

## Does International Financial Integration Spur Economic Growth? Evidence from Pakistan

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**Abstract:** *The degree of international financial integration has seen a drastic change recently, especially during the last two decades. This study attempts to explore the relationship between international financial integration and economic growth in the context of Pakistan through a sample of data from 1975 to 2013 using time series analysis. International financial integration is used as an index that comprises foreign direct investment, remittances, and external debts. The results indicate that international financial integration has a significant and negative effect on economic growth. Cointegration results have found a significant and long run relationship, whereas variance decomposition method shows bidirectional causal relationship. The sensitivity analysis proves that the initial result is robust through fully modified ordinary least square method, while Cusum and Cusum of square proves stability of coefficients over a long period.*

**Keywords:** Time Series Model, International Financial Integration, Economic Growth.

### Introduction

An efficient and stable financial system is essential in a modern economy to assist economic transactions, specialization in production, provision of investor-friendly business environment, competitive domestic markets, mobilization of savings, and exchange of goods and services (Alam, Raza, Shahbaz, & Abbas, 2016; Raza & Karim, 2016; Sharif & Raza, 2016). A stable financial system not only reduces uncertainty and cost of transactions, but also improves the overall economic efficiency through the efficient allocation of resources, diversifying risk, and transfer of technology (Khan, Qayyum, Sheikh, & Siddique, 2005; Khan, 2007). The past extensive literature mainly discusses financial globalization, financial development, and financial market imperfections in relation to economic growth in the panel and cross-sectional data. Among these factors, the role of international financial integration (IFI) in growth enhancement has recently received considerable attention especially in the developing economies. We developed a model of international financial integration and economic growth relationship by using long time series data. On this path, Prasad, Rogoff, Wei, and Kose (2003) argued that IFI may open the door for additional capital, but it is unlikely to offer a major boost to economic growth itself. If domestic governance is sufficiently weak, financial integration could cause a flight of domestic capital and may also lower the growth rate. Similarly, IFI may enhance the performance of domestic financial

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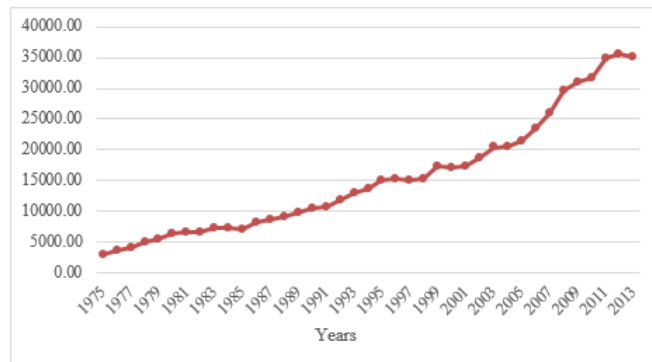
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systems through strengthening competition and financial services, with positive growth effects (Levine, 2001). IFI is likely to encourage the efficiency of the financial intermediaries and less financially developed markets. This improved efficiency motivates demand for funds and financial services due to the increased size of domestic financial markets (Guiso, Jappelli, Padula, & Pagano, 2004). This leads us to the question: whether international financial integration affect economic growth in Pakistan during the last four decades? We attempt to answer this question with the aim to shed new light on the topic and create an IFI index.

In our view, rising global linkages, especially financial linkages, constitute one of the most important economic phenomena over the last two or three decades in terms of understanding how IFI and long-run growth are related. Existing literature on IFI and economic growth is not well researched in the context of Pakistan, and this addition provides a point of departure for this paper. The next section contains channel discussion and empirical literature on IFI and economic growth using time series, panel, and cross-sectional data. Section 3 represents a linear model with control variables through econometric techniques, while section 4 contains the results of data analysis and estimations, followed by the conclusion and policy suggestions in section 5.

