External Financial Liberalization and Economic Growth: The Evidence from Pakistan

Samina Naveed[*]
Zafar Mahmood[**]

Abstract

This paper examines the impact of external financial liberalization on economic growth of Pakistan using multivariate co integration technique and error correction mechanism. The paper in particular investigates the external financial reform process and captures the external financial liberalization through de facto measure. This measure is captured through sum of foreign assets and liabilities as a ratio to GDP. While controlling for other growth control variables, the empirical results indicate negative impact of external financial openness on economic growth in the long run. This result is in line with majority of the international literature evaluating the relationship between external financial openness and economic growth for developing countries.

Keywords: Financial liberalization, economic growth, Pakistan.

1. Introduction

On account of dramatic changes observed in the financial architecture of both developed and developing economies, attention has now moved from

[*]Samina Naveed, Assistant Professor, School of Social Sciences & Humanities, National University of Sciences &Technology, Islamabad, Pakistan. The author can be reached at the following e- mail address: samina.naveed@s3h.nust.edu.pk
[**]Zafar Mahmood, Professor of Economics & HoD Research in School of Social Sciences & Humanities (S3H), National University of Science and Technology (NUST), Islamabad, Pakistan. The co-author can be accessed at dr.zafar@s3h.nust.edu.pk.
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conventional work on liberalization in goods sector to liberalization in the financial sector. The financial system of most countries have transformed during the past three decades not only on account of liberalization of their domestic markets but also on account of unhindered capital flows. The external liberalization of the financial sector is equally important in terms of growth benefits that it offers. As suggested by the neo-classical framework, and advocated by proponents of external financial liberalization, the openness of the external financial sector of economies will lead to an unhindered flow of capital from capital rich economies to capital scarce economies where the return on capital is usually high. This flow of capital complements the limited domestic savings in capital scarce economies. The resultant reduction in cost of capital allows for increased investment and hence economic growth.

The literature which so far exists in the area of external financial liberalization and growth generally studies the impact of external financial liberalization on growth through capital account liberalization. The study of international financial integration or external financial liberalization either through equity market liberalization (Bonfiglioli, 2005; Bekaert *et al.*, 2001) or through a measure of de jure/de facto financial openness (Ozdemir & Erbil, 2008; Kose et al., 2006; Lane and Ferrertti, 2006; Quinn, 1997, Edison, *et al.*, 2002) is also well documented. However, no significant work to-date exists in the literature that has comprehensively studied the impact of external financial openness on economic growth for a developing country like Pakistan through a concrete measure of external financial openness. Only few studies on this topic are available in case of Pakistan. Among them, the empirical relationship between capital account openness and economic growth has been explored by Shahbaz et al. *(*2008). Results of the study show a positive impact of capital account openness on economic growth in the long run. However, nowhere in the paper the authors mention the measure of capital account openness to study the impact on growth.

A discussion on capital account convertibility by Janjua (2011) shows that the measures so far introduced in external financial sector of Pakistan

label it as partially convertible. The gradual move from a closed capital account to open one has been followed since the 1990s and Pakistan's capital account is liberalized in terms of foreign direct investment (FDI) inflow and outflow, portfolio inflow, and a flexible exchange rate regime. According to Haque (2011), the Pakistani economy is by and large free of restrictions in terms of capital account convertibility; however, the actual integration of Pakistan's economy with the global economy in comparison to other emerging markets is still limited. The country's access to private foreign capital has improved on account of capital account liberalization; however, the convertibility has also made the country more vulnerable to outside shocks.

On account of limited literature on external financial openness and economic growth in the context of developing country like Pakistan, the present paper seeks to explore the impact of external financial openness on economic growth of Pakistan through de facto measure of external financial openness. The paper in particular captures the external financial liberalization through *de facto* measure, which is based on the work of Lane and Ferretti (2006) while the data for remaining years are updated utilizing their methodology. The multivariate co integration technique and error correction mechanism is applied to examine the impact of external financial liberalization on economic growth.

Rest of the paper is organized as follow. Section 2 provides a review of external financial sector reforms in Pakistan. Section 3 discusses the empirical model. Measurement of de facto variable is explained in section 4. The estimation methodology and empirical results will be discussed in section 5. The final section summarizes main findings of the paper.

2. External Financial Reforms in Pakistan:

The decade of the 1970s and 1980s is characterized as period of financial repression in the economic history of Pakistan. Directly controlled interest rate movements, control of domestic credit in the form of credit ceiling and

directed and subsidized credit, controlled deposit and lending rates, high reserve requirements, segmented and under developed financial markets were the hallmark of Pakistan's financial sector during that period. Not only that domestic financial sector was repressed, but the restrictions on current and capital account transactions were also present on the external front in the pre-reform era. SBP was regulating the foreign exchange market through a system of exchange controls. The foreign exchange market was not working under market based price mechanism and this market was also rigid to changes in demand and supply conditions in the external sector of the economy. Exchange rate was not working under the flexible regime although Pakistan shifted to managed float in 1982; however, in reality it was close to a fixed rate regime and was not a true reflection of the market imbalances (Hanif, 2002).

In accordance with the transitional arrangement under Article XIV of the Article of Agreement of the IMF, Pakistan had maintained for a long time a number of restrictions on the payment and transfer of current international transactions. Liberalization of exchange and payment regime in fact started since February 1991 in Pakistan. Pakistan, however, has moved to managed float exchange rate system in 1982. The liberalization of external sector encompasses the following broad based measures:

In July 1994, Rupee was made convertible on current international transactions under the IMF Article VIII.

