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Raza, Muhammad Wajid and Mohsin, Hasan M

Pakistan Institute of Development Economics, Shaheed Zulfikar Ali  
Bhutto Institute of Science Technology (SZABIST), Islamabad

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**“Financial Liberalization and Macroeconomic Performance,  
Empirical Evidence From Selected Asian Countries”**

By

Muhammad Wajid Raza,

Shaheed Zulfiqar Ali Bhutto Institute of Science & Technology (SZABIST) Islamabad, Pakistan,

Email: [wajidrazuom@gmail.com](mailto:wajidrazuom@gmail.com) &

Hasan M. Mohsin

Research Economist, Pakistan Institute of Development Economics, P O Box 1091, Islamabad,  
Pakistan, Phone: 92-51-9248080, Email: [hasanmohsin@pide.org.pk](mailto:hasanmohsin@pide.org.pk)

**Abstract:**

Financially repressed economy cannot grow with an increasing growth rate. That’s why most of the developing countries move toward liberalized financial system. The basic objective of this paper is to provide a comparative analysis of Pakistan, China, and India financial sector liberalization and its impact on macroeconomic performance. This study uses Johansen co integration to provide cross country evidence of long run relationship between macroeconomic variables and financial openness. Results show that there is long run relation among financial openness and macro economic performance in all three countries. Financial liberalization has positive and significant effect on Pakistan macroeconomic performance while negative and significant effect on china economy. The relationship in India is positive but not significant.

Key words: Financial liberalization, financial depth. Economic growth

# 1: Introduction

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Economic development is linked with both technological and financial development of a country. Sound financial system plays a very important role in the process of economic development. The study shows that financial development act as a macroeconomic variable and is highly correlated with growth (Beck, 2002). The basic role of a sound financial system is to efficiently utilize the scarce financial resources by constructing a well directed channel that enhances the flow of funds from savers to borrowers which encourage investment in developing sectors. This practice enables the economy to enhance its investment and consumption pattern, and give rises to economic growth and stability through less macroeconomic volatility. But unfortunately it was not the case in most of developing countries in Asia, especially South Asian countries till 1990's.

In many developing countries government used to control the financial system till 1990's with the aim to achieve financial resources at a cheaper rate. The authorities imposed interest rate ceilings, nationalized many banks and financial institutions and outline restricted regulations. (Shrestha & Khorshed, 2005). Empirical studies show that the role of intermediaries is very important for smooth financial system. Presence of government intervention discourages intermediaries and thus financial system is not able to perform freely. As a result savers are afraid to invest their funds which effect investment and growth negatively and give rise to financial repression. Same was the case in many developing countries in Asia particularly in Pakistan till 1990s. Ronald (Mckinnon, 1973) and Edward (Shaw, 1973) explained the concept of financial repression in context of government interventions. Government intervention causes real deposit rates of interest to be negative and rates become highly uncertain, beside this it also

causes capital flight because of expected inflation and devaluation of currency. They criticized financial repression because of its negative consequences on economy and give the concept of financial liberalization. Due to contrasting results this topic has received too much attention from both academic and policy researchers.

Financial liberalization can be define as the process in which government or state authorities remove all restrictions from the financial system in order to achieve open market. In order to achieve this goals, set of financial and operational reforms are made in the financially repressed system (Johnston & Sundararajan, 1999). It acts as a catalyst in enhancing growth and investment. That's why many developing countries started liberalizing there financial system with the help of World bank and International monetary fund (Shrestha & Chowdhury, 2005).

Financial liberalization has both positive and negative aspects. It leads to financial openness, it strengthen the function of financial institutions and have positive effect on macro economic performance. At the same time negative consequences of financial liberalization are that it causes negative trade balance, devaluation of local currency, cause high inflations and interest rates, and negative capital account balance.

Most of the developing countries adopt financial liberalization in last decade of 20<sup>th</sup> century. Pakistan was also one of those countries who transfer its financial system from state owned to private sector. Similarly neighbors countries like China and India also liberalized there financial system in 1978 and 1991 respectively. There are numerous studies that explained the effect of financial liberalization on macroeconomic variables in all three countries like (Peter Lawrence & Ibotombi Longjam, 2008) studied India, (khan, 2005) studied Pakistan and (liang & teng, 2006) studied china. But comparative studies can be hardly in literature. This study focus on

comparative analysis of the three countries, it also provides a comparative analysis of financial reforms of India, Pakistan and China.

This study is organized as follow; section 2 covers the financial sector reforms and development in Pakistan, India and China. Section 3 present literature review. Section 4 deals with the measurement of financial development. Section 5 deals with the econometric methodology. Section 6 presents conclusion and recommendations.

