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Financial Sector Development and Economic Growth Nexus in South Asian Middle Income Countries (SAMICs)

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Abstract

In this paper we have made an attempt to explore the relationship between financial sector development and economic growth, using a panel data of South Asian middle income countries for the years 1980-2013. The macroeconomic data include real GDP index as an indicator of economic growth, proxies for financial sector development - domestic credit by banking sector/GDP, domestic credit to private sector/GDP, net inflows of FDI/GDP, M2/GDP and market capitalization/GDP; and control variables such as fixed capital formation/GDP, investment/GDP, and inflation in consumer prices/GDP. The results indicate that the domestic credit provided by banking sector has a significant positive relationship with economic growth in both directions but domestic credit to the private sector is associated with the economic growth in forward direction only, which confirms dearth in credit allocation in the region and suggests weak financial regulation and supervision. As far as the stock market developments are concerned, the results indicate that the stock market capitalization and liquidity have a significant role in growth and economic growth induces the stock market capitalization (size). Both the forms of investment (domestic and FDI), contribute significantly to economic growth in either direction. Stronger financial institutions, fixed capital formation and low inflation are crucial controlling growth factors.

Keywords

Financial Sector Development, Economic Growth, Panel Unit Root, Panel Co-integration, DOLS and FMOLS

1. Introduction

Financial development and economic growth are considered to be correlated to each other and the former one is a multidimensional observable fact for the development of an economy. Financial Development is broadly defined as an increase in the volume of financial services of banks and other financial intermediaries as well as of financial transactions on capital markets(Hussain & Chakrabortry, 2012).The nexus between financial developments and economic growth has been intensively studied in the upper income countries with results indicating a strong positive relationship between the two. Studies in the developing countries, especially in the South Asianmiddle income countries (herein after referred as SAMICs) - (Bhutan, India, Malaysia, Pakistan and Sri Lanka) are scanty.

In this paper financial sector developments are mainly classified in three broad categories: Banking sector developments, stock market developments and others. Banking sector developments are represented by the amount of *domestic credit provided by banks (as % of GDP), domesticbank credit to the private sector* (as % of GDP). *Stock market capitalization* (as % of GDP) is included to provide an approximation of the magnitude of the stock market. Other growth related measures include broad money (M2) or *money & quasi money* (as % of GDP) as a measure of the monetary aggregate (liquidity) in the economy and *net inflow of foreign direct investments (as % of GDP)* to measure the business interest of foreign investors in the reporting country.

Financial sector development and economic growth are found to be positively associated with each other among SAMICs. The improvement of institutions is a key factor for growth but quality of financial institutions in terms of operational efficiency, regulations and supervision has to be improved so as to make banking sector developments contribute positively to the economic growth. Stock market

developments measured by market capitalization along with quality of institutions on the other hand, show the significant positive impact to the economic growth.

The study contributes to the literature in several ways. It uses the latest data; it includes countries from South Asian regions, with a special focus on the middle income countries (Bhutan, India, Malaysia, Pakistan & Sri Lanka). In addition, the study uses quantitative (e.g. the size and the liquidity of the financial sector) and qualitative (such as banking competence in terms of disbursement of credit) measure of financial development to assess potential links with economic growth.

The structure of this paper proceeds as follows: Section 2 of the paper presents the review of the previous studies in the related area. Section 3 provides the details of research methodology. Section 4 gives the empirical results and analysis and section 5 concludes and provides some policy implications.

2. Literature Review

The nexus between financial system and economic growth has been extensively debated and investigated over the many decades. Some debate that the financial system is a strong contributor to economic growth(Schumpeter, 1912; Hicks, 1969; Miller, 1998) while others such as (Levine, 2005)argue that financial development contributes to growth by providing information about potential projects, monitoring the implementation of investment, enhancing risk management and diversification, pooling savings and facilitating the exchange of goods and services.

A large body of research on finance and growth studies has evaluated the impact of financial sector development (size and structure) on growth and its sources. The majority of the studies include cross-country regressions (Goldsmith, 1969; Levine, 2005; King & Levine, 1993; La Porta et al. 2002; Levine & Zervos, 1998), time-series analysis (Demetriades & Hussein, 1996; Rousseau & Wachtel, 1998; Arestis et al. (2001); Chritopoulos & Tsionas, 2004; Bekaert et al. 2001, 2005)and panel studies (Levine et al.2000; Beck et al. 2000).