To attract the foreign money detained out of the country, Pakistani residents were permitted to open and maintain foreign currency accounts with banks in Pakistan on the same basis as non-residents. These accounts were freely transferrable abroad and besides the exemption of wealth and income taxes on these accounts, no questions were asked about the source of income.

All sectors/industries were opened to foreign investors for investment except certain specified one. Not only that foreign investment in these

industries was allowed without prior approval, but investors could purchase up to 100 percent equity in industrial companies on repatriable basis. There was no restriction on repatriation of disinvestment proceeds/capital, profits and dividends (Financial sector assessment, 1990-2000).

Special Convertible Rupee Account (SCRA) was opened in 1996-97 and inward portfolio investment was allowed without any prior approval provided the transactions took place through SCRA. Foreign investors were thus allowed to make investment in listed securities on stock exchange through these accounts (Janjua, 2011). To purchase residential flats, plots, houses in Pakistan, authorized dealers, DFIs and housing finance institutions were allowed to grant rupee loans to Pakistani nationals working outside Pakistan (Hanif, 2002).

 In February 1998, Authorized Dealers (AD) were granted the permission to decide their own exchange rates for currencies, with the exception of US dollar.

Pakistan ER system was working under a managed float till July 1998, when a new mechanism in ER regime was introduced. This comprised of an official exchange rate and a floating inter-bank exchange rate (FIBR). This multiple ER system was replaced by a market based unified exchange rate system in May 1999 when FIBR became applicable to all foreign exchange transactions. In addition to the adoption of a unified ER system, the condition for AD to surrender all foreign exchange receipts to SBP was also eliminated. The rupee was put to a free float in July 2000, and this was considered to be a major achievement in the area of exchange rate management (Financial sector assessment, 1990-2000).

Currently, the external financial sector in Pakistan is working under full current account convertibility with partial capital account liberalization. There are no restrictions on the inflow of FDI but outflow of FDI requires SBP's prior approval and detailed justifications. Similarly, there are no restrictions on portfolio inflow as long as they are routed through Special Convertible Rupee Account (SCRA) however; portfolio investment abroad is

not permissible. Only locally established mutual funds are allowed to invest abroad to the extent of 30 percent of the aggregate funds mobilized, in permissible categories subject to a cap of US $15 million at any given time with a prior approval of SBP and SECP. Foreign currency borrowing from abroad is allowed subject to certain terms and conditions and registration of loan with SBP and authorized dealer. Foreign currency lending abroad is completely restricted (Janjua, 2011). In terms of capital account convertibility, Haque (2011) further points out that Pakistani economy today is by and large free of restrictions. The only prominent restriction is on the amount of domestic currency that a traveler may physically carry overseas and on the amount Pakistani residents may hold in overseas bank accounts. However, the actual integration of Pakistani economy into the global economy in comparison to other emerging markets is still limited.

It is pertinent to mention that reforms introduced in the external financial sector in Pakistan have helped in moving the economy from repression of 1970s and 1980s to a more liberalized environment. However, the costs attached to a full liberalization of capital account/external financial liberalization and the challenges faced by the economy in terms of macro-economic management or real cost of unhindered capital need to be dealt with carefully.

Full liberalization of capital account in terms of removal of restrictions on all inflows and outflows in the presence of weak institutions, under developed and poorly regulated financial sector and weak economic fundamentals can lead to misallocation of foreign capital, making the economy more vulnerable to financial crisis. The unhindered capital flows can also lead to banking and currency crises thus leading to financial instability in the economies undertaking full liberalization of their capital account. So further opening of the external financial sector of Pakistan should be dealt with carefully.

3. The Empirical Model

In order to examine the impact of external financial openness on

economic growth, following empirical model is constructed.

$$Y_t = b_o + b_1\,fal_t + b_2\,X_t + \varepsilon_t \tag{1}$$

Where, Y_t the dependent variable is the real GDP, which is obtained by dividing nominal GDP by GDP deflator at 2000 base. fal_t is a measure of external financial openness through de facto approach. X_t is the vector of growth control variables that include employed labor force, enrolment ratio, capital stock, and inflation rate. Data for employed labor force include the actual employed working force. For enrolment ratio, the sum of primary, middle, high stage and arts and science college enrolments is divided with the sum of respective age groups. Inflation rate series has been constructed on the basis of CPI at constant prices of 1999-2000. Actual capital stock data are not available from the secondary sources; a common practice is to use gross fixed capital formation as a proxy for capital stock. However, we have constructed the actual series for capital stock (K_t) utilizing the information on gross fixed capital formation (I_t). The capital stock series is computed using the following formula

$$K_t = K_{t-1}(1\text{-}d) + I_t$$

To get an initial estimate of capital stock, we followed Burney (1986), to derive the capital–output ratio for 1959-60. This capital output ratio was 2.75 in 1959-60. The depreciation rate was taken as 4 percent. Utilizing this information, and putting the values in the above formula, we have subsequently generated a complete series of capital stock from 1960 till 2010. For the purpose of our study, series from 1972-2010 is then utilized. The data sources for dependent and control variables are International Financial Statistics, Pakistan Economic Survey, Various issues and Handbook of Statistics on Pakistan economy (2010). To estimate the relationship specified in equation 1, the time series data covering the period (1972-2010) is used.