**Figure 1**

IFI Index for Pakistan



Source: Author's estimation

IFI index comprises foreign direct investment, remittances, and external debts for the year 1975 to 2013. Figure 1 shows an increasing trend of IFI during the last four decades in Pakistan and external debt takes a large share in this index.

## Principal Component Analysis

Principal Component Analysis (PCA) was conceived by Pearson (1901) and then developed by Hotelling (1933). Most of the researchers Kolenikov and Angeles (2009); Filmer and Pritchett (2001); Hye and Lau (2015) used PCA for the construction of index because it is a multivariate technique to ensure the relationship between quantitative variables.

This technique extracts common measures from a set of linear combination of variables that capture the frequent information most effectively. PCA overcomes indeterminacy by finding the linear combination of the variables with maximum variance (Filmer & Pritchett, 2001).

## Construction of IFI index

Researchers may use IFI as either a built-in index or a single proxy, but we constructed composite IFI index to check the effect of foreign direct investment (FDI), Remittances (REM), and External debt (EXD). Although different proxies and indices are available in the empirical studies, generally FDI, Remittances, and External debt are used as a proxy of IFI, but they have not been used together as a single model in Pakistan. In this case, if any one variable is selected among them, it may not represent the true picture of IFI. Therefore, this study used three different proxies together (FDI, REM, EXD) and constructed an IFI index by Principle Component Analysis (PCA) with time series data from 1975 to 2013. PCA (eigenvalues) in table 1 explains 77.3%, 16.8%, and 5.9% proportion respectively, thus we took the first PC to calculate IFI index. Next values of loading-vector in PC 1 were used because it explains higher variation as compared to the rest of the combinations in PCs.

**Table 1**

Principal Component Analysis

PCA Number	Value	Difference	Proportion	Cum. Value	Cum. Proportion
Eigen values: (Sum = 3, Average = 1)					
1	2.3201	1.8165	0.7734	2.3201	0.7734
2	0.5036	0.3273	0.1679	2.8237	0.9412
3	0.1763	—	0.0588	3	1
Eigen vectors (loadings):					
Variable	PC 1		PC 2	PC 3	
FDI	0.5345		0.8031	0.2631	
EXD	0.6167		-0.1578	-0.7711	
REM	0.5777		-0.5745	0.5797	
Ordinary Correlations:					
	FDI		ED	REM	
FDI	1				
EXD	0.6653		1		
REM	0.5111		0.7936	1	

Source: Author's estimation

## Theoretical Channel

A number of theories have given channels about financial globalization, but IFI and growth channels remain a challenge. As financial globalization comes under the broad way term that refers to the expansion of global financial flows, hence financial integration connects an individual country's linkages with the world market (Prasad et al., 2003). Similarly, financial globalization or globalization of financial markets is considered integration of a

local financial system with international financial markets and institutions (World Bank, Global Development Finance, 2010).

## **IFI and Growth Nexus**

Theoretically, it is difficult to prove IFI and growth relationship either negative or positive effects, but generally, researchers [Masten, Coricelli, and Masten \(2008\)](#); [Kose, Prasad, and Terrones \(2006\)](#); [Epaulard and Pommeret \(2005\)](#); [Prasad et al. \(2003\)](#); [De Gregorio \(1999\)](#) have linked IFI with economic growth in two possible dimensions. In the same way, we discuss direct channel and indirect channel respectively in the following sections.