The finance and growth nexus has been investigated in the literature through two types of studies: time-series and panel data regression analysis. Studies based on time-series data can be further categorized as country specific and region specific. A number of country specific studies based on time series analysis, have been made to study the nexus among the financial development and economic growth throughout the globe (Ghali, 1999; Liang & Teng, 2006; Ang & McKibbin, 2007; Chakraborty, 2008; Bolbol et al. 2005; Ke, 2010). Multi country or region specific time series studies to explore causal relationship between financial development and economic growth using VAR analysis have also been the centre of discussion in the past years (Habibullah, 1999; Sinha & Macri, 2001; Boulila & Trabelsi, 2004; Abu-Bader & Abu-Qarn, 2008; Estrada et al. 2010; Abdelhafidh, 2013).

Panel data studies throughout the globe include fixed-effect (Kar, Nazlioglu, & Agir, 2011), panel co-integration(Al-Awad & Harb, 2005; Jun, 2012), and dynamic GMM (Ahmed & Malik, 2009). Quantitative aspect of banking sector is given more importance than quality in some studies which conclude that banking sector development does not contribute to growth even some studies argue that it even hampers the growth. Banking sector developments have also been measured in order to assess the level to which banks are efficiently using their resources (Hasan et al. 2009; Koetter & Wedow, 2010).

Theoretically, the proposition that financial development promotes economic growth is supported by(Levine, 1991; Chakraborty & Ray, 2006; Deidda & Fattouh, 2006), while the reverse causation i.e. economic growth causes financial development, is found in (Robinson, 1952) and (Greenwood & Smith, 1997). Some studies totally deny any relationship between them (Lucas Jr., 1988; Chandavarkar, 1992).

In brief, finance is considered to be good for growth in developed or high-income countries. The contribution of banking developments is also significant to growth. Do these conclusions also apply to south Asianmiddle income economies (SAMICs)? This paper tries to answer this question and investigates the relationship between financial sector development and economic growth for a panel of 5 South Asian Middle Income (Based on World Bank Classification) economies over the 1980-2013 periods. The existing researches on the topic have focused on developed economies or are based on specific regions as reviewed above. Studies with respect to middle income countries, especially in the South Asian region are negligible. Thus, the necessity of policy implications for SAMICs isthe reason for selecting the 5 middle income South Asianeconomies for this research.

This study explores thenexus between financial development and economic growth by using the panel co-integration techniques (DOLS and FMOLS) to test and estimate the long-run equilibrium relationship between real GDP (economic growth) andfinancial development proxies.

3. Research Methodology

3.1. Hypothesis of the Study

The aim of this research is to find authentication on the direction and relative size of causality between financial development and economic growth and to present guidelines of financial policy for economic development. To achieve this objective, we have framed following three hypotheses:

H_1: Financial sector development has significant positive effect on economic growth.

H_2: Economic growth has a positive and significant effect in the financial sector development.

H_3: There is bi-directional relationship between financial sector development & economic growth.

3.2. Data

This study uses the panel data method with a pool of data from 1980 to 2013. The macroeconomic data include real

GDP index as an indicator of economic growth, proxies for financial sector development - domestic credit by banking sector/GDP, domestic credit to private sector/GDP, net inflows of FDI/GDP, M2/GDP and market capitalization/GDP; and control variables such as fixed capital formation/GDP, investment/GDP, inflation in consumer prices/GDP, etc. Annual macroeconomic data extracted from the World Bank's *World Development Indicators 2013*are utilized in empirical analysis for 5 SAMICs: Bhutan, India, Maldives, Pakistan and Sri Lanka. Table 1 presents the definitions of the variables and descriptive statistics of data used in this paper.

Table 1. *Descriptive statistics for the panel data variables.*

Panel Series	Series Definition	Mean	Median	Maximum	Minimum	Std. Dev.	Obs.
RGDP	Real GDP index (2000=100)	119.10	63.47	602.91	4.36	137.25	165
DCBR	Domestic credit provided by banking sector/GDP	41.11	44.43	84.68	-5.73	18.89	162
DCR	Domestic credit to private sector/GDP	24.02	23.74	69.33	2.51	12.69	162
FDIR	Net Foreign direct investment inflows / GDP	1.49	0.92	13.07	-6.01	2.10	138
FIR	Gross fixed capital formation/GDP	27.51	24.47	63.05	10.92	10.50	152
INF	Inflation rate (consumer prices)	71.83	61.64	221.91	7.85	50.82	139
IR	Gross Capital Formation/GDP	28.31	25.02	61.91	12.52	10.37	141
M2R	M2(Money & quasi money)/GDP	41.70	40.99	77.72	16.84	12.62	162

