetical Relationships
EXPLAINED VARIABLES	
Economic Growth (LGDP)	Real gross domestic product is used as a measure of economic growth and is employed as taking natural log of its
Investment (LINV)	& Gross fixed capital formation is used as proxy of investment and is obtained by taking natural log of its ratio to real GDP
EXPLANATORY VARIABLES	
Broad Money (LBMG)	It measures the depth of financial sector and has inducement to saving-investment. It is calculated as the natural log of the ratio of M ₂ (comprising transferable deposits, currency outside deposit money banks, quasi-money liabilities of these institutions) to real GDP and expects the positive impact on growth and investment.
Private Sector Credit (LPSC)	This measure stimulates the more credit to private sector and provides risk management and mobilizing savings. It is obtained as the natural log of the ratio of private sector credit to real GDP with the expectation of positive impact on explained variables.
Stock Market Capitalization (LCMC)	It measures the size of the stock market showing capital mobilization or stock market liquidity and risk diversification. It is obtained as natural log of the ratio of value of listed shares to real GDP and is hypothesized to have positive impact on macroeconomic variables.
Foreign Direct Investment (LFDI)	This variable is used as one of the control variables that have been found to be an important determinant of growth by previous studies. It is employed as the natural log of foreign direct investment, net inflow as percent of real GDP and is to be expected positive.
Trade Openness (LTOP)	This concept is also used for economic globalization as a proxy variable and is used here as a control variable. It is calculated as the ratio of the sum of real exports and imports to real GDP with natural log and is supposed have positive impact on the economy.

ii. Data Sources and Limitations

Since financial liberalization in Pakistan was started in 1991, nevertheless this study employs an annual time series data over a sample period from 1972 to 2006. Many other researchers have undertaken the time series data from 1960s but they didn't use any variable that reflects volume of the economy in terms of control variable as East Pakistan had become Bangladesh in 1971. For this reason, data should have considered from

1972. The main data sources are IMF's International Statistics (IFC), the World Development Indicators and various publications of State Bank of Pakistan. There are many proxies of inflation in the empirical literature ranging from consumer price index (CPI) to GDP deflator to the Wholesale price Index (WPI). In this study, the most frequently used indicator, CPI (2000 = 100) is used to deflate the variables.

iii. Empirical Methodology

Various econometrics techniques for time series data analysis have been presented in the literature such as Engle-Granger (EG) Approach³ (1987), Johansen Approach⁴ (1988) and Autoregressive Distributed Lag (ARDL) Approach⁵ (2001). Keeping in view the limitations of the data (availability of only annual data instead of usually used quarterly data sets) and specifications of different approaches, first two approaches (which one will be made suitable) are employed for the present study.

A significant characteristic of this paper is to undertake the bi-variate and multi-variate models instead of using single one. Therefore, the first step is to test the stationarity of each variable to determine its order of integration. The most widely used, augmented Dickey-Fuller (ADF) test is applied in order to infer the number of unit roots. For long-run equilibrium relationship or co-integration, all variables should be integrated of the same order; the next step is to testing for co-integration. An extensive literature is made available on these time series approaches with mathematical explanations. The last test is not being undertaken in the present paper because I believe in the strength of the stationarity of variables to tackle the problem of spurious regression models. The remaining steps of EG and Johansen approaches will be discussed in the next section where what ever will be applicable.

IV Results and Discussions

In this study, an attempt has been made to measure the impact of financial sector liberalization on economic growth and investment in Pakistan. Since as in the methodology, first step is to apply the ADF test on all variables to examine their stationarity or non-stationarity with intercept and trend and intercept. The results of ADF test on all variables with intercept are reported in table 2 and with trend and intercept are given in table 3.

Table 2 Results of ADF Test on Variables with Intercept

Variables	Level	1 st /2 nd Difference	Conclusion
LGDP	-2.43	-4.46	I(1)
LINV	-3.56	--	I(0)
LBMG	-2.10	-5.41	I(1)
LPSC	-2.56	-4.59	I(1)
LCMC	-0.56	-3.74	I(2)
LFDI	-2.09	-5.36	I(1)
LTOP	-2.11	-4.24	I(1)

Source: Author's calculations using E-views software.