## **2: Financial reforms**

### **2.1: Financial reforms in China.**

Basic purpose of financial reforms was to create a liberalized market economy (Zhao, 1987).

Basis aim of financial deregulations' in china was to give banking system more freedom in their operations and to make central bank more autonomous in its decision making.

First of all china separated the people's bank of China from Ministry of Finance and was granted a separate ministerial rank. Then later on in 1984 government of China take main steps and make Public Bank of China as the main bank of China. At the same time (ICBC) was established to take over the commercial banking responsibilities.

We know that almost 30 years have passed the Chines financial sector reforms the Chines government is still pursuing a market oriented banking sector. (He, 2007) in his article summarized the banking sector reforms in three main phases.

In first phase government established four major banks. First of them was "China construction Bank, then "The Bank of China" was established, after little time "The Agriculture Bank of China" were established, in the same period foundation for "The Industrial Commercial Bank of China" were laid down (He, 2007).

Second phase can be witnessed in 1990's. PBC became pure central bank and three policy banks were launched by government (He, 2007). Third phase can be witnessed in recent years. In recent years we can see that Chinese government is trying to open its financial system as much as possible. A good example is that in 2006 a major American banking corporation acquires a regional Chinese bank. (He, 2007). Chinese financial reforms are not limited to banking sector reforms only (Abdul & Ying, 2008). Some of the major events can be summarized as follow.

In 1979 first investment and trust company (ITC) was launched. China International Trust and Investment company (CITIC) was also launched in 1979. Currently there are almost 700 investment trusts in China (He, 2007). Rural Credit Cooperative (RCC) and Urban Credit Cooperative were also extended in 1980's (He, 2008). Beside financial reforms we can see that banking sector of China is still dominated by "big four" state owned banks, (Abdul & Ying, 2008). It doesn't mean that economy is still government owned it is still shifting to private sector with an increasing speed. (Allen, 2005).

## 2.2: Financial sector reforms in Pakistan

Before 1980 Pakistan was facing a repressed financial system. Most of the years from 1961 to 1984 the real interest rate remain negative in Pakistan. One of the possible reason for this was that inflation rate in Pakistan was much higher than China (Abdul & Ying, 2008). Furthermore within the banking sector almost 92.2% share was held by public sector and rest of the share was held by foreign banks. This was because banking sector was nationalized and no private sector bank exists at that time. Meanwhile investment banks, leasing and Modaraba companies were not performing well (Chahdhry, 2008). Unlike China Pakistan has its macroeconomic policy

during the period 1947 to 1980's the only thing was to establish the financial infrastructure to support that macroeconomic policy (SBP, 2002).

Financial sector reforms started in 1990's. State Bank of Pakistan was responsible to carry out the whole process. SBP design reform policies for itself as well as for other financial sectors (Abdul & Ying, 2008). Main purpose of financial reforms was to strengthen financial institutions, enhance open competition, enhancing governance and to adopt market based indirect system of monetary management (Chaudhry, 2008). Financial openness in Pakistan was concerned with seven main areas. First one is liberalizing the financial system second was to make full authority to institutions third was to increase domestic debt fourth was to enhance monetary management fifth was to formulate banking law and the last one was to formulate specific rules and regulations for monitoring foreign reserves and capital market operations.

Some of the major steps were in 1997 SBP supremacy was established in order to supervise banking and non banking financial institutions (NBFIs). Banks nationalization act 1974 was amended. And at the same time banks were forbidden to follow the regional banking practices and were asked to follow international standards that are followed all over the world (IAS). Security Exchange Commission was established (Abdul & Ying, 2008). Since 1995 Pakistan has adopted a relax monetary policy for a period of five years. Main purpose of such loose monetary policy was to increase private sector credit expansion and to reduce government cost of borrowing. SBP was able to achieve its goal and the weighted average lending rates come down to 8.81% in June 2005 as compared to 15.6% in 1998.

## 2.3: Indian financial reforms.

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Indian financial system was state controlled before 1990's. 14 private sector banks were nationalized in 1969. Indian state use controlled banking system as public instrument of

development (Sen & Vaidya, 1997). Interest rates were regulated until 1991. Main financial reforms taken by Indian government were as follow.

Non bank financial institutions interest rate was deregulated in 1991. Risk asset ratio for banking sector was introduced in 1992. Cash reserve ratio (CRR) was reduced in 1993. SLR was further reduced in 1994. MLR were abolished in 1994. CRR was further reduced and four private sector banks were established in 1995. In the same period of time old banking act of India was amended. According to new regulations banking sector were not restricted to set the deposit rates on different securities and term deposits. At the same year 6 new private banks were established. 182 days treasury bills were re introduced in 1999. In 2000 CRR were further reduced. Bank deposit rate were cut in, liquidity adjustment facility was introduced. 17 public sector banks were given autonomous status. In short financial sector reforms were carried out almost in 10 years of time.