Source: World Bank(2013), *World Development Indicators 2013*

3.3. Research Approach

The empirical analysis is performed in 3 steps. First, six different types of panel unit root tests are employed to confirm the nonstationarity of the series in a panel data of all the SAMICs. Panel unit root tests under consideration, are categorized into tests assuming a common unit root process across cross sections and those posing individual unit root processes. Levin, Lin, & Chu (LLC, 2002), Breitung (2000) and Hadri (2000) postulate that there is a common unit root process across cross sections. Im, Pesaran & Shin (IPS, 2003), Fisher-type tests using ADF and PP tests (Madala & Wu, 1999; Choi, 2001) propose panel unit root tests that allow for individual unit root processes, so that the persistence parameter (autocorrelation coefficient) may vary across cross sections. Among these, only Hadri (2000)'s panel unit root test has the null hypothesis of no unit root.

Second, Kao's ADF (Kao, 1999) panel co-integration test is used to establish a co-integrating (long-term equilibrium) relationship among the financial sector development and economic growth variables.

Third, In the presence of panel unit roots and co-integration, it is required to estimate the regression output by panel co-integration techniques. Thus, 2 types of panel co-integration estimation techniques – DOLS (Saikkonen, 1992 and Kao & Chiag, 2000) and FMOLS (Phillips & Hansen, 1990; Pedroni, 2004) are used to estimate the output-finance regression equation. Dependent and independent variables are interchanged while estimation, to find evidence for the existence of a bi-directional relationship between economic growth and financial development.

3.4. Hypothesis Testing Framework

To test the set of hypothesis, we need to estimate a regression equation with real GDP as the dependent variable, and a proxy variable for financial sector development – DCBR, DCR, FDIR M2R, MCR and other control variables – FIR, INF and IR as explanatory variables.

We set up a generalized form of the output equation to examine the relationship between financial sector development and economic growth as follows.

$$Y_{it} = \propto_{0i} + \propto_{1i} FD_{it} + \propto_{2i} FIR + \propto_{3i} INF + \propto_{4i} IR + \varepsilon_{it}$$

In contrast, we also consider a reverse causation or feedback effect such that economic growth causes financial development.

$$FD_{it} = \beta_{0i} + \beta_{1i} Y_{it} + \beta_{2i} FIR + \beta_{3i} INF + \beta_{4i} IR + \mu_{it}$$

where Y = real GDP, FD = proxy variable for financial development,i = 1, ..., N, t = 1, ..., T, FIR = Gross fixed capital formation/GDP, INF = Inflation Rate, IR= Gross capital Formation/GDP,ε and μ = disturbance terms.

Testing of third hypothesis will involve careful observation of the results of above two regression equations.

4. Empirical Results & Analysis

4.1. Panel Unit Root Test

This section reports the results of panel unit root tests. Table 2 and 3 exhibit the results of six distinct panel unit root tests on the variables of 5 SAMICs over a period of 33 years

(1980-2013): Levin, Lin, and Chu (LLC 2002)'s t, Breitung (2000)'s t, Hadri (2000)'s Z, Im, Pesaran, & Shin (IPS 2003)'s W, Maddala and Wu (1999)'s ADF-Fisher χ^2 and Phillip-Perron Fisher (PP)'s χ^2 statistics. Amongst these, LLC, Breitung, and Hadri's tests are based on the common unit root process assumption that the autocorrelation coefficients of the tested variables across cross sections are identical. However, IPS, ADF-Fisher χ^2 and PPFisher χ^2 tests rely on the individual unit root process assumption that the autocorrelation coefficients vary across cross sections.

Table 2. *Panel unit root tests assuming individual unit root process.*

series	IPS W-Stat	P value	ADF- Fisher χ^2	P value	PP - Fisher χ^2	P value
	Null: unit root					
RGDP	14.82	1.00	0.00	1.00	0.00	1.00
DCBR	1.11	0.87	8.99	0.53	7.80	0.65
DCR	2.99	1.00	6.94	0.73	4.66	0.91
FDIR	-0.63	0.26	16.85	0.08	18.32	0.05
FIR	-1.55	0.06	17.35	0.07	12.71	0.24
INF	7.51	1.00	0.05	1.00	0.00	1.00
IR	-0.70	0.24	13.44	0.20	13.34	0.21
M2R	0.81	0.79	8.86	0.55	5.00	0.89

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

All the panel unit root tests except for Hadri (2000)'s have the null hypothesis of unit roots, while Hadri's test hypothesize the null of no unit root (stationarity). The six distinct panel unit root tests in Table 2 &3 confirm that the variables of 5 SAMICs - Real GDP (RGDP), domestic credit provided by banking sector/GDP (DCBR), domestic credit to private sector/GDP(DCR), net FDI inflow/GDP (FDIR), the (fixed) investment ratio ((F)IR), consumer price inflation (INF), gross capital formation/GDP (IR), and Money & quasi money (M2)/GDP (M2R) have unit roots and are thus nonstationary respectively.