4. Measurement of *de facto* Variable

Here the methodology regarding the measurement of *de facto* variable is explained which is used in the empirical model given in equation 1 to examine the impact of external financial openness on economic growth. However, before going into the discussion regarding the measurement of *de facto* variable, some discussion regarding the selection of de facto over de jure for the measurement of external financial openness is presented. The traditional approach to measure financial openness is through capital account openness, to look at legal restrictions on cross border capital flows. The IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER) provides significant information regarding this measure of financial openness and is used to construct binary measure (0/1 dummy variables) of capital account openness. "These *de Jure* measures are quality-based measures of financial liberalization, which concentrate on events such as changing regulations and the response of the monetary authorities to financial flows" (Ozdemir and Erbil, 2008). Utilizing the summary information provided in AREARS, some researchers construct the share measure which reflects the proportion of years in which a country was having an open capital account (Grilli and Milesi-Ferretti, 1995; Rodrik, 1998; and Klein and Olivie, 2006). Narrative description in AREARS is used by Quinn (1997, 2003) to construct a quantitative measure of capital account openness.

However, *de jure* measures suffer from certain shortcomings. These are not completely based on numerous limitations associated with foreign exchange transactions that may not hinder capital flows so do not fully convey the degree of openness of capital account. These measures do not reflect the actual degree of integration of an economy into international capital markets (Kose Prasad, Rogoff, and Wei, 2006).

On account of certain shortcomings related to *de Jure* measure, an alternative measure is the use of *de facto* approach (advocated, for example, in Prasad, Rogoff, Wei and Kose, 2003) of financial openness. The *de facto* measures can be used to study the actual result of enforcement of existing regulation on financial markets. These *de facto* measures basically show the

actual integration of an economy with the international capital markets. The availability of *de facto* integration measures are based on the original work of Lane and Milesi- Ferretti, (2001). The *de facto* measures are calculated as sum of gross stock of foreign assets and liabilities as a ratio to GDP (Kose Prasad, Rogoff and Wei, 2006).

The *de facto* measure of external financial openness is measured as a sum of gross stock of foreign assets and liabilities as a ratio to GDP. "Sum of gross inflows and outflows are also proxied for international financial integration (IFI) because openness is defined both in terms of receiving foreign capital and in terms of domestic residents having the ability to diversify their investments abroad" (Edison *et al.*, 2002). However, flow data is often volatile and prone to measurement errors. Stock data, in contrast are less responsive to short run fluctuations linked with the factor that are unrelated to IFI and is a refined cumulated version of underlying flows corrected for valuation effects (Kose Prasad, Rogoff, and Wei, 2006).

The *de facto* measure of external financial openness that is used for the estimation of equation 1 is based on the work of Milesi-Ferretti and Lane (2006). They have computed the accumulated stock of foreign assets and liabilities for a broad sample of 145 countries covering the period 1970-2004. An updated version of their data set till 2007 is also available on EWN data base. Their data set is exclusive and comprehensive in nature because it contains information on international financial position of countries. The composition of international financial position is distinguished on the basis of foreign direct investment, foreign portfolio investment, external debt (portfolio debt and other investments) and others (financial derivative and total reserves minus gold). For the estimation of Eq(1), we require data set up till 2010. Following the methodology of Milesi- Ferretti and Lane (2006), the data set for Pakistan is updated.

4.1 Methodology to Update Data Set for Pakistan

The series of FDI (both inflow and outflow) has been updated using the

international investment position data from IFS. Whereas, to update the foreign portfolio investment and debt series, the methodology adopted by Milesi- Ferretti and Lane (2006) is used. The methodology relies on indirect estimates which are constructed on the basis of cumulative flows with suitable valuation adjustments. The cumulative flow method is demonstrated as following:

$$D_t = \frac{p_t}{p_{t-1}} D_{t-1} + \frac{p_t}{\overline{p_t}} d_t \qquad (2)$$

where,

D_t = stock of holding at the end of year "t"

d_t = flow of purchases during year "t"

p_t = U.S dollar price of "D" at the end of period "t"

$\overline{p_t}$ = average price of asset "D" during year "t"

This formula shows that end of period "t" holdings will be equal to cumulative holdings at the end of previous period, adjusted for valuation changes, and net buying throughout the period estimated at the end of period asset price.

Foreign Portfolio Investment Series

Estimate of "*portfolio equity assets and liabilities by using cumulated portfolio equity outflows (for assets) and inflows (for liabilities) adjusted to take into account fluctuations in stock prices*" are constructed (Ferretti and Lane (2006). The price indices for domestic and international stock markets are taken into account for the measurement of these prices. To calculate asset category, world stock price index, proxy by U.S stock price index is used. Pakistan' stock price index will be utilized to calculate the estimates of liabilities. The foreign portfolio investment series is extended up till 2010.To

extend the series, , the stock data was placed at the end of 2007, along with the flow data and US stock price index and Pakistan's stock price index data in the above formula.

Debt Series

The procedure to update the debt series is same as the one adopted to update foreign portfolio series with the exception that stock price index will be replaced with the exchange rate between the U.S dollar and Pakistani Rupee.

