

INTERNATIONAL JOURNAL OF ECONOMIC STUDIES

ULUSLARARASI EKONOMİK ARAŞTIRMALAR DERGİSİ



June 2021, Vol:7, Issue:2 e-ISSN: 2149-8377 journal homepage: www.ekonomikarastirmalar.org

Impact of Stock Market Development and Bank Sector Development on Economic Growth: Evidence from South Asian Association for Regional Cooperation (SAARC) Countries

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ARTICLE INFO	ABSTRACT
<i>Article History:</i> Received 6 April 2021 Received in revised form 5 July 2021 Accepted 6 July 2021	This study aims to investigate the impact of both the stock market and bank sector development on economic growth for four selected South Asian Association for Regional Cooperation (SAARC) countries. An empirical study for the period 2003-2018 is performed employing the system GMM (SYS-GMM) technique. This study uses stock market capitalization (MK) and value of stock traded (STA) as stock market development fundamentals, domestic credit to private sector (DCP),
Keywords:	liquid liabilities (LL), bank deposit (DEPO), and bank credit to bank deposit (BCD) as banking sector development forces, and four selected magnocepopula control variables. Findings of this paper confirm an
Stock Market Development, Banking Sector Development, Economic Growth, SAARC Countries, Generalized Method of Moments (GMM).	affirmative relationship between stock market expansion, bank sector development, and economic progress. Essentially, it is evident that LL and STA significantly influence economic growth in the selected four
© 2021 PESA All rights reserved	SAARC countries. Particularly, this study supports the significance of both the stock market and bank development for economic growth. Therefore, decision-makers should take required measures toward simultaneous development of both stock markets and banks for encouraging economic development in the SAARC region

INTRODUCTION

A well-developed financial system is essential for the economic growth of a country. It provides symmetric information about the potential attractive investment alternatives and efficient allocation of financial resources by reducing uncertainty through competent risk management practice, lowering information and transaction costs, encouraging new technologies, and developing innovative financial instruments. Moreover, public and private enterprises are now mostly depending on financial markets to raise their capital. So, stock markets and the banking sector have been established in almost every corner of the globe. But there is a substantial debate about whether stock market encroachment influences economic growth, banking sector progression tends to stimulate economic acceleration, or both the stock market and banking sector advancement simultaneously persuade on economic expansion. Boyd and Prescott (1986) affirm that banks help to lessen information asymmetry and hence better in allocating financial resources. Moreover, banks are more capable in allocation of resources and corporate governance issues than the stock market (Stiglitz, 1985; Bhide, 1993). However, vying stock markets promote innovative and growthoriented activities and thereby diminish the incompetent monopoly power of banks (Allen & Gale, 2000). Finally, some literature documents that both the stock market and banks simultaneously tend to stimulate growth by enhancing information diffusion and lowering business costs.

However, a few empirical literatures suggest that an efficient banking sector helps promote economic growth exclude stock market development. But ignoring stock market fundamentals in finance-growth nexus makes it complicated to evaluate whether (i) the positive association between banks and economic acceleration remains when limiting for stock market advancement, (ii) each of the banking sector and stock markets has an individual ramification on growth, or (iii) banks and stock markets together matter for economic development. Therefore, keeping the stock market in the finance-growth relationship is important for at least four reasons even when issuance of equity capital is a comparatively small source of funds (Rousseau & Wachtel, 2000). Firstly, stock markets serve as a possible exit mechanism for investors and entrepreneurs. Secondly, it attracts domestic and foreign capital inflows. Thirdly, it facilitates liquidity which promotes both domestic and foreign investors to transmit their savings from short-term investment to the long-term capital market. Last but not least, it provides significant information that boosts the competence of financial intermediation. Therefore, this study tries to investigate whether stock market and banking sector development indicators can foster economic growth.

The objective of this study is to explore the dynamic nexus between stock market development, banking sector development and economic growth for a panel of four SAARC economies, such as Bangladesh, India, Pakistan and Sri Lanka by employing the System GMM (SYS-GMM) technique. To achieve the objective and to get the clear picture of the dynamic relationship between the regressors, we tried to include all eight SAARC economies, but due to the unavailability of data (e.g. stock market data of Afghanistan, Bhutan, Nepal and Maldives are not available in the World Development Indicators (WDI) of the World Bank), this study covered only four economies. Though these four countries are from the same geographical region they are widely diverse in terms of their culture, religious belief, and economic conditions. Moreover, this paper selects SAARC countries not only because a few research has been carried out in the realm but also because the size and the structure of financial markets vary significantly among these economies. Besides, the finding of this study may help to understand other emergent economies with same level of financial expansion.

1. Literature Review

Financial development is indispensable to economic growth. It is the basic foundation on which sustained economic development can be built. A bulk of prior study has investigated the effect of stock markets and banks development on growth but they are far from having reached a consensus. Whilst absolute unanimity does not exist, a huge number of prior literature documents that well-functioning financial markets help accelerate growth.

In fact, a bulk of empirical studies manifest that financial development significantly affect economic development. For instance, Beck and Levine (2004) and Rousseau and Wachtel (2000) documented that both banks and stock market advancement positively influenced economic development. Taking the data for a total of 32 economies from 1980 to 2006, Leitao (2010) reported a positive association between financial development and economic growth. Adusei (2013) reported similar findings for selected 24 African economies. Moreover, many prior studies (see, for example, Caporale et al., 2014; Durusu-Ciftci et al., 2017; Herwartz & Walle, 2014; Jedidia et al., 2014; Muhammad et al., 2016; Pradhan et al., 2016; Samargandi et al., 2015) discover a strong, positive linkage between financial development and economic growth. However, using the stock markets and banks variables, Saci et al. (2009) documented that stock market fundamentals have significantly positive influence on economic growth whereas, in the presence of stock market variables, banking sector variables, such as credit to private sector and liquid liabilities, negatively effect on economic growth. More recently, Guru and Yadav (2019) investigate the linkage between financial development and economic growth for five leading BRICS countries for the period of 1993 to 2014 by employing System GMM technique. Findings of the study reported a significantly positive relation between bank variables and economic growth in the presence of stock turnover ratio. Also, in the presence of all of the selected bank variables, the value of share traded is found to be positively and significantly correlated to economic growth. But the opposite result is reported when the stock turnover ratio is regressed in presence of banking sector development indicators.

However, divergent to above, some other researchers and economists have reported different views toward the association between stock markets and banking sector development and economic growth. For instance, Robinson (1952) reported that economic growth is not caused by the financial development; rather it helps to accelerate financial development. In addition, financial development shrinks the total supply of credit in the economy by relocating the deficit budget holders from informal sources of fund to the formal financial institutions; thereby restrain economic development (Buffie, 1984; Wijnberg, 1983). Moreover, Lucas (1988) argued that financial markets play an insignificant role in economic development. Chandavarkar (1992, p. 134) also reported that "none of the pioneers of development economics ... even lists finance as a factor of development".

A different set of prior literatures reported either negative or no correlation between financial advancement and economic growth. For example, using the data of 52 average-income economies from 1980 to 2008, Samargandi et al. (2015) documented a long-run inverse link between financial matters and economic growth. Similarly, Ram (1999) found an insignificant or reverse association between financial development and economic growth for both advanced and emergent economies. Contrary to the conventional wisdom, Dawson (2003) found an insignificant relation between financial development and economic growth. Also, Hondroyiannis et al. (2005) reported that both banks and stock markets can lead economic growth in Greece but their effect is found to be insignificant. By applying GMM estimation technique Naceur and Ghazouani (2007) examined the simultaneous effect of