[Baele, Ferrando, Hördahl, Krylova, and Monnet \(2004\)](#) examined the effect of financial integration on economic growth through larger financial development. Financial development and financial integration are more important because they are linked with growth ([Tayebi & Fakhr, 2009](#)). According to the direct effect, the strong financial system generally reduces uncertainty through facilitating trade, hedging, and risk diversification [Masten et al. \(2008\)](#); [Epaulard and Pommeret \(2005\)](#); [Prasad et al. \(2003\)](#); [Baele et al. \(2004\)](#), and increases risk-sharing opportunity among domestic and foreign investors. Firms may also increase their ability to diversify risk and encourage more investment to increase productivity that leads to growth. Secondly, capital resources [Masten et al. \(2008\)](#); [Epaulard and Pommeret \(2005\)](#); [Baele et al. \(2004\)](#); [Prasad et al. \(2003\)](#) improve through capital inflows that increase the liquidity of domestic stock and further reduce equity risk. Thus, lowering the cost of capital encourages investment. In addition, increased foreign ownership generates a variety of benefits ([Prasad et al., 2003](#)). Thirdly, mobilized savings become an investment [Mougani \(2012\)](#); [Epaulard and Pommeret \(2005\)](#); [Prasad et al. \(2003\)](#), therefore, the efficiency of investment includes total factor productivity and standard measures of investment. Similarly, financial intermediation contributes to raising savings rate, which becomes investment rate. Fourthly, through the transfer of technology [Epaulard and Pommeret \(2005\)](#); [Prasad et al. \(2003\)](#), foreign firms introduce new instruments and techniques and these changes foster technological shift in the domestic market. Technical advancement enhances production accumulation and accelerates economic growth.

On the other side, the development of the domestic financial market and improvement in institutional framework may affect indirectly on economic growth ([Masten et al., 2008](#); [Prasad et al., 2003](#)). Firstly, foreign firms increase the degree of competition and put pressure on local firms to reduce cost and minimize profits. Later this pressure stabilizes profit of local firms and encourages domestic investment, which leads to economic growth ([Markusen & Venables, 1999](#)). This also stimulates demand for funds and enhances domestic financial market. Secondly, financial integration affects domestic financial market through improvement in the institutional framework. The improvement in policies, regulation, and governance enhances overall stability reducing the problems of asymmetric information ([Masten et al., 2008](#)).

The channels discussed above illustrate many possible effects of IFI on the economic growth, but there are emerging ways which are still theoretically ambiguous. Therefore, we review past empirical studies for further explanation in the next section.

## Empirical Analysis

This section highlights the recent studies related to IFI and economic growth.

De Gregorio (1999) analyzed the relationship between international financial integration and economic growth over the period of 1960 to 1993 with 24 economies. The results proved the positive relationship between international financial integration and domestic financial system, and no direct effect of financial integration on economic growth was found without controlling the domestic capital market. It was concluded that the beneficial effect of financial integration on economic growth can be achieved by fostering the development of domestic financial system.

Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2004) examined the links among foreign direct investment, financial market, and economic growth using data from 39 countries covering the period of 1981 to 1997. The results confirmed a causal relationship as well as a positive and significant effect of FDI on growth. It was also proved that FDI promotes economic growth through financial markets.

Edison, Levine, Ricci, and Sløk (2002) assessed the relationship between international financial integration and economic growth with other potential determinants that are economic development, financial development, legal system development, government corruption, and macroeconomic policies. The paper used panel estimates by taking data from 57 countries from 1980 to 2000. It was found that financial integration itself does not enhance growth, even if potential determinants are controlled.

Kose, Prasad, and Terrones (2003) examined the impact of international financial integration on economic growth volatility over the period of 1960 to 1999. According to the results, volatility of consumption growth relative to income growth has increased for more financially integrated developing countries in the 1990s. On the other side, financial openness is associated with rising consumption, but only at the specified level. It was concluded that developing economies need more integration to the world financial market to get benefits from financial integration by improving risk sharing.

Christopoulos and Tsionas (2004) investigated the long-run relationship between financial development and economic growth by using combined cross-sectional and time series data from 10 developing countries from 1970 to 2000. Panel cointegration found strong evidence in favor of the hypothesis that long run causality exists between financial development and growth, and their relationship is significant

Epaulard and Pommeret (2005) evaluated welfare gains from financial integration with economic growth and volatility by studying 32 economies. The group of economies was divided into more integrated economies (MIEs) and less integrated economies (LIEs), and data were collected from the period of 1990 to 1998. It was concluded that gains from financial integration are not huge, but they are significant as financial integration brings about 0.3 percent yearly growth.