The series constructed by Milesi-Ferretti and Lane uptill 2007 and updated by following their methodology till 2010 for Pakistan is presented in Appendix 1 table A1. The constructed series is presented graphically in Fig 1. The gross stock of foreign assets and liabilities as a ratio to GDP is taken as measure of external financial liberalization. This is a *de facto* measure as it shows the actual integration of Pakistan's economy with the international financial markets; it is used in eq (1) with other growth control variables to estimate the relationship between external financial liberalization and economic growth.
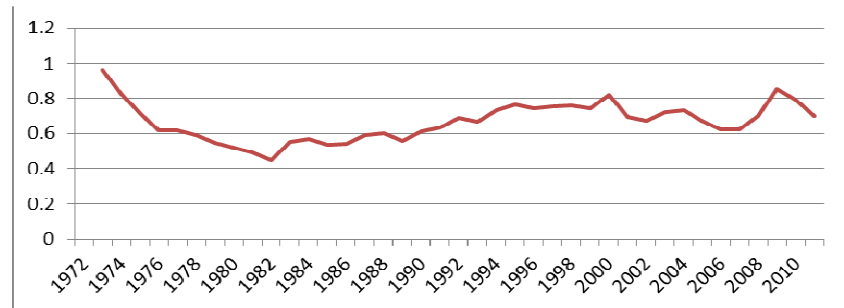

Fig. 1 Gross Stock of Assets & Liabilities as a Ratio to GDP

Figure 1 present the evolution of sum of gross stock of foreign assets and liabilities as a ratio to GDP from 1972 till 2010. It is clear that this ratio has not recorded a significant improvement after the reforms were introduced in the external financial sector of Pakistan. In fact, the ratio is stagnant between

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0.7 to 0.9 percent between 1992 and 2010. This implies that despite several reforms introduced in the external financial sector of Pakistan, the international financial integration of Pakistan has been limited.

4.2 Estimation Methodology and Results

The empirical testing of equation 1 is carried in three steps. In the first step, the stationary of the variables is checked through unit root testing. In the second step, multivariate co-integration test is carried out followed by error correction model. In the final step, diagnostics is perfoemed to check the stability of the model. The starting point for the examination of time series properties of any data is to check for the presence of unit root or stationarity/non-stationarity in the data[1]. Unit root is applied on the logarithm of variables because log variables giving us elasticities and reduce the impact of outliers and smoothes out the timer series (Maddala, 1992). To check the presence of unit root, we employ Augmented Dickey-Fuller (1979 and1981) test on all the variables in equation 1. Table 2 report the unit root test for all variables in equation 1. With the exception of inflation rate which is stationary even at level, all other variables are integrated of order 1.

Table 2
Unit Root testing by ADF test statistics[2]

Series	Specification	Level	Ist difference	Decision
Real GDP	Intercept	-2.61(0)	-4.47(0)*	I(1)
FAL (*de facto*)	Intercept	-1.73(2)	-4.83(1)*	I(1)
Employed labor force	Intercept and trend	-1.40(0)	-6.88(0)*	I(1)
Capital Stock	Intercept	-2.49(1)	-3.47(0)**	I(1)
Enrolment ratio	Intercept	-1.35(0)*	-6.38(0)*	I(1)
Inflation rate	Intercept	-4.36(9)*		I(0)

* implies significance at 1% level, ** at 5% level, *** at 10 %level

Given the non-stationary nature of all series of equation 1, which are all

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[1] "A series is said to be stationary if it exhibits mean reversion, i.e., it fluctuates around a long-run equilibrium value, has constant, finite and time invariant variance and has a correlogram that diminishes as lag length increases" [Enders, 1995].
[2] The specifications with only intercept for all series except LELF are reported because trend appears to be significant in LELF series.

integrated of same order I(1), except inflation rate which is I(0), Johenson Co-integration analysis is applied to examine the long-run relationship between economic growth, external financial openness through de facto measure, and other conventional determinants of growth. Following Johenson (1988) and Johenson and Juselius (1990), the co-integrating equation or Vector Error Correction Model (VECM) can be represented as,

$$\Delta Z_t = \mu + \sum_{i=1}^{k-1} \Gamma_i \Delta Z_{t-i} + \Pi Z_{t-1} + \varepsilon_t \tag{3}$$

where μ is the deterministic component and represents intercept (no trend) in both CE and VAR (Vector Auto Regressive). The Π matrix is the long-run co-integrating matrix and it contains information regarding the long run relationships. It contains all the relevant information regarding the number of co-integrating relationships among the variables. The Π matrix can be decomposed into $\Pi = \alpha\beta'$ where β' is the long run matrix of co-efficient, while α represents the speed of adjustment towards the state of equilibrium and it contains the equilibrium error correction term. The expected sign of error correction coefficient is negative. The error correction term has a negative sign. The term Γ shows the coefficients of VAR or the short run coefficients explaining the short run relationships between the variables of the model.   In equation 3, *k* indicates the optimal lag length of VAR model.

Table 3
Lag Length According to Different Criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
0	123.9695	NA	1.11E-09	-6.430783	-6.213091	-6.354037
1	341.9966	365.3427	3.31E-14	-16.86468	-15.55853*	-16.4042
2	374.7489	46.03033*	2.35e-14*	-17.28373*	-14.88912	-16.43951*

* indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, and HQ: Hannan-Quinn information criterion.

Before conducting the co-integration analysis, the appropriate lag length of the model is determined. The results of different lag length selection

processes are reported in table 3, according to which AIC is minimum at 2 lags and the model is tested for co-integration up to 2 lags.

After the selection of appropriate lag length of the model, the co-integration relationship is now investigated between the variables in equation 1 using maximum eigen value test and trace tests. In both these tests, if the calculated statistics is greater than critical value, the null hypothesis is rejeceted. Thus the first row tests:

$$\text{Ho: } r = 0 \qquad \text{against} \qquad \text{H1: } r = 1$$

If Ho is rejected only, then we proceed to next row and so on.