Table 3. *Panel unit root tests assuming Common unit root process.*

series	LLC t* Stat	P value	Breitung t-stat	P value	Hadri Z-stat	P value**
	Null: unit root		**null: unit root**		**null: No unit root**	
RGDP	19.64	1.00	8.77	1.00	7.48	0.00
DCBR	1.79	0.96	0.49	0.69	2.74	0.00
DCR	3.63	1.00	2.93	1.00	5.43	0.00
FDIR	-0.82	0.21	0.05	0.52	6.60	0.00
FIR	-0.75	0.23	-0.55	0.29	4.18	0.00
INF	7.37	1.00	-1.16	0.12	8.35	0.00
IR	0.67	0.75	-0.07	0.47	4.68	0.00
M2R	0.14	0.56	0.39	0.65	6.88	0.00

** Probabilities are computed assuming asymptotic normality

4.2. Co-integration Test

Table 4 shows the results of panel co-integration test for 5 SAMICs over 1980-2013, wherein Kao's ADF t statistics is used to find out the co-integration among panel data series. It is observed that all the data series are co-integrated in either direction except RGDP and INF (consumer price index). The Kao's ADF t statistics indicate the possibility of a co-integrating (or long-run equilibrium) relationship between RGDP and a proxy of financial development: DCBR, DCR, FDIR, FIR IR and M2R.

Table 4. *Panel Co-integration Test for the regressors in SAMICs.*

Panel Co-integration test			Dep. Var. of Co-int. Reg.		Dep. Var. of Co-int. Reg.		Dep. Var. of Co-int. Reg.	
			RGDP	**DCBR**	**RGDP**	**DCR**	**RGDP**	**FDIR**
Kao's ADF t	Null Hypothesis (H_0): No Co-integration		2.62	-0.48	0.39	-1.82	2.75	2.46
Prob.			0.00***	0.32	0.35	0.03**	0.00***	0.01***
	Dep. Var. of Co-int. Reg.		Dep. Var. of Co-int. Reg.		Dep. Var. of Co-int. Reg.		Dep. Var. of Co-int. Reg.	
	RGDP	FIR	RGDP	INF	RGDP	IR	RGDP	M2R
Kao's ADF t	0.80	-4.02	-0.95	-1.49	0.40	-4.76	1.73	0.71
Prob.	0.21	0.00***	0.17	0.07*	0.34	0.00***	0.04**	0.24

Note: Dep. var. of co-int. reg.=dependent variable of the co-integrating regression. H_0=null hypothesis, co-int.= co-integration. Numbers in parentheses denote marginal significance levels (p-values). *, ** and *** denote significance at 10%, 5% and 1%, respectively.

4.3. Panel Co-integration Estimation

Table 5to 9 report estimation results of the RGDP and other proxies of financial sector development considering each proxy as dependent variable and others to be the predictor variables, by using two types of panel co-integration estimation techniques: DOLS and FMOL Srespectively. The estimation results in table 5 show that there is a statistically significant positive relationship between RGDP and DCBR in both directions. This shows that financial development proxied by DCBR augments economic growth and economic growth tends to extend financial sector development.

Table 5. *Panel Co-integration Estimation using DCBR (1980-2013).*

Dep. Var. -RGDP			**Dep. Var.-DCBR**		
Regressors	**DOLS**	**FMOLS**	**Regressors**	**DOLS**	**FMOLS**
DCBR	1.69 (0.13)	2.17(0.00***)	RGDP	0.08(0.27)	0.10(0.00***)
FIR	-6.16 (0.29)	-4.39(0.15)	FIR	-0.38(0.65)	-0.34(0.61)
INF	2.42(0.00**)	2.54(0.00***)	INF	-0.15(0.07*)	-0.24(0.00***)
IR	4.50 (0.48)	2.42(0.39)	IR	0.59(0.50)	1.29(0.04**)
R-squared	0.98	0.96	R-squared	0.97	0.89
Adj. R-squared	0.97	0.96	Adj. R-squared	0.96	0.89

Note: DCBR=Domestic credit provided by banking sector/GDP. Dep. var.=Dependent Variable, DOLS=dynamic OLS, and FMOLS=fully-modified OLS. *, ** and *** denote significance at 10%, 5% and 1%, respectively. Numbers in parentheses represent marginal significance levels (p=p-value) from the co-integrating regressions. Figures in the Table are organized in the order of coef.(prob)=coefficient estimate(p-value).