³ For details, see Engle and Granger (1987)

⁴ For details, see Johansen (1988)

⁵ For details, see Pesaran et. al (2001)

Table 3 Results of ADF Test on Variables with Intercept and Trend

Variables	Level	1 st /2 nd Difference	Conclusion
LGDP	-3.02	-4.58	I(1)
LINV	-3.49	--	I(0)
LBMG	-4.10	-5.14	I(1)
LPSC	-2.62	-4.45	I(1)
LCMC	-2.93	-3.96	I(2)
LFDI	-2.53	-5.24	I(1)
LTOP	-2.22	-4.29	I(1)

Source: Author's calculations using E-views software. According to the results given in both tables, the variables LGDP, LBMG, LPSC, LFDI and LTOP are non-stationary at level and have the integrated order I(1), it means these will be stationary at first difference. The variables LINV and LCMC are stationary at level and at second difference, having integrated order of I(0) and I(2) respectively. Moreover the ADF test is examined at 1 percent critical values. The evidence states that Johansen approach cannot be applied, as not all variables are stationer at the same level. So possibly, EG approach can be employed on the potential bi-variate models, while multi-variate model is also estimated by considering and taking respective difference levels. For EG approach, following possible two bi-variate models (only economic growth models) are stated as follows.

$$(LGDP)_t = \alpha + \beta(LBMG)_t + \varepsilon_t \text{ ----- (I) \quad and}$$

$$(LGDP)_t = \gamma + \delta(LPSC)_t + \zeta_t \text{ ----- (II)}$$

The next step is to estimate the long-run equilibrium relationship of the models (I)

And (II) and obtained the residuals of these models. The results of ADF test on the residuals of both models are reported in table 4.

Table 4 Results of ADF test on Residuals of Models (I) & (II)

Error Terms	Level	Conclusion
Residual of Model (I)	-3.47	I(0)
Residual of Model (II)	-3.79	I(0)

Note: Residuals are stationary at 5 percent critical value (i.e. -3.37)

Source: Author's calculations using E-views software

According to the theory of EG approach, both models can be now co-integrated as residuals are stationary at level with the given critical values. Thus the variables are now co-integrated, the residuals from the equilibrium regression using ordinary least square (OLS) version can be used to estimate the error-correction model and to differentiate the long-run and short-run effects of the variables. In error correction model, adjustment coefficient term, which is the coefficient of the lagged residual terms of the long-run relationship, is also estimated. The results of error-correction models are reported in table 5.

Table 5 Results of Error Correction Models of Bi-variate Analysis

Dependent Variable: $\Delta(\text{LGDP})$			
Model (I)		Model (II)	
Variables	Coefficients	Variables	Coefficients
Constant	0.71 (0.35)	Constant	0.04 0.49
$\Delta(\text{LBMG})$	1.58* (2.27)	$\Delta(\text{LLPSC})$	1.65** (1.76)
$\varepsilon_{t1}(-1)$	-0.12*** (-1.75)	$\zeta_{t1}(-1)$	-0.10*** (-1.68)
$R^2 = 0.75$ Adjusted $R^2 = 0.74$ d- statistic = 1.98 n = 34		$R^2 = 0.84$ Adjusted $R^2 = 0.83$ d- statistic = 1.87 n = 34	

Source: Author's calculations using E-views software

Note: i. the values given in parentheses are t-statistics

ii. *, ** and *** indicate the levels of significance at 1%, 5% and 10 %, respectively

Table 5 reveals that variables in bi-variate models, broad money and private sector credit, have correct signs and are statistically significant at 1 percent and 5 percent respectively. Thus variables considered for financial liberalization have positive impact on the economic growth with short-run and long-run relationships. The coefficients of the co-integrating terms, $\varepsilon_{t1}(-1)$ and $\zeta_{t1}(-1)$, indicate that about 12 percent and 10 percent of the disequilibrium divergence tends to be eliminated in one year. So it is evident that financial liberalization improves macroeconomic performance in terms of economic growth. Our findings are also consistent with the conventional wisdom on the financial development-growth nexus and are also consistent with the studies that are conducted on other countries.