Kose et al. (2006) investigated trade and financial integration with growth and volatility by taking data from 23 more financially integrated economies (MFI) and 41 less financially integrated economies from the period of 1960 to 2000. It is argued that trade and financial integration appear to weaken negative growth-volatility relationship. Schularick and Steger (2006) examined whether financial integration boosts economic growth in 24 developing and

developed countries by taking data from 1980 to 2002. It was revealed that international financial integration could contribute to higher economic growth by protecting property rights for the standard neoclassical model, but it would fail to do so today.

Masten et al. (2008) analyzed potential effects of financial integration on economic growth and national financial markets with financial development in Europe <sup>1</sup> by taking panel data from 1996 to 2004. The results found that financial integration does not have a positive effect on growth itself because it also depends on the level of financial development, macroeconomic stability, and institutional quality. However, this effect is positive in those EU countries where sufficient absorptive capacity is measured. On the contrary, the development of financial market has a positive effect on growth.

Kose, Prasad, and Taylor (2011) investigated threshold level of financial integration for the attainment of economic growth. He proposed that indirect benefits of financial integration might be more effective than traditional financing after reducing the risk of financial openness. The results found that FDI and portfolio flows are safer than debt flow because a definite threshold cannot be claimed.

Mougani (2012) examined the impact of international financial integration on economic growth in the context of closed and open African countries using cross-sectional and panel data from 1976 to 2009. It was found that international financial integration does not accelerate economic growth, even under particular economic and financial conditions.

Farid (2013) investigated financial integration and economic growth in Africa during the period of 1980 to 2010 using panel data. It was found that those African economies, which are more open to international capital flows, have not grown faster than the rest. Financial integration was also identified as a potential cause of instability.

Law and Singh (2014) analyzed the impact of finance on economic growth using panel data from 87 developed and developing countries from 1980 to 2010. The results concluded that economic growth is increased by the improvement in the financial development. On the contrary, if financial development exceeds the threshold, then there is a negative effect on growth.

Azam and Ahmed (2015) validated growth model through FDI and human capital using data from 10 independent commonwealth countries from 1993 to 2011 by running fixed and random effect. It was concluded that FDI facilitates economic growth while human capital is critical for economic growth. It was recommended that the government give more facilities to MNCs and improve local business conditions.

Nwaogu and Ryan (2015) investigated the impact of FDI, aid and remittances on 53 African and 34 Latin American and Caribbean economies with separate and combined estimations. FDI and Aid affect economic growth in Africa, while only FDI affects growth, when all three variables are used. On the contrary, aid and remittances affect growth in Latin America and the Caribbean, when the variables are used separately.

Zafar, Siddique, Ahmad, and Khan (2016) investigated the effects of remittances, FDI, and Aid on growth in Pakistan during the period of 1985 to 2014. A positive and significant relationship of FDI and remittances was found, while a negative and significant effect of Aid was found on economic growth.

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<sup>1</sup>EU consists of developed old countries, transition countries and new EU members' countries

Jibran, Ali, Hayat, and Iqbal (2016) also studied the impact of debt on growth during the years 1972 to 2012 in the long and short run in Pakistan. A negative relationship was proved in the long and short run and the authors suggest that government should rely less on external debts because of their negative effect.

Ibrahim and Dahie (2016) investigated the relationship between FDI, Aid, domestic investment, and Somalia growth by using annual data from 1970 to 2014. A positive and significant effect of FDI, Aid and domestic investment was found on economic growth in Somalia. Similarly, Sjöholm (2016) also found FDI to have a positive effect through value addition in local firms in Indonesia.

The literature discussed above has focused on studying IFI and economic growth mainly through panel and cross-sectional techniques. There is a need to investigate this nexus by using time series analysis with different econometric techniques. The following section covers our model framework for investigating the relationship between IFI and economic growth.