Table 6 exhibits estimation results of the RGDP-DCR (=domestic credit to private sector/GDP ratio) regression by DOLS and FMOLS models of panel co-integration estimation. The estimation outcome confirms a statistically significant positive association between RGDP and DCR in forward direction only. This suggests that the banking sector led financial development proxied by DCR boosts economic growth but economic growth does not tend to stimulate further financial development proxy (DCR) in SAMICs.

Table 6. *Panel Co-integration Estimation using DCR (1980-2013).*

Dep. Var. -RGDP			**Dep. Var.-DCR**		
Regressors	**DOLS**	**FMOLS**	**Regressors**	**DOLS**	**FMOLS**
DCR	1.58(0.12)	1.90(0.01***)	RGDP	0.05(0.52)	0.06(0.06*)
FIR	-9.64(0.03**)	-5.02(0.12)	FIR	-0.71(0.46)	-0.26(0.71)
INF	2.11(0.00***)	2.46(0.00***)	INF	0.00(0.96)	-0.10(0.26)
IR	8.75(0.06*)	3.89(0.20)	IR	0.78(0.44)	0.99(0.12)
R-squared	0.99	0.96	R-squared	0.93	0.68
Adj. R-squared	0.98	0.95	Adj. R-squared	0.90	0.66

Note: DCR=Domestic credit to private sector/GDP. Dep. var.=Dependent Variable, DOLS=dynamic OLS, and FMOLS=fully-modified OLS. *, ** and *** denote significance at 10%, 5% and 1%, respectively. Numbers in parentheses represent marginal significance levels (p=p-value) from the co-integrating regressions. Figures in the Table are organized in the order of coef.(prob)=coefficient estimate(p-value).

Similar results are shown in table 7 which exhibits estimation results of the RGDP-FDIR (=net Inflow of FDI/GDP ratio) regression model by DOLS and FMOLS models of panel co-integration estimation. The estimation results confirm a statistically significant positive association between RGDP and FDIR in both directions. This suggests that the economy's financial development proxied by FDIR boosts economic growth and economic growth tend to stimulate further financial development (FDIR) in SAMICs.

Table 7. *Panel Co-integration Estimation using FDIR (1980-2013).*

Dep. Var. -RGDP			**Dep. Var.-FDIR**		
Regressors	**DOLS**	**FMOLS**	**Regressors**	**DOLS**	**FMOLS**
FDIR	-43.71(0.00***)	-14.84(0.00***)	RGDP	0.01(0.11)	-0.01(0.06*)
FIR	-19.30(0.00***)	-8.77(0.06*)	FIR	-0.30(0.03**)	-0.15(0.25)
INF	2.38(0.00***)	2.56(0.00***)	INF	0.01(0.17)	0.03(0.02**)
IR	22.64(0.00***)	9.83(0.02**)	IR	0.42(0.00***)	0.23(0.06*)
R-squared	0.99	0.96	R-squared	0.93	0.14
Adj. R-squared	0.99	0.95	Adj. R-squared	0.88	0.08

Note: FDIR=net Inflows of Foreign Direct Investment/GDP. Dep. var.=Dependent Variable, DOLS=dynamic OLS, and FMOLS=fully-modified OLS. *, ** and *** denote significance at 10%, 5% and 1%, respectively. Numbers in parentheses represent marginal significance levels (p=p-value) from the co-integrating regressions. Figures in the Table are organized in the order of coef.(prob)=coefficient estimate(p-value).

The relationship between RGDP and M2R is exhibited in Table 8. DOLS model of panel co-integration estimation shows that there is significantly strong positive relationship between RGDP and M2R in both directions. This suggests that the economy's financial development proxied by M2R boosts economic growth and economic growth tend to stimulate further financial development in SAMICs. However, FMOLS model rejects our assumption of positive association between economic growth (RGDP) and M2R in backward direction.