Table 4
Results of Trace Test

Null Hypothesis	Alternative Hypothesis	Eigen Value	Test Statistics with adj d.f	0.05 Critical Value
r = 0	r ≥ 1	0.717017	81.00540256	69.81889
r = 1	r ≥ 2	0.518101	47.2172128	47.8513
r = 2	r ≥ 3	0.497116	27.67062513	29.7707
r = 3	r ≥ 4	0.242039	9.26956	15.49471
r = 4	r ≥ 5	0.066816	1.851180795	3.841466

Trace test after adjusting the degrees of freedom indicates 1 cointegrating equations at the 0.05 level.

Table 5
Results of Maximum Eigen Value

Null Hypothesis	Alternative Hypothesis	Eigen Value	Test Statistics with adj d.f	0.05 Critical Value
r = 0	r ≥ 1	0.717017	33.79267385	33.87687
r = 1	r ≥ 2	0.518101	19.54209615	27.58434
r = 2	r ≥ 3	0.497116	18.40106513	21.13162
r = 3	r ≥ 4	0.242039	7.418378462	14.2646
r = 4	r ≥ 5	0.066816	1.851180795	3.841466

Maximum eigen value test after adjusting the degrees of freedom indicates no cointegrating eq(s) at the 0.05 level

The results from Johenson co-integration test are presented in tables 4 and 5.

The likelihood ratio statistics from trace test indicate the presence of one co-integrating vector at 5 percent level of significance after adjusting the degrees of freedom. However, maximum eigen value test after adjusting the degrees of freedom indicate no co integrating eq(s) at the 0.05 level. We will retain the results of trace test which exhibits a unique relationship between economic growth, external financial liberalization through de facto measure and other conventional determinants of growth. The result of trace test thus shows that there exist a long run relationship between external financial liberalization and economic growth. The long run normalized co-efficient of the estimated co-integrated vector are reported in table 6.

Table 6
Normalized Co-efficient of Co integrating Vectors on LRGDP

Variable	Coefficient	Standard Error	t-Value
LFAL	-1.038627*	-0.26621	3.90153262
LKS	1.691294*	-0.33277	-5.08247138
LELF	-0.954175**	-0.55667	1.71407656
LENRR	-0.606457**	-0.27732	2.18684913

* implies significance at 1% level, ** implies significance at 5% level, *** implies significance at 10 %level

The results of co-integration analysis (table 6) indicate that the estimated long run coefficient of external financial liberalization through *de facto* measure i.e., log of gross stock of foreign assets and liabilities as a ratio to GDP (LFAL) is -1.03, which shows that external financial liberalization negatively affects economic growth in the long run. Not only that the size of this coefficient is large but it also significantly affects economic growth in the long run. It is already mentioned that this measure is a relatively much better measure of external openness as it reflects the actual integration of an economy with the international capital markets. The negative sign of this variable actually negate the proposition advocated by proponents of external financial liberalization that opening of capital account of the countries

enhance the growth rate of those economies (neo- classical; Fischer, 1998, and Summers, 2000).

The negative impact of *de facto* external financial liberalization on economic growth is attributed to a host of factors. Referring to the international investment position of Pakistan presented in Fig 2 (table A2 is reported in Appendix 1), normally a country's foreign assets and liabilities are expected to be of similar order of magnitude. However, in case of Pakistan, assets have averaged even less than one third of its international liabilities, thus reflecting its net investment position as strongly negative. Another important feature of Pakistan' international investment position is that total assets relative to GDP have not improved but rather remained stagnant in the range of 6 to 15 percent. While liabilities to GDP decreased in some initial years, they actually show an increasing trend for later years. If we disaggregate total liabilities into FDI and foreign loans, again foreign loans account for almost 86 percent of total liabilities while FDI inflow in contrast account only for 10 percent of total liabilities. This dismal performance of Pakistan's international investment position points to the fact that the part of inflow which is considered to be a positive contributor to growth (FDI) appears to be very less as compared to foreign loan or debt liability. A huge amount of debt liabilities show the dependence of our economy on external sources. A number of studies in case of Pakistan have
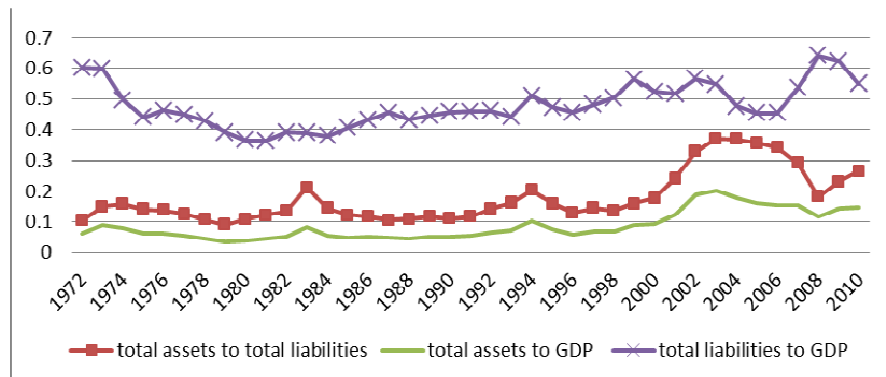

Fig. 2 International Investment Position of Pakistan
Source: Milesi-Ferretti and Lane uptill 2007, Author's calculation for 2008-2010

come up with the debt negatively affecting the growth rate (Ahmed and Shakur, 2011; Malik, 2010; and Iqbal, 1998). The above discussion regarding the international investment position of Pakistan thus justifies the negative implications of external financial openness on economic growth.