## Model and Techniques

This section discusses the key approach to measure linear relationship between IFI and economic growth with annual time series data from the year 1975 to 2013. The data were collected from the State Bank of Pakistan and World Bank. The regression model in general forms is as follows:

$$GDP = f(IFI, INF, TOP, ELF, RFC, FR, LEP) \quad (1)$$

In this model, GDP is used as real gross domestic product, whereas IFI, the measure of International Financial Integration index, is used as an independent variable with a set of control variables. These control variables include INF (inflation measured by the GDP-deflator), TOP (Jawaid, 2014) (trade openness measured by trade including both export and import as a percentage of nominal GDP), ELF (employed labor force), RFC (real fixed capital), FR (fertility rate), and LEP (life expectancy used as health variable). The parameter for estimations is developed as follows:

$$\ln(Y) = \alpha + \beta \ln(F) + \ln\gamma(X) + \mu \quad (2)$$

Where  $\mu$ , is used as the error term,  $\ln$  is a symbol of the log,  $Y$  is used as a dependent variable,  $F$  is an independent variable used as IFI index, and  $X$  represents a set of control variables.

Augmented Dickey Fuller (ADF), Dickey Fuller-Generalize Least Square (ERS), and KPSS unit root tests were used to examine stationary properties. Autoregressive Distributed Lag (ARDL), Johansen and Juselius (JJ), and Engle and Granger cointegration tests were used to find the long run relationship between IFI and economic growth. ARDL also investigates long-run relationship and single equation cointegration has advantages over other techniques. Cumulative Sum (CUSUM) and CUSUM of square test was used to check the stability of the model. The Variance Decomposition method analyzed causal

relationship between IFI and growth. A sensitivity analysis was performed through Fully Modified Ordinary Least Square to check the robustness of the initial result.

## Results Analysis

### Stationary

Generally, financial and economic time series data have a trending behavior like real GDP, FDI, and REM, which needs to be changed into non-trending behavior by running unit root statistic. To achieve this goal, Augmented Dickey-Fuller (ADF), Dickey-Fuller Generalized Least Square (DF-GLS), and Kwiatkowski, Phillips, Schmidt and Shin (KPSS) tests were used. According to unit root (Table 2), real GDP, financial integration, and all control variables are stationary at  $I(1)$ , whereas trending behavior is at  $I(0)$ , which means variables are integrated in one order. After unit root test satisfied a necessary condition to run cointegration techniques, Engle-Granger, Johansen-Juselius and ARDL test statistic were run.

**Table 2**  
Unit Root Statistics

Variable	ADF test statistics				DF-GLS test statistics				KPSS test statistics			
	I (0)		I (1)		I (0)		I (1)		I (0)		I (1)	
	C	C & T	C	C & T	C	C & T	C	C & T	C	C & T	C	C & T
<b>LGDP</b>	-2.293	-1.288	-3.939	-4.587	0.429	-1.38	-3.983	-4.563	0.755	0.228	0.344	0.102
<b>LIFI</b>	-2.572	-3.196	-5.417	-5.605	0.749	-2.296	-3.551	-4.93	0.769	0.223	0.319	0.112
<b>LINF</b>	0.9	-1.83	-3.803	-3.951	0.622	-2.142	-3.678	-3.849	0.767	0.226	0.144	0.075
<b>LTOP</b>	-2.422	-2.952	-6.41	-6.367	-1.319	-2.762	-3.923	-5.346	0.751	0.121	0.114	0.11
<b>LELF</b>	-0.019	-1.731	-6.401	-6.332	1.082	-1.794	-6.333	-6.361	0.758	0.23	0.098	0.085
<b>LFR</b>	-1.826	-2.761	-3.022	-3.83	-1.061	-2.488	-2.523	-3.996	1.954	0.46	0.344	0.122
<b>LLEP</b>	-2.206	1.854	-3.234	-4.447	1.053	-0.06	2.355	-2.94	0.759	0.239	0.414	0.098

Source: Author's estimation

Note: The critical values for ADF and DF-GLS (ERS) tests of constant (C) is -4.219, -3.533, -3.198 and -2.628, -1.950, -1.611 whereas constant & trend (C & T) is -3.621, -2.943, -2.610 and -3.770, -3.190, -2.890, at 1%, 5% & 10% level of significance respectively. Contrary, 1%, 5%, 10% level is constant (C) 0.739, 0.463, 0.347 and (C & T) 0.216, 0.1460, 0.119 in KPSS.