Table 8. *Panel Co-integration Estimation using M2R (1980-2013).*

Dep. Var. -RGDP			**Dep. Var.-M2R**		
Regressors	**DOLS**	**FMOLS**	**Regressors**	**DOLS**	**FMOLS**
M2R	1.32(0.31)	0.30(0.65)	RGDP	0.01(0.81)	-0.01(0.81)
FIR	-15.69(0.00***)	-6.59(0.06)	FIR	1.87(0.00***)	1.52(0.06*)
INF	2.33(0.00***)	2.55(0.00**)	INF	0.18(0.00***)	0.11(0.26)
IR	14.34(0.01***)	6.46(0.04*)	IR	-1.35(0.01***)	-0.05(0.95)
R-squared	0.98	0.95	R-squared	0.98	0.69
Adj. R-squared	0.97	0.95	Adj. R-squared	0.97	0.67

Note: M2R=Money and Quasi money (M2)/GDP. Dep. var.=Dependent Variable, DOLS=dynamic OLS, and FMOLS=fully-modified OLS. *, ** and *** denote significance at 10%, 5% and 1%, respectively. Numbers in parentheses represent marginal significance levels (p=p-value) from the co-integrating regressions. Figures in the Table are organized in the order of coef.(prob)=coefficient estimate(p-value).

Table 9 exhibits estimation results of the RGDP-MCR (=market capitalization of listed companies to GDP ratio) regression model by DOLS and FMOLS. The estimation results confirm a statistically significant positive association between RGDP and MCR in both directions. This suggests that securities market development proxied by MCR promotes economic growth and economic growth accelerates securities market development.

Table 9. *Panel Co-integration Estimation using MCR (1980-2013).*

Dep. Var. -RGDP			**Dep. Var.-MCR**		
Regressors	**DOLS**	**FMOLS**	**Regressors**	**DOLS**	**FMOLS**
MCR	-0.95(0.00***)	-0.13(0.70)	RGDP	-0.31(0.44)	-0.14(0.10*)
FIR	-6.42(0.30)	-0.71(0.90)	FIR	-10.80(0.16)	-7.17(0.01***)
INF	2.33(0.00***)	2.79(0.00***)	INF	0.67(0.11)	0.36(0.13)
IR	9.91(0.07*)	3.05(0.52)	IR	15.92(0.03**)	10.50(0.00***)
R-squared	0.99	0.98	R-squared	0.89	0.68
Adj. R-squared	0.99	0.97	Adj. R-squared	0.78	0.63

Note: MCR=Market Capitalization of listed Companies/GDP. Dep. var.=Dependent Variable, DOLS=dynamic OLS, and FMOLS=fully-modified OLS. *, ** and *** denote significance at 10%, 5% and 1%, respectively. Numbers in parentheses represent marginal significance levels (p=p-value) from the co-integrating regressions. Figures in the Table are organized in the order of coef.(prob)=coefficient estimate(p-value).

Summing up the results in Tables 2-9, we find that the variables used to determine the nexus between growth and financial sector development are nonstationary in a panel of 5 SAMICs by 6 panel unit root tests. The residual-based panel co-integration tests of Kao (1999) provide evidence suggesting that there is one bi-directional co-integrating relationship between real GDP and financial development proxied by FDIR, and unidirectional relationship of RGDP with DCBR, DCR, FIR, INF, IR and M2R.

Estimation results of the panel data by 2 types of panel co-integration methodology - DOLS and FMOLS - indicate that there is a statistically significant positive (long-run equilibrium) association between real GDP and the DCBR, FDIR, M2R and MCR in both directions. A unidirectional relationship has been found between real GDP and Domestic credit to private sector (DCR). This suggests that financial development in banking and securities markets has enhanced output growth and economic growth has stimulated further financial development (except DCR) for 5 SAMICs over the 1980-2013periods.

5. Conclusion

This paper has investigated the relationship between the financial sector and economic growth in the South Asian middle income countries. We included several variables (DCBR, DCR, FDIR, M2R, MCR, FIR, INF and IR) to measure the development of the financial sector in order to account for both quantity and quality effects as well as to cover the entire financial system.

The results on the large sample indicate that domestic credit to the private sector is not satisfactorily associated with growth, meaning thereby, there are problems of credit allocation in the region and weak financial regulation and supervision. As far as the stock market developments are concerned, the results indicate that the stock market capitalization and liquidity have a significant role in growth and economic growth induces the stock market capitalization (size). Both the forms of investment (domestic and FDI), contribute significantly to economic growth in either

direction. Stronger financial institutions, fixed capital formation and low inflation are crucial controlling growth factors.

The findings of the research have a significant policy implication that a well-planned financial policy for promoting the development of domestic financial markets encompassing the banking and stock market developments are a crucial growth strategy for developing economies especially SAMICs. The parallel development in domestic credit to private sector in terms of regulation and supervision may further enhance the strong positive relationship towards the acceleration of economic growth.