Another important factor for effectiveness of capital account liberalization is sequencing of reforms. Contrary to the usual sequencing of convertibility of current account before undertaking capital account liberalization, Pakistan initiated capital account liberalization before the convertibility of current account. The opening of capital account has also proved to be costly to Pakistan in terms of tax evasion. Since FCA scheme introduced in 1991 was costly not only in terms of tax forgone on interest payments to depositors, but was also exempted from any kind question regarding the source of that income. In a country like Pakistan that has a very low tax to GDP ratio and which needs the assistance from both external sources or from internal to finance its expenditure, this kind of policy has serious detrimental effects on revenue generation and resultantly on economic growth.

International literature on the impact of capital account liberalization on economic growth also reveals an important fact that countries in which external openness has proved to be fruitful in raising their growth rates are mostly the developed ones and those that are strong in terms of quality of institutions (Klein, 2005; Mody and Murshid, 2005; Klein and Olivei, 2001; Eichengreen, Gullapalli, and Panizza, 2009; Faria and Mauro, 2005). In case of Pakistan, the quality of institutions in spite of improving has deteriorated over time. Bad governance, high corruption, mismanagement, political interference has actually brought our institutions to the brink of collapse. The findings of our study are in line with Pakistani literature, e.g., Haque (2011), Jangua (2010), while contradict those of Shahbaz, Wahid, Ahmed and Chaudry (2008). The international literature on the impact of external financial liberalization is mixed and a positive relationship between external financial liberalization and growth is evident only in developed countries or countries with strong institutions. So our findings are also supported by

international literature like Edison, Levine, Ricci and Slok (2002), Athukorala (2000), Eichengreen (2001), and Prasad, Rogoff, Kose and Wei (2006).

The estimated long run coefficient of capital stock positively and significantly impacts the growth rate in the long run. The estimated coefficient for this variable is 1.69 which implies, that a 1 percent increase in capital stock increases economic growth by 1.69 percent. This strong and significant impact of capital stock is consistent with existing growth theories [such as Cobb-Douglas Production function and Solow Growth Model] and empirical literature (Siddiqui (2004), Burney (1986), Ahmed (1994), IMF (2005), and Das & Paul (2011). This result highlights the importance of this primary factor of production in output generation or economic development of the economy.

Employed labor force negatively and significantly impacts growth rate in the long run. This result is again contradictory to most of the literature on the impact of labor force on economic growth, however, it is in line with the findings of Awan *et al*., (2011) and Hussain *et al.*, (2009) in case of Pakistan and Banam (2010) in case of Iran. This negative impact is once again attributed to dearth of qualified human resource according to the emerging needs of the economy along with a massive supply of labor force which cannot be absorbed into productive employment.

Enrolment ratio negatively and significantly impacts growth rate in the long run with a coefficient of 0.60. The result contradictory to majority of the studies exploring the relationship between human capital and economic growth is, however, in line with few studies (Awan *et al*., 2011; Spiegel, 1994; Lan *et al*., 1991; Dasgupta and Weale, 1992; Pritchett, 1996). The negative impact of human capital on growth is on account of the fact that not only a mere increase in quantity but rather an increase in quality is important in promotion of growth through human capital. Besides this, a fragmented education system in Pakistan along with a mismatch between the supply and demand of the educated labor force is also the cause of a negative

relationship between human capital and economic growth.

After discussing the results under co-integration for long run relationships, the results obtained under error correction model showing the short run relationship between variables along with error correction term are presented. Dropping the insignificant variables from the short run error correction model, we are left with the following significant variables in error correction model.

$$\Delta LRGDP_t = c_o + c_3 \Delta FAL_t + c_6 \Delta LKS_t + c_8 \Delta LKS_{t-2} + c_{15} INF_t + c_{18} EC_{t-1} \quad (4)$$

The short run dynamics of the model are reported in table 8.

Table 8
Short Run Co-efficient along with Error Correction Term

Variable	Coeffecient	Standard Error	t-Value
C	0.07517*	0.010051	7.478818
D(LFAL)	-0.094159*	0.031189	-3.019011
D(LKS)	0.112767*	0.029672	3.80043
D(LKS(-2))	0.098438*	0.036651	2.685794
INF	0.001123**	0.000689	-1.628309
EC(-1)	-0.029722*	0.007863	-3.779974

*implies significance at 1% level, ** implies significance at 5% level, *** implies significance at 10 %level.

Results under short run error correction model are reported in table 8. External financial liberalization through de facto approach negatively and significantly impact growth even in the short run. This shows that external financial openness has not been successful even in the short run in case of Pakistan.

Capital stock contributes positively and significantly to economic growth in the short run with a positive coefficient of 0.11 for K and 0.09 for K(-2). This result is again consistent with the positive contribution of capital in economic growth in the long run.

Inflation once again hurts economic growth in the short run with current inflation affecting the current economic growth with a coefficient of -0.001123. The negative impact of inflation on economic growth is in line with Fischer (1993), Barro (1995), and Shabaz, Ahmed and Chaudrhy (2010).The negative impact of inflation is attributed to erosion of purchasing power of money due to high inflation, increase in uncertainty about future profitability of investment projects, and a decrease in firms profit because of higher wages paid to employees. All these factors hurt economic growth through decrease in investment and productivity growth.