Now we come to the multivariate models by taking respective differences of the variables and considering both economic growth and investment as explained variables. The results of OLS method on all variables are reported in table 6.

Table 6 Results of Multivariate Models using OLS Method of Regression

Dependent Variable: $\Delta(\text{LGDP})$ [Model (I)]		Dependent Variable: LINV [Model (II)]	
Variables	Coefficients	Variables	Coefficients
Constant	0.06 (3.79)	Constant	2.81 (4.61)
$\Delta(\text{LBMG})$	2.42* (2.57)	$\Delta(\text{LBMG})$	0.59** (1.72)
$\Delta(\text{LPSC})$	0.61 (0.50)	$\Delta(\text{LPSC})$	0.83* (2.62)
$\Delta(\text{LCMC},2)$	2.06* (2.15)	$\Delta(\text{LCMC},2)$	0.67** (1.86)
$\Delta(\text{LFDI})$	0.35 (0.35)	$\Delta(\text{LFDI})$	0.01 (0.48)
$\Delta(\text{LTOP})$	1.67*** (1.79)	$\Delta(\text{LTOP})$	0.45*** (1.67)
$R^2 = 0.67$ Adjusted $R^2 = 0.62$ d- statistic = 1.89 n = 34		$R^2 = 0.68$ Adjusted $R^2 = 0.63$ d- statistic = 2.01 n = 34	

Source: Author's calculations using E-views software

Note: i. the values given in parentheses are t-statistics

ii. *, ** and *** indicate the levels of significance at 1%, 5% and 10 %, respectively

The results of multivariate models state that all variables have correct sign according to the hypotheses but broad money, private sector credit, stock market capitalization and trade openness are significantly affecting economic growth and investment. These results are also consistent with the results of other studies; even results are consistent with the majority that conducted on cross-country analysis.

V. Conclusion and Policy Implications

The effects of financial sector liberalization on macroeconomic performance and development particularly through economic growth and investment have been the subject of ongoing debate in both academic and policy spheres. The one school of thought points out that financial and currency crises lead to follow the financial liberalisation in many Countries and become the cause of low economic growth rate but others, Proponents on the other hand, argue that financial openness boosts up investment and leads to economic growth.

The present study is conducted to examine the impact of financial liberalization as experienced in Pakistan on macroeconomic performance and development using time series tools of econometrics. Since the main idea behind this study was to measure the usefulness of financial sector liberalization indicators on macroeconomic development of Pakistan by using latest available data. The economy of Pakistan has passed through many channels and policy measures. A large-scale of nationalization process encompassing trade, industry and financial sector was observed in Pakistan in 1970s. First part of 1980s witnessed the beginning of its reversal and last part of 1980s and early 1990s saw a surge in economic measures including trade, fiscal and financial reforms through structural adjustment program. Since then, several measures have been

implemented in the financial sector of Pakistan, and would continue to be initiated in the future with more care and sensitivity.

The findings of this study reveal that there is a long-run and short-run relationship between the indicators of financial liberalization and economic growth and investment in Pakistan. This means that financial development improves economic growth in Pakistan. Results also suggest that there is bidirectional relationship between broad money as a significant measure of financial intermediation and private sector credit, and economic growth in Pakistan. Our results on Pakistan are also consistent with the previous studies as described in the literature.

Finally, some main policy implications are stated here based on the findings. There is an ardent need to stabilize the performance of financial system in Pakistan through political stability and good governance. The Strengthening of the State Bank's capacity for supervision and prudential regulations is necessary. There is a need to broaden and deepen the local capital market for better financial intermediation in Pakistan. For a deeper understanding and effects of financial liberalization on different macroeconomic variables, more variables should be included in the model and should be analyzed using different methodology in the future.

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