References

[1] Abdelhafidh, S. (2013). Potential financing sources of investment and economic growth in North African countries: A causality analysis. *Journal of Policy Modelling, 35* (1), 150-169.

[2] Abu-Bader, S., & Abu-Qarn, A. M. (2008). Financial development and economic growth: empirical evidence from MENA countries. *Review of Development Economics, 12*, 803-817.

[3] Ahmed, E., & Malik, A. (2009). Financial Sector Development and Economic Growth: An Empirical Analysis of Developing Countries. *Journal of Ecnomic Cooperation and Development, 30* (1), 17-40.

[4] Al-Awad, M., & Harb, N. (2005). Financial Development and Economic Growth in the Middle East. *Applied Financial Economics, 15*, 041-1051.

[5] Ang, J., & McKibbin, W. J. (2007). Financial liberalization, financial sector development and growth: Evidence from Malaysia. *Journal of Development Economics, February*, 1-19.

[6] Arestis, P., Demetriades, P., & Luintel, K. (2001). Financial Development and Economic Growth:The Role of Stock Markets. *Journal of Money, Credit and Banking, 33*, 16-41.

[7] Beck, T., Demirgüç-Kunt, A., & Levine, R. (2000). A New Database on Financial Development and Structure. *World Bank Economic Review, 14*, 597-605.

[8] Bekaert, G., Harvey, C. R., & Lundblad, C. (2005). Does Financial Liberalization Spur Growth? *Journal of Financial Economics, 77*, 3-55.

[9] Bekaert, G., Harvey, C. R., & Lundblad, C. (2001). Emerging Equity Markets and Economic Development. *Journal of Development Economics, 66*, 465-504.

[10] Bolbol, A., Fatheldin, A., & Omram, M. (2005). Financial Development, Structure, and Economic Growth: The Case of Egypt,1974-2002. *Research in International Business and and Finance, 2*, 123-138.

[11] Boulila, G., & Trabelsi, M. (2004). The Causality Issue in the Finance and Growth Nexus: Empirical Evidence from Middle East and North African Countries. *Review of Middle East Economics and Finance, 2*, 123-138.

[12] Breitung, J. (2000). The local power of some unit root tests for panel data. In H. B. Baltagi, *Nonstationary Panels, Panel Cointegration, and Dynamic Panels* (Vol. 15, pp. 161-178). Amsterdam: JAI Press.

[13] Chakraborty, I. (2008). Financial Developemnt and Economic Growth in India: An Anaysis of the post reform period. *Occasional Paper*. Institute of Development studies, Kolkata.

[14] Chakraborty, S., & Ray, T. (2006). Bank-based versus market-based financial systems: A growth-theoretic analysis. *Journal of Monetary Economics, 53*, 329-35-.

[15] Chandavarkar, A. (1992). Of finance and development: Neglected and unsettled questions. *World Development, 22*, 133-142.

[16] Choi, I. (2001). Unit root tests for panel data. *Journal of International Money and Finance, 20* (2), 249-272.

[17] Chritopoulos, D., & Tsionas, E. G. (2004). Financial Development and Economic Growth:Evidence from Panel Unit Root and Cointegration Tests. *Journal of Development Economics, 37*, 55-74.

[18] Deidda, L., & Fattouh, B. (2006). Banks, financial markets and growth. *Journal of Financial Intermediation, September*, 1-31.

[19] Demetriades, P., & Hussein, K. (1996). Does Financial Development Cause Economic Growth? Time Series Evidence from 16 Countries. *Journal of Development Economics, 51*, 387-411.

[20] Estrada, G., Park, D., & Ramayandi, A. (2010). Financial Development and Economic Growth in Developing Asia. *ADB Economics Working Paper Series* , No. 233.

[21] Ghali, K. (1999). Financial development and economic growth: The Tunisian experience. *Review of Development Economics, 3* (3), 310-322.

[22] Goldsmith, R. (1969). *Financial Structure and Development.* New Haven, CT: Yale University Press.

[23] Greenwood, J., & Smith, B. (1997). Financial markets in development, and the development of financial markets. *Journal of Economic Dynamics and Control, 21*, 145-181.

[24] Habibullah, M. (1999). FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN ASIAN COUNTRIES. *Savings and Development, 23* (3), 279-291.

[25] Hadri, K. (2000). Testing for stationarity in heterogeneous panel data. *Econometrics Journal, 3* (2), 148-161.