### Cointegration

Table 3 represents the results of [Johansen and Juselius \(1990\)](#); [Aman, Sharif, and Arif \(2016\)](#); [Arif and Suleman \(2017\)](#); [Raza, Sharif, Wong, and Karim \(2016\)](#) multivariate cointegration test with Trace statistic and Maximum Eigenvalue. The null hypothesis of no cointegration is rejected at 5 percent level of significance with eight cointegration equation, and a long run relationship between financial integration and economic growth is proved.



**Table 3**  
JJ Cointegration

Hypothesis No. of CE(s)	Trace Statistics (Calculated Values)	5% Critical Values (Tabulated Values)	Max. Eigen value (Calculated Values)	5% Critical Values (Tabulated Values)
None	530.2437	187.4701	157.5383	56.70519
At Most 1	372.7053	150.5585	86.6063	50.59985
At Most 2	286.099	117.7082	73.27214	44.4972
At Most 3	212.8269	88.8038	66.65936	38.33101

Source: Author's estimation

Similarly, Engle and Granger (1987) test (Table 4) confirms a long run relationship by running ADF, DF-GLS, and KPSS at I (0).

Developed by M. H. Pesaran, Shin, and Smith (2001), Autoregressive Distributed Lag (ARDL) is based on a general to specific technique for investigating a long run relationship. Generally, it is run from unrestricted vector autoregressive (VAR) to determine lag length criterion by using Schwarz Bayesian Criterion (SBC) with smallest possible lag length, or Akaike Information Criterion (AIC) with possible maximum lag length.

**Table 4**  
Residual-based Engle and Granger Co-integration

Test	Constant	Constant & Trend
ADF	-4.739	-4.68
DF-GLS	-3.344	-4.24
KPSS	0.086	0.087

Source: Author's estimation

The critical values for ADF and DF-GLS tests constant (C) is -3.615, -2.941, -2.609 and -2.627, -1.949, -1.6114 where constant and trend (C&T) is -4.219, -3.533, -3.198 and -3.770, -3.190, -2.890. Similarly, KPSS constant (C) is 0.739, 0.463, 0.347 where constant and trend (C&T) is 0.216, 0.146, 0.119 at 1%, 5% & 10% level of significance respectively.

ARDL result in Table 5 confirms cointegration because calculated F-statistics is 11.761, which is greater than the critical value of upper level bound at 5 percent level of significance. The adjustment of coefficient in error correction (ECT) stands insignificant.

**Table 5**  
Lag Length Selection & Bound Testing for Cointegration

Lags Order	AIC	SBC	F-Test Statistics
0	-24.383	-24.031	
1	-46.803	-43.635	*11.761
2	-51.245	-45.263	
3	-55.785*	-46.988*	

Source: Authors' estimation.

\* 5% level of significant.

## Ordinary Least Square Regression

Table 6 shows the long-run relationship between IFI and economic growth. There is a significant negative impact of Financial integration on economic growth in the long run. The study also found a positive significant effect of inflation, trade openness, employed

labor force, real fixed capital, fertility rate, and life expectancy. Initial regression model applied Newey-West HAC procedure because it corrects the issue of autocorrelation and heteroscedasticity.