### 3: Literature review

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A large amount of literature is produced globally on financial openness. The discussion on financial liberalization started a century ago when researchers highlighted the role of financial intermediaries. The work of (Shumpeter, 1911) on the importance of financial intermediaries provides a concrete base for the development of McKinnon and Shaw hypothesis. He argued that the role of financial intermediaries is of greater importance, because financial intermediaries moderate the flow of savings into investment. Study shows that financial intermediaries active participation in necessary condition for sound financial system which give rise to economic growth. (Robinson, 1952) found causal relation between financial development and economic growth. Mean while several studies were conducted to provide empirical support for economic growth and its determinants. Financial development and economic growth are connected with



real wealth (Gurley, & Shaw, 1967). They explain “financial development in relation with real wealth”.

The pioneer work which gives strong emphasis on financial sector openness and its impact on economic growth was given by (McKinnon, & Shaw, 1973). They said that for moderate economic growth an economy should move from financial repression to financial liberalization. First of all interest rate ceilings should be removed, second reserve requirements should be relaxed by central banks, selective credit program should be analyzed , liquidity ratio requirements should be set free , and barriers imposed on capital controls and restrictions on entry to market should be removed. Once these restrictions are removed the liberalized financial system will result on high interest rates, which is positive signal for savers to invest their money and increase their savings and these savings will stimulate financial intermediation. Interest rate liberalization is not the only positive aspect of financial liberalization, It encourages privatization of public financial institutions, it removes restrictions on banking which encourages free competition among financial institutions. It reduces directed lending to government and opens the capital market to foreigners as well as local investors (Chaudhry, 2007).

Studies conducted by (Romer, 1986, King & Levine, 1993; Japelli & Pagano, 1994) presented new growth model, they study the effect of technology and marginal productivity of capital on investment and saving rates. They concluded that in order to asses investment projects profitability it is important to have a well developed financial market. That’s how sustainable economic performance can be achieved (Hansson & Jonung, 1997). In the same context (Bhagwati, 1998) and (Calvo, Reinhart, Inderman,1993) said that underdeveloped financial system can effect a country economic growth and can make countries more crises prone.

However these studies give controversial results. Studies conducted by (Fry, 1995; Edwards, 2001; Demetriades & Hussein, 1996; Aziz, 2002; Ansari, 2002; Wang, 1990; Shan & Moris, 2002; Obstfeld, 1994;) shows positive and significant support for financial liberalization. While many researchers have criticize this concept. Dr Firdu Gemech and Professor John Struthers in 2003 have summarized some of the critiques of financial liberalization. They said that the concept of efficient market is some time misleading when it is applied to capital flows. Stiglitz conducted a study in favor of financial repression and said that repression is not that much ugly term. Sometimes it can have positive effects such as: it can improve the amount of loan applicants by lowering interest rates. It can increase growth rate as well but the condition is that credit must flow towards profitable sectors. But in practice it is very difficult (Stiglitz, 1994).

Similarly (Stiglitz, 2000) conducted another study and said that if there is information asymmetry in financial markets and the country has poor corporate governance, then there is no reason that financial market liberalization will help the country to improve its economic growth. He point out another negative aspect of financial liberalization which is accompanied by capital account liberalization, that allows firms to invest abroad which adversely affect domestic market liquidity (Gemech & Struthers 2003).

Keeping in view these limitations there are still enough empirical evidences on the basis of which we can favor financial liberalization. And many developing countries throughout the world specifically in Asia have taken bold measures to liberalize there financial system in 1990's. There are number of studies that provide both theoretical and empirical support to financial sector liberalization in Pakistan i.e. (Hassan & Sajid, 1996 ; Haque & Kardar, 1993; Limi, 2004; Khan, 1995; Khan, 1998; Husian, 2001 & 1995 Khan, 2005, Husain, 2005; Haque ,1997).

Some of the studies that describe the effect of financial liberalization on growth and investment are summarized here. Economic growth is directly linked with financial intermediaries, because they are specialized in productions, at the same time they adopt new technologies which is accompanied by development of entrepreneurship which is basic condition for stable economic growth (Ansari, 2002). Well developed financial system makes it easier to evaluate different alternative projects, that's why it increases the marginal productivity of capital. It provides a less costly channel to direct savings to investments. In financially liberalized market usually the private saving rate is high, which stimulate savings and economic growth (Aziz & Duenwaald, 2002). We can link economic growth with efficient credit allocation (Anderson, 2003).