Finally, the error correction term reported in table 8 shows the speed of adjustment which comes out to be -0.02 and is significant at 1 percent level of significance. The system is converging in this model and the previous period disequilibria are corrected here with an adjustment speed of 2 percent.

Table 9
Diagnostic Test Results

Serial Correlation LM-Test	
Obs*R-squared	2.695028(0.25)
ARCH Test:	
Obs*R-squared	0.783365(0.37)
Normality Test	
Jarque Bera	0.538921(0.76)

Note: Values in parenthesis are the respective probabilities

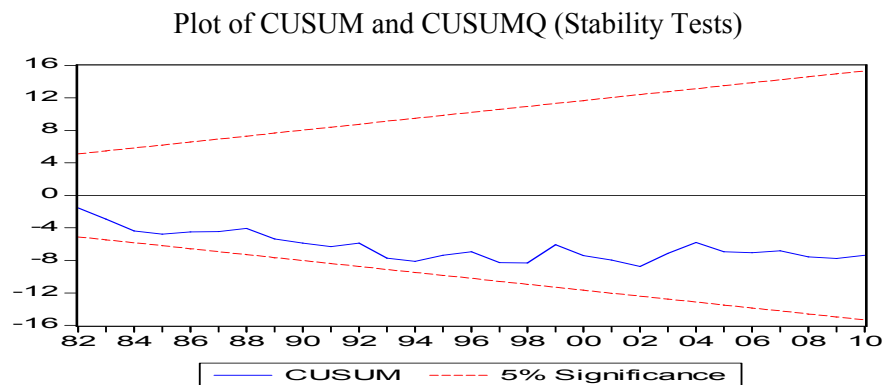Plot of CUSUM and CUSUMQ (Stability Tests)

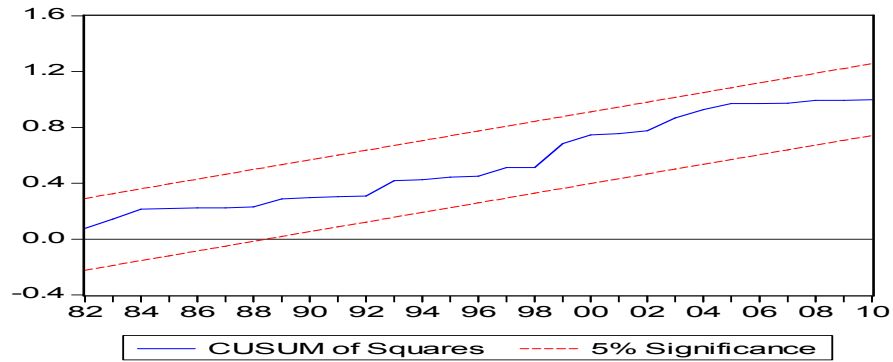Fig. 3 Plot of Cumulative Sum of Recursive Residuals for Model 2

Fig 4: Plot of Cumulative Sum of Squares of Recursive Residuals for Model 2b

Results of certain diagnostic tests are reported in table 9 while the results of the stability tests are presented in figures 3 and 4.

The results of diagnostic tests show that the selected model does not suffer from any kind of serial correlation or hetetskeadasticity problem. While the figures for stability tests show that the plot of CUSUM and CUSUMQ statistic lies within the critical bounds, implying that all the co-efficient in the estimated model are stable.

5. Conclusion

The external financial openness and its relationship with economic growth have received considerable attention among the researchers, policy makers and other stake holders both in the developed and developing countries. Significant literature is available in case of external financial openness for developed countries/developing ones. However, no significant work to date exists that has examined the impact of external financial openness on economic growth in Pakistan. The present study was an attempt to examine the impact of external financial liberalization using de facto measure of external financial openness on economic growth of Pakistan using time series data from 1972 -2010.

In order to measure the true integration of Pakistan's financial sector

with international markets, we have used *de facto* measure of external financial liberalization. The *de facto* measure of external financial liberalization is based on the work of Ferretti and Lane (2006) while the data for remaining years was updated utilizing their methodology. The results of the paper show that external financial liberalization when measured through *de facto* approach negatively impacts economic growth in the long run. This negative impact of external financial liberalization on growth is attributed to dismal performance of Pakistan's international investment position with stagnant or decreasing assets position while an increasing trend of those liabilities which are actually detrimental to growth. The findings of this paper are in line with international literature like Edison, Levine, Ricci and Slok (2002), Athukorala (2000), Eichengreen (2001), and Prasad, Rogoff, Kose and Wei (2006). The international literature provides positive evidence of external financial liberalization and growth only in developed countries or countries with strong institutions. The findings of our paper are in line with Pakistani literature, e.g., Haque (2011), Jangua (2010), while contradict those of Shahbaz, Wahid, Ahmed and Chaudry (2008).

Among the control variables, capital stock emerges as a significant contributor to growth, while employed labor force and enrolment ratio negatively impacts growth. Inflation also hurts economic growth in the short run.

The result of the paper points to the fact that as revealed by the international investment position of Pakistan, the inflow in the form of debt is relatively much more as compared to FDI. Hence, we should improve the international investment position of the country in terms of growth promoting longer term inflows instead of short term, growth deteriorating inflows. Furthermore, we need to integrate ourselves more with the international financial markets in order to get the benefit from opening of capital account. However, we also need to deal carefully with any further opening of capital account because of costs attached to full liberalization of capital account/external financial liberalization. The real cost of unhindered capital flows can be enormous and detrimental in the absence of strong

macroeconomic environment, strong institutions and political stability.