[26] Hasan, I., Koetter, M., & Wedow, M. (2009). Regional growth and finance in Europe: Is there a quality effect of bank efficiency? *Journal of Banking and Finance, 33* (8), 1446-1453.

[27] Hicks, J. (1969). *A Theory of Economic History.* Oxford: Clarendon Press.

[28] Hussain, F., & Chakrabortry, D. K. (2012). Causality between Financial Development and Economic Growth: Evidence from an Indian State. *The Romanian Economic Journal, Year XV* (45), 27-45.

[29] Im, K., Pesaran, M., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics, 115*, 53-74.

[30] Jun, S. (2012). Financial Development and Output Growth:A Panel Study for Asian Countries. *Journal of East Asian Economic Integration, 16* (1), 97-115.

[31] Kao, C. (1999). Spurious regression and residual-based tests for cointegration in panel data. *Journal of Econometrics, 90*, 1-44.

[32] Kao, C., & Chiag, M. H. (2000). On the estimation and inference of a cointegrated regression in panel data. In B. H. Baltagi, *Nonstationary Panels, Panel Cointegration, and Dynamic Panels in Advances in Econometrics* (pp. 179-222). Amsterdam: JAI Press (Elsevier Science).

[33] Kar, M., Nazlioglu, S., & Agir, H. (2011). Financial development and economic growth nexus in the MENA countries: Bootstrap panel granger causality analysis. *Economic Modelling, 28* (1), 685-693.

[34] Ke, L. (2010). Relationship between Financial System Reform and Economic Development in China. *Public Policy Review, 6* (3), 557-579.

[35] King, R., & Levine, R. (1993). Finance and Growth: Schumpeter might be right. *Quarterly Journal of Ecnonomics, 108*, 717-738.

[36] Koetter, M., & Wedow, M. (2010). Finance and growth in a bank-based economy: Is it quantity or quality that matters? *Journal of International Money and Finance, 29*, 1529-1545.

[37] La Porta, R., Lopez-de-Silanes, F., & Shliefer, A. (2002). Government ownership of Commercial Banks. *Journal of Finance, 57*, 265-301.

[38] Levin, A., Lin, C., & Chu, J. (2002). Unit root tests in panel data: Asymptotic and finite-sample properties. *Journal of Econometrics, 108*, 1-24.

[39] Levine, R. (2005). Finance and Growth: Theory, Evidence, and Mechanisms. In P. Aghion, & S. Durlauf, *The Handbook of Economic Growth*. Amsterdam: North-Holland.

[40] Levine, R. (1991). Stock markets, growth, and tax policy. *Jouranl of Finance, 66*, 1445-1465.

[41] Levine, R., & Zervos, S. (1998). Stock Markets, Banks, and Economic Growth. *American Economic Review, 88*, 537-558.

[42] Levine, R., Loayza, N., & Beck, T. (2000). Financial intermediation and economic growth: Causes and causality. *Journal of Monetary Economics, 46*, 31-77.

[43] Liang, Q., & Teng, J. (2006). Financial development and economic growth: Evidence from China. *China Economic Review, 17*, 395-411.

[44] Lucas Jr., R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics, 22*, 3-42.

[45] Madala, G., & Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and Statistics, 61* (4), 631-652.

[46] Miller, M. (1998). Financial Markets and Economic Growth. *Journal of Applied Corporate Finance, 11*, 8-14.

[47] Pedroni, P. (2004). Panel cointegration: Asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis. *Econometric Theory, 20*, 597-625.

[48] Phillips, P. B., & Hansen, B. E. (1990). Statistical Inference in Instrumental Variables Regression with I(1) Processes. *Review of Economics Studies, 57*, 99-125.

[49] Robinson, J. (1952). *The Rate of Interest and other Essays.* London: Mcmillan.

[50] Rousseau, P., & Wachtel, P. (1998). Financial Intermediation and Economic Performance. *Journal of Money, Credit and Banking, 30*, 657-678.

[51] Saikkonen, P. (1992). Estimation and Testing of Cointegrated Systems by an Autoregressive Approximation. *Econometric Theory, 8*, 1-27.

[52] Schumpeter, J. A. (1912). The Theory of Economic Development. translated by R. Opie, Cambridge, MA: Harvard University Press, 1934.

[53] Sinha, D., & Macri, J. (2001). *Financial development and economic growth: The case of eight Asian countries*. Retrieved from MPRA Paper No. 18297, posted 2. November 2009 06:09 UTC: http://mpra.ub.uni-muenchen.de/18297/