There are number of other studies which discuss economic growth in the paradigm of financial sector liberalization but most of the studies are limited to only a particular country, descriptive analysis and omitted variable bias. One other important point is that financial liberalization is not limited to interest rate liberalization only. Interest rate liberalization is accompanied with current account openness, stock market openness, liberalized foreign direct investment policies and trade openness. This study will help to fill the gap of omitted variable bias in literature by constructing financial development index which covers almost all aspects of financial liberalization and provides cross country evidence with econometrical analysis.

## 4: Measure of Financial development.

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There are no fix standards to measure financial development however (Fry, 1978) define financial sector development reduce ad the process that reduce the split and unite the spread in financial markets. He mentioned three main characteristics of financial sector development i.e. there must be credit intermediation, proper system for liquidity management and risk management. One of the important ratio that is used by many studies is the ratio of the

(M2)/GDP that is broad money to gross domestic product (GDP). Studies use this ratio to reflect the size of financial sector development, debt of financial sector and motivation toward investment. World Bank and IMF also standardize this ratio across a country that's why many researchers prefer to use it. But at the same time this measure has been criticized by researchers. It deals with only banking sector while it ignores other important aspects of financial sector. (King & Levine, 1993) criticize the traditional measures used by (Goldsmith, 1969 & McKinnon, 1973). He said that one cannot reflect the true picture of economic growth or financial debt by using only the size of financial sector. It may not be an effective measure, because it ignores two important aspects of financial debt, first one is it ignores risk factor and second is access to information. (King & Levine, 1993) develop their own financial development index. They tried to encounter the risk sharing and information services factors by incorporating bank deposit money and its ratio to domestic assets and the second is bank deposit money domestic assets plus deposit in central bank. (Lawrence & Longjam, 2003) criticize the index used by (King & Levine, 1993) they point out that we cannot lemmatize the risk sharing ability to banks only. Another aspect of their criticism was regulations imposed by central banks. So it is clear that we cannot rely on a single measure of financial development. (King & Levine, 1993) develop his financial sector development index by using four measures, i.e. Ratio of private sector credit to gross domestic product (GDP), liquid liabilities of the financial sector and its percentage Gross domestic product GDP, stock market capitalization as percentage of gross domestic product (GDP). It should be kept in mind that foreign trade also has a moderating effect on economic growth. (Gazi & Chakraborty, 2010) have incorporated international trade in their financial development index.

Study shows that a good measure of financial development is one which captures the effect of commercial banks funds, the amount of loan it has forwarded to private sector the scale of financial intermediation, amount of money that has been circulated in financial system, and the importance of stock market (Lawrence & Longjam, 2003). Keeping in view the scope of financial sector and effect of financial sector liberalization on its determinants this study develop a financial sector measurement index which covers financial intermediation, monetization of financial system, debt in financial system and the importance of stock markets. Moreover it is important to include the effect of capital account and international trade. Because they are directly effecting the economic growth.

As discussed earlier this study focuses on such measures which are recently used by researchers as well as which are true representative of a well developed financial sector. The measure used in this study are “credit to private sector (PSC), broad money (BM), overall stock market capitalization (SMC), trade openness and foreign direct investment.

## 4.1: Private sector credit to GDP

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Financial intermediation is very important for financial development. In order to measure financial intermediation this study uses the ratio of natural log of private sector credit forward by financial intermediaries to real GDP. This measure focuses only on private sector credit that is issued by intermediaries and eliminates all government and public sector credit. It is to be noted that central banks also provide credit but this variable exclude the amount of credit that is forward by central bank because then it would not be possible to reflect the true measure of financial intermediation.

## 4.2: Stock market capitalization to GDP

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Liquidity is very important component of financial sector development. Study shows that stock market liquidity has causal relation with economic growth. It is also an indicator of risk management, because efficient stock market diversifies risk of investors by offering diverse securities with fewer speculations (Lawrence & Longjam, 2003) This variable also measure the size of stock market and shows the amount of capital mobilized (Chaudhry, 2007). It can be measured in number of ways. Some studies take it as number of listed shares multiplied by its closing price and then divided by gross domestic price (GDP).

### 4.3: Broad money to GDP.

Keeping in view the importance of broad money as measure of financial sector development we included it in our financial sector measure. It measures the debt of financial sector. This ratio can be calculated as the natural log of the ratio of broad money which is represented by M2 to real gross domestic product (GDP) (Chaudhry, 2007) and (firdu, 2003). Some studies use M1 but that is not true indicator of financial development because it only focuses on physical money “currency and coins”. We use M2 because it add other form of money like transferable deposits to paper currency it the same time it add outside deposits money banks and quasi- money liabilities of financial institutions with M1 with the paper currency.

### 4.4: Foreign direct investment

This study uses foreign direct investment and trade openness as controlling variables. Foreign direct investment is also an important indicator of financial sector development. It can be measured as log of foreign direct investment net flow to real GDP. This variable will control the effect of capital account liberalization on economic growth.