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Appendix 1

Table A1
Gross Stock of Foreign Assets and Liabilities

Year	Total Assets (Million US $)	Total Liabilities (Million US $)	Sum of Total Assets and Liabilities (Million US $)	Sum of Total Assets and Liabilities (Million Rs.)	Gross Stock of Assets and Liabilities as a Ratio to GDP
1972	440.7	4273.7	4714.4	52004.7	1
1973	727.4	4847.8	5575.2	55194.3	0.8
1974	854.1	5426.8	6280.9	62181.3	0.7
1975	858.2	6100.3	6958.5	68889	0.6
1976	985	7173	8158	80764.3	0.6
1977	1000.7	7950.3	8951	88614.8	0.6
1978	935.3	8735.8	9671.1	95743.8	0.5
1979	845.6	9369	10214.6	101124.9	0.5
1980	1140.6	10459.2	11599.8	114838	0.5
1981	1366.2	11224.1	12590.3	124643.5	0.4
1982	1638.6	12263.8	13902.4	178506.9	0.6
1983	2665.7	12614.5	15280.2	206282.1	0.6
1984	1860.2	12806	14666.2	225272.4	0.5
1985	1731.4	14179.7	15911.1	254259.9	0.5
1986	1855.8	15754.6	17610.4	303779.8	0.6
1987	1862.3	17759.9	19622.2	342407	0.6
1988	1975.4	18219.7	20195.2	376639.8	0.6
1989	2296.8	19582.8	21879.5	468659.9	0.6
1990	2457.4	22206.6	24664	540141.5	0.6
1991	2987	25281.7	28268.7	698802.1	0.7
1992	3893.8	27394.1	31287.9	804098.4	0.7
1993	4518.4	27845.9	32364.3	974812.6	0.7
1994	6560.8	32336.3	38897.1	1198030.6	0.8
1995	5575.4	35009.3	40584.6	1390024	0.7
1996	4579.9	35240.2	39820.1	1597582.8	0.8
1997	5303.5	36711.7	42015.2	1850768.9	0.8

1998	5221.7	38250.1	43471.7	1994713	0.7
1999	6423.5	40228.2	46651.7	2415840.3	0.8
2000	6895.8	38823.7	45719.5	2653066.6	0.7
2001	9018.2	37396.4	46414.6	2824969.1	0.7
2002	13561.7	41210	54771.7	3206003.7	0.7
2003	16962.8	45687.3	62650.1	3584526.6	0.7
2004	17275.1	46766	64041.1	3786364	0.7
2005	17777.1	49699.7	67476.7	4037126.7	0.6
2006	19757.7	57933.3	77691	4732792.9	0.6
2007	22403.1	77063.9	99467	6089439	0.7
2008	17020.8	93276.7	110297.5	8724315.2	0.9
2009	22504.3	97118.5	119622.7	10079819.5	0.8
2010	25100.2	94682.3	119782.5	10266654.6	0.7

Source: Milesi-Ferretti and Lane uptill 2007, Author's calculation for 2008-2010

Table A2
International Investment Position of Pakistan

Year	Total Assets to Total Liabilities	Total Assets to GDP	Total Liabilities to GDP
1972	0.103128382	0.062171049	0.60285101
1973	0.150054975	0.089778186	0.598301963
1974	0.157393268	0.078107211	0.496255093
1975	0.14067804	0.062059803	0.441147768
1976	0.137315228	0.063543267	0.462754698
1977	0.125867842	0.056473153	0.448670223
1978	0.107063877	0.045970544	0.42937492
1979	0.090254695	0.035349921	0.391668503
1980	0.109057343	0.039837806	0.365292281
1981	0.121720127	0.044302384	0.36396926
1982	0.13360895	0.052345922	0.391784547
1983	0.211321074	0.08243053	0.390072454
1984	0.145259055	0.055096474	0.379298037
1985	0.122107155	0.04955354	0.405820117
1986	0.117797055	0.050939625	0.432435471
1987	0.10486085	0.047772637	0.455581246

1988	0.108423407	0.046765739	0.431325117
1989	0.117285523	0.052355538	0.446393866
1990	0.110662682	0.050713385	0.458269976
1991	0.118147839	0.054301348	0.459605084
1992	0.142140062	0.065544212	0.461124124
1993	0.162264131	0.071857385	0.442842076
1994	0.20289273	0.103501153	0.510127459
1995	0.159253752	0.075275569	0.472676896
1996	0.129963533	0.059214718	0.455625643
1997	0.144464165	0.069544031	0.481392953
1998	0.136513489	0.068736248	0.503512497
1999	0.159675564	0.090156432	0.564622598
2000	0.177617297	0.093085024	0.524076347
2001	0.241152089	0.124788886	0.517469646
2002	0.329088125	0.186581019	0.566963694
2003	0.371281099	0.20314547	0.547147351
2004	0.369393289	0.176108852	0.476751627
2005	0.35768982	0.162206355	0.453483286
2006	0.341041785	0.1549759	0.454419096
2007	0.290708141	0.155542924	0.535048394
2008	0.182476873	0.1169996	0.641174948
2009	0.23171976	0.144347335	0.622939257
2010	0.265099387	0.145781327	0.549911971

Source: Milesi-Ferretti and Lane uptill 2007, Author's calculation for 2008-2010