## Variance Decomposition Method

A number of past studies have used Granger causality and Toda & Yamamoto analysis to check causality effects, but it has a limitation (i.e. among the variables beyond selected time period) and cannot capture relative strength of a causal relationship. Due to this problem, [Pesaran and Shin \(1998\)](#) developed the Variance Decomposition Method (VDM). Table 7a and 7b measure the percentage of variation in economic growth due to innovative

**Table 6**  
Long Run Regression

Variables	Coefficient	T-Stats	Prob.
C	-21.93122	-7.091079	0
LIFI	-0.192111	-1.979657	0.0567
LINF	0.230565	3.722355	0.0008
LTOP	0.132234	1.979662	0.0567
LELF	0.367543	2.931398	0.0063
LRFC	0.142073	4.200729	0.0002
LFR	0.501439	4.96619	0
LLEP	7.309236	7.763371	0
Adj. $R^2$		0.998	
F-stats (Prob.)		3509.363 (0.000)	
Durbin-Watson stat		1.375	

Source: Authors' estimation.

shocks itself, as well as financial integration and control variables. Results indicate 100% and 16.68% of the variation in real GDP explained by its own at first and tenth period, and 11.69% and 31.23% of the variation in real GDP is explained by IFI at fifth and tenth period, which means variation in real GDP will not be heavily influenced by IFI in future. Results also indicate that 89% and 61% of the variation in IFI is explained by its own at first and tenth period, and 12.13% and 12.82% of the variation in IFI is explained by real GDP. These results prove a bidirectional causal relationship between GDP and IFI.

**Table 7a**  
Variance Decomposition of LGDP Results

Period	LGDP	LIFI	LINF	LTOP	LELF	LRFC	LFR	LLEP
1	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	69.21694	0.324068	9.056824	0.236044	2.194033	15.06180	1.951315	1.958976
3	33.44035	0.175491	5.297985	0.668770	2.918383	54.07736	2.169044	1.252622
4	25.32750	4.256008	4.574297	1.664234	2.922668	57.12411	3.049516	1.081667
5	21.49922	11.69486	3.678430	3.793998	3.010015	51.85229	3.618739	0.852447
6	18.06752	18.91110	3.497954	5.973122	2.745545	46.19487	3.783299	0.826602
7	16.15657	25.25471	3.178407	7.160293	2.528466	41.29373	3.630732	0.797080
8	15.80525	28.54594	2.955053	7.440964	2.364602	38.75971	3.351836	0.776636
9	16.08299	30.35706	2.779943	7.714099	2.233880	36.90563	3.188089	0.738310
10	16.68093	31.23552	2.657827	8.022392	2.134145	35.25062	3.312567	0.705995

## Sensitivity Test

Phillips and Hansen (1990) developed Fully Modified Ordinary Least Square (FMOLS) technique to check robustness as it removes serial correlation and endogeneity issues from regressors. The results of FMOLS (Table 8) prove a long run relation between financial integration and economic growth which initial regression had found.

**Table 7b**  
Variance Decomposition of LIFI Results

Period	LGDP	LIFI	LINF	LTOP	LELF	LRFC	LFR	LLEP
1	10.00015	89.99985	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	9.504223	85.03733	0.018881	2.898363	0.164744	2.166562	0.018590	0.191302
3	8.475465	73.94881	0.302330	3.895374	0.318660	12.76609	0.016751	0.276518
4	11.02651	69.11662	1.413273	3.805710	0.299550	14.05232	0.017105	0.268914
5	12.13194	68.07313	1.384325	3.726242	0.297733	14.04477	0.066300	0.275554
6	12.42315	64.99100	1.432649	3.592911	0.304627	16.74141	0.171677	0.342575
7	13.06238	62.30903	1.373535	3.425732	0.297031	18.93788	0.241141	0.353276
8	13.10902	61.65813	1.329610	3.885405	0.297965	19.10771	0.267784	0.344376
9	12.92462	61.58999	1.331287	4.565299	0.289218	18.69856	0.262007	0.339021
10	12.82951	61.72188	1.306297	4.942020	0.288937	18.29113	0.281276	0.338952