#### **4.5: Trade openness**

Trade openness is also used as control variable in this study. Many studies have used this measure to indicate economic globalization. We are using trade openness as proxy for trade liberalization. This study measure trade openness by adding the value of real exports and then adding it to real imports. Then take its ratio to real gross domestic product (GDP).

## **5: Methodology.**

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Main objective of the study is to estimate the effect of financial deregulations in selected Asian countries and its relationship to economic growth. This objective is achieved in two steps, first suitable variables are formulated, and then in the second step the relationship of these variables is determined by using different econometric estimations.

Private sector credit is denoted by “PSC”, stock market capitalization by “SMC”, Broad money by “MB”, Foreign Direct Investment by “FDI” and Trade Openness by “TO”.

#### **5.1: Data collection**

Normally we use quarterly data but due to unavailability of quarterly data this study relies on annual data. Annual data was taken from World Bank “data bank”, International Financial Statistics (IFS), annual publication of State bank of Pakistan (SBP), annual report of World Development Indicators (WDI) and, Central Bank of India (CBI), and People Bank of China (PBI). Many other studies use data set from 1960 to 2008. Keeping in view the East Pakistan issue this study uses data from 1972 to 2010.

#### **5.2: Data Analysis**

As this study is based on time series data so the first step is to check whether the series is stationary or not. Augmented Dickey fuller test is used for testing stationarity. In order to

determine any long run or short run relation first it is important to have co integrating variables. Johansen co-integration test is used to examine the long run relationship between financial development and macro economic variables. If the variables are co integrating it will allow us to use Error Correction models which enable us to determine short run relationships or shocks. Than Granger Causality test (GST) is used to examine the direction of causality i.e. uni or bi directional causality.

### 5.3: Unit Root Test

A stationary series has three main characteristics, first it has constant mean, and second it has constant variance and third is constant auto covariance. Time series should be separated from seasonal effect, trend, shocks etc to make correct evaluation of the model. It is important to have a series stationary at same level. For this purpose differences should be taken. Taking too many differences can affect the long run relationship. The ADF test can be define as

$$\Delta Y_t = \alpha + \beta t + \gamma Y_{t-1} + \sum_{i=1}^p \delta_i Y_{t-i} + u_t$$

$$\Delta y_t = y_t - y_{t-1}$$

Table 1<sup>st</sup> : Augmented Ducky Fuller test results with first difference (1) with intercept.

Variables	Level	1 <sup>st</sup> /2 <sup>nd</sup> Difference	Conclusion
<b>PAKISTAN</b>			
LGDP <sub>PAK</sub>	-0.170448	-4.742874	1(1)
INV <sub>PA</sub>	-1.455528	-4.517673	1(1)
BMP <sub>PAK</sub>	-3.112363	-4.897637	1(1)
PSC <sub>PAK</sub>	-2.458112	-6.378991	1(1)
SMC <sub>PAK</sub>	-1.170591	-4.488089	1(1)
TOP <sub>PAK</sub>	-3.112363	-6.378991	1(1)
FDI <sub>PAK</sub>	-1.593574	-7.333032	1(1)
<b>INDIA</b>			
GDP <sub>INDIA</sub>	0.456026	-3.712299	1(1)
INV <sub>INDIA</sub>	0.736248	-5.113727	1(1)
BM <sub>INDIA</sub>	0.482124	-3.704594	1(1)
PSC <sub>INDIA</sub>	-2.458112	-11.47159	1(1)
SMC <sub>INDIA</sub>	-1.170591	-4.216549	1(1)



FDIINDIA	0.482124	-3.712299	1(1)
TOINDIA	-0.297771	-6.061884	1(1)
CHINA			
GPPCHINA	1.786097	-5.221891	1(1)
INVCHINA	-1.569153	-4.771084	1(1)
BMCHINA	<b>0.845187</b>	-3.959079	1(1)
PSCCHINA	-1.039601	-4.673832	1(1)
SMCCHINA	-1.170591	-4.216549	1(1)
FDICHINA	-2.395508	-5.604642	1(1)
TOCHINA	-1.006756	-3.508021	1(1)

Source: Author calculation on E-views software.

Note: All variables have integration of order 1(1) at 5% Critical values

## 4.4: Co- Integration Methodology

According to the results of ADF test all the variables are integrated at order one so we can go for Johansen Co-integration approach.

$$Y_t = \beta_1 + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{5t} + \beta_6 X_{6t} + U_t$$

General series for co integration test is

LGDP, BM, SMC, PSSC, FDI, TO

Table co integration results for Pakistan, China and India

	Trace Statistic	Eigen Value	Critical Value	Prob
Pakistan	0.54647	50.3325	47.8513	0.0287
India	0.15495	6.19629	3.84146	0.0128
China	0.15495	6.19629	3.84146	0.0128

Source: Author calculations on E views.

We can see that trace value suggest that there exists long run relationship between financial expansion and gross domestic product in all the selected countries. Pakistan and India shows that there is one Co-integrating equation while there exist three co integrating equations in China case.

## 5.5: Vector Error Correction Method

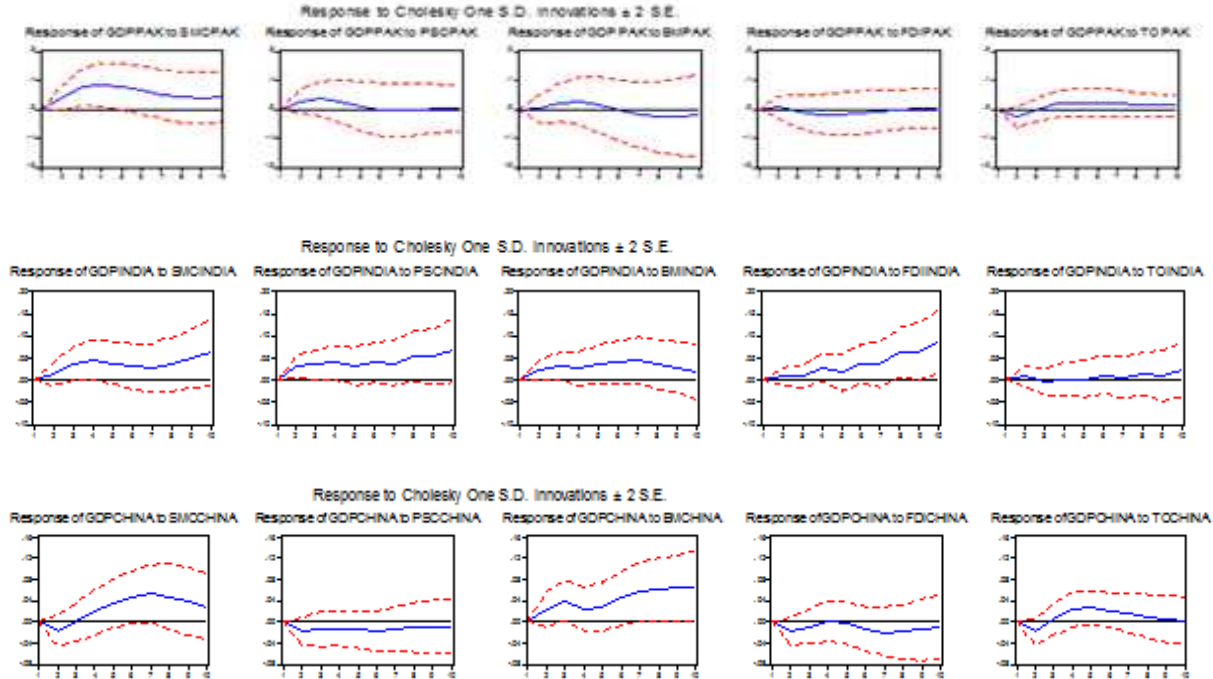
VECM values for Pakistan, china and India are calculated in table 5,6 and 7 respectively. First We look it short term shocks in Pakistan. We can see that GDPPAK and PSCPAK shocks are negative and significant. This means that economy has the capacity to take in short run surprises in the long run. While short run shock in SMCPAK, FDIPAK, TOPAK agitate economy in long run. One of the possible reason for this is that banking sector is Pakistan is performing well after financial liberalization and state bank maintain a relax policy for banking regulations. On the other hand shocks in TO, FDI disturb economy in long run. War against terrorism can be one of possible factor for this. China economy has the capacity to absorb short run shocks in BMCHINA, PSCCHINA in long run. Indian economy can take up short run shocks in FDIINDIA and TOINDIA in long run. While the rest of macroeconomic variables short run shocks has a disturbing effect in long run. The result of VECM test suggests that almost all the variables have the correct sign. This means that financial deepening has positive effect on macro economic performance.

**Table: 5 Standard errors in ( ) and t- statistics in [ ].....**

VEC:	D(GDPPAK)	D(BMPAK)	D(SMCPAK)	D(PSCPAK)	D(FDIPAK)	D(TOPAK)
Pakistan						
CointEq1	-0.334155 (0.09770) [-3.42037]	-2.931404 (2.68798) [-1.09056]	5.419338 (1.82876) [ 2.96340]	-8.044076 (3.47227) [-2.31666]	0.183761 (0.54606) [ 0.33652]	-0.040388 (0.09959) [-0.40555]
China						
CointEq1	-0.215940 (0.09991) [-2.16132]	3.638679 (1.67969) [ 2.16628]	1.149275 (4.62994) [ 0.24823]	-26.08189 (7.04652) [-3.70139]	-18.97255 (8.49886) [-2.23236]	-0.406085 (2.75425) [-0.14744]
India						
CointEq1	0.005753 (0.05251) [ 0.10955]	3.311598 (0.74126) [ 4.46754]	-1.090322 (2.21039) [-0.49327]	-1.657904 (1.24505) [-1.33160]	-0.488622 (0.19883) [-2.45754]	-4.181510 (1.92297) [-2.17450]

Source: Author calculation on E views software

### 5.6: Impulse response rate.



Source: author calculations on E views software

From impulse response rate we can see that GDP response to SMC in all three countries. Almost all the three countries show same pattern of short term changes in DGP response to FDI. Short run shocks in DGP can be absorbed in long run shocks in GDP can effect FDI. Response of PSC is more profound in India as compared to Pakistan and China. Similarly short run shocks in DGP are more profound in China and India as compared to Pakistan. Short run shocks in DGP to FDI are more profound in India as compared to other two countries. Short term shocks in “GDP” to “TO” are sensitive in all the three countries.

### 5.7: Granger Causality Test.

As there is long run association between macro economic variables and financial deepening, one of the tests which are applied to establish the track of relation in term of statistical interference is

(GCT) Granger Causality test. This test shows the direction as well as gives information about the short- term relationship. It can be estimated with the following least square equation.

$$X_t = \alpha + \beta_j X_{t-j} + \phi_i Y_{t-1} + U_t$$

$$Y_t = \alpha + \beta_j Y_{t-1} + \phi_j X_{t-1} + U_t$$

**Table 8: Granger causality test “Pakistan”**

	Null Hypothesis:	F-Statistic	Probability
Pakistan	SMCPAK does not G Cause GDPPAK	3.55886	0.04022
	GDPPAK does not G Cause SMCPAK	3.60770	0.03864
	PSCPAK does not G Cause GDPPAK	0.57642	0.56763
	GDPPAK does not G Cause PSCPAK	1.96764	0.15634
	BMPAK does not G Cause GDPPAK	0.63249	0.53778
	GDPPAK does not G Cause BMPAK	1.86156	0.17187
China	BMCHINA does not G Cause GDPCHINA	0.17733	0.83832
	GDPCHINA does not G Cause BMCHINA	1.74457	0.19093
	PSCCHINA does not G Cause GDPCHIN	2.04141	0.14642
	GDPCHINA does not G Cause PSCCHINA	1.49003	0.24059
	SMCCHINA does not G Cause GDPCHI	2.83872	0.07330
	GDPCHINA does not G Cause SMCCHINA	5.54046	0.00859
India	SMCINDIA does not G Cause GDPIND	5.88786	0.00665
	GDPINDIA does not G Cause SMCINDIA	4.29282	0.02231
	PSCINDIA does not G Cause GDPIND	2.66458	0.08504
	GDPINDIA does not G Cause PSCINDIA	0.58498	0.56296
	BMINDIA does not G Cause GDPINDIA	7.16120	0.00269
	GDPINDIA does not G Cause BMINDIA	1.97183	0.15576

Source: Author calculations on E views

The result shows that there is two sided causality between SMCPAK and GDPPAK. While there is one sided causality between BMPAK and GDPPAK. Rest of the variables didn't have any

causal relationship. Similarly there is only one way causal relation between SMCCHINA and GDPCHINA. While in India there is one sided causality in BMINDIA and SMCINDIA rest of the variables are independent. These result conform that there is short run relationship between financial openness and macroeconomic performance.

### 5.8: Regression analysis

Basic purpose of this study is to examine the role of financial sector liberalization in Pakistan, China and India. Table 11 shows the result of regression analysis for all the three countries. To find out the impact of financial sector liberalization a dummy variable is introduced. This study focus on data from 1991 to 2010. So we use (0) for the period where markets were repressed and use (1) for financial liberalization. General equations used were

$$LGDPt = \beta_0 + \beta_1SMCt + \beta_2PSCt + \beta_3BMt + \beta_1FDIt + \beta_5TOt + \beta_6FLDt..... (1)$$

$$LINV = \beta_0 + \beta_1SMCt + \beta_2PSCt + \beta_3BMt + \beta_4FDIt + \beta_5TOt + \beta_6FLDt ..... 2$$

Result shows that most of the variables show positive sign which support literature. Moreover results of stock market capitalization has value of (0,058605) and is significant. Foreign direct investment is also closer to 0.05 it means that it is almost positive and significant. FLD has a positive value of (0.42) and is significant as well. This shows that financial sector liberalization is doing well. But it same time financial sector is negatively effecting investment. Similarly if we analyze the result of China and India we can see that China has negative effects of financial liberalization while India experience positive impact of financial liberalization. In China BM has positive and significant effect on GDP. BM has positive and significant effect on investment as well. In India BM has positive and significant effect on both GDP and Investment. FDI has also positive impact on Investment. FDI has negative and significant effect on investment.

**Table 11: Regression analysis of Pakistan, China and India**

Variables	Dependent variable	LGDP	Dependent variable	INV
	Coefficients	P values	Coefficients	P values
<b>Pakistan</b>				
Constant	25.44062	0.0000	17.02173	0.3871
SMCPAK	0.058605	0.0000	0.496017	0.0000
PSCPAK	-0.003020	0.8640	0.233211	0.0938
BMPAK	0.038048	0.3867	-0.282931	0.4042
FDIPAK	0.146220	0.0732	0.592091	0.3385
TOPAK	-0.826725	0.3848	3.186428	0.6630
FLD	0.428632	0.0436	-1.416165	0.3753
R <sup>2</sup>	0.906257		0.848780	
Adjusted R <sup>2</sup>	0.888680		0.820426	
F- statistic	51.55985	0.000000	29.93539	0.000000
<b>China</b>				
Constant	25.24446	0.0000	25.74157	0.0000
SMCCHINA	-0.026601	0.3133	0.419223	0.2587
PSCCHINA	-0.008962	0.0205	-0.084057	0.1132
BMCHINA	0.021979	0.0000	0.084692	0.0348
FDICHINA	-0.008432	0.5836	0.279308	0.2007
TOCHINA	0.030933	0.0245	-0.001687	0.9927
FLD	-0.196304	0.0552	-2.548655	0.0750
R <sup>2</sup>	0.984388		0.868870	
adjusted R <sup>2</sup>	0.981461		0.844283	
F-Statistic	336.2830	0.000000	35.33885	0.000000
<b>India</b>				
Constant	23.63788	0.0000	8.444693	0.0000
SMCINDIA	-0.015146	0.3588	0.133160	0.2321
PSCINDIA	0.012614	0.2830	0.144830	0.0713
BMINDIA	0.069711	0.0000	0.246744	0.0018
FDIINDIA	0.010785	0.9097	1.390840	0.0357
TOINDIA	-0.006400	0.5250	-0.053330	0.4314
FLD	0.146636	0.1737	0.501755	0.4838
R <sup>2</sup>	0.953430		0.948231	
Adjusted R <sup>2</sup>	0.944698		0.938524	
F-Statistic	109.1902	0.000000	97.68783	0.000000

Source: Authors calculations on views

## **6: Conclusion and policy suggestion**

There is lot of literature that examines the relation of financial openness and economic growth. Most of the studies give confusing results. Some studies argue in favor of financial liberalization they support their argument with the reason that it enhances economic growth through investment and growth. This study is conducted to provide cross country evidence for financial liberalization.

Analyzing Pakistan and china's financial reforms we can see that Pakistan financial sector especially banking sectors pass through many ups and down. China's financial sector didn't enjoy smooth run till 1980's. Even today the four major banks are state owned and the basic purpose of the operation is not similar to other countries financial system. Most of their operations are to bring regional equality in China. (Park & Shert, 2001).

Another evidence of china's sector bad performance is that there is large amount of nonperforming loans in china. If we compare it to Pakistan there is huge difference. In Pakistan the ratio of nonperforming loans is only 3.1% while in china it is 12.6% of its total loan and 15.2% of its total GDP (Allen, 2005). In fact the amount of nonperforming loans in china is greater than all its neighbors' countries. However the ratio is decreasing in china which is a positive sign for its economy. India has performing better, especially in stock market indicator in last decade. However economic growth was not that much fast as expecting at the time of financial liberalization in India. One of the possible reasons for this is weak performance of private sector credit and liquid liabilities of the financial sector.

Our result suggests that there is regular improvement in financial sector in all these three sectors. Johansen co-integration shows that there exist a long run relation between financial development and macroeconomic variables. Impulse response rate shows that the economies of these countries

have the ability to absorb short run shocks. And there is causality between economic growth and financial development.

Chinese government should focus on private sector. That is how they will be able to get maximum out of financial liberalization; moreover the four major banks should not monopolize the banking sector because it can disturb the process of financial intermediation which is important for investment and economic growth. At the same level Pakistan government should focus on foreign direct investment and stock market operations.

There are some limitations of this study. Data is not available. For most of macroeconomic variables we need quarterly data and number of observations must be at least 100. However in most of the developing countries the data is not available. Furthermore the measures of financial development need further attention. More variables should be included in order to reflect the true picture of financial system.

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