Source: Authors' Estimation

**Table 8**  
Results of Fully Modified Ordinary Least Square

Variables	Coefficient	T-Stats	Prob.
C	-22.59566	-8.060138	0
LIFI	-0.230792	-3.011386	0.0052
LINF	0.239045	4.626748	0.0001
LTOP	0.126388	1.96531	0.0587
LELF	0.454301	3.878269	0.0005
LRFC	0.150306	4.15551	0.0002
LFR	0.573132	6.989434	0
LLEP	7.421366	8.762336	0
Adj. $R^2$		0.998	
D.W stats		1.483	

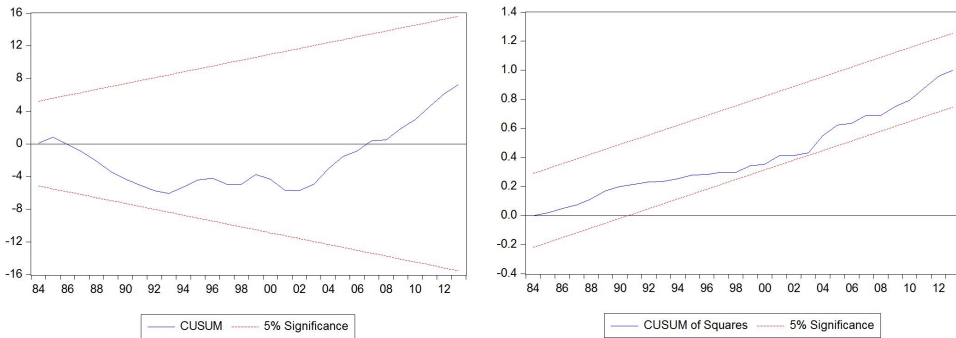
Source: Authors' Estimation

## Stability Test

Monk and Brown (1975) ensure structural stability of an estimated model by using cumulative sum (CUSUM) and the cumulative sum of square (CUSUMQ) techniques. CUSUM test detects instability of coefficient and CUSUMQ test detects random instability of coefficient.

Figures 2 and 3 highlight, with plots of CUSUM and CUSUMQ, that both critical bonds are at 5 percent level of significance. This proves that estimated coefficients are stable over the period by rejecting the null hypothesis.

**Figure 2**  
Test of Stability



## Conclusion and Policy Suggestion

This study explores the long run relationship between IFI and economic growth in the context of Pakistan by using time series data from 1975 to 2013. IFI, used as an independent variable, comprises foreign direct investment, remittances, and external debts in index. Results acknowledge a negative and significant effect of international financial integration on economic growth of Pakistan, whereas cointegration results confirm a significant long run relationship. Variance decomposition method proves bidirectional causal relationship and sensitivity analysis confirms the robustness of initial result through FMOLS. Cusum and Cusum of square stability test confirms that coefficients are stable over a long time.

It is also indicated that the impact of international capital on growth mainly depends on the government policies and local business conditions. Similarly, countries with better institutions (less corruption, better corporate and public governance) attract relatively more investment and equity flows rather than debts. As discussed earlier, external debts have had a large share in IFI compared to other types of inflow during the last couple of decades, which could be the reason of the negative effect of IFI. Although Pakistan's current foreign capital policy is reasonably attractive, the outcomes do not meet the desired levels, because financial integration in rather extreme scenarios is unlikely to be achieved through policy reform. Therefore, the government should focus on financial and regulatory reforms that may eliminate barriers and promote financial development.

It is suggested that government facilitate domestic traders to stabilize domestic investment, productivity, and trade by developing a domestic financial system and increasing trade openness through minimizing trade constraint and alleviating poverty. The government should rely less on external borrowing because it raises debt share in IFI, instead it should promote remittances and FDI through appropriate measures, such as developing telecommunication facilities, road and rail networks, skilled labour, and a transparent trade policy. A deep and well-supervised financial system is essential for efficiently intermediating foreign finance into productive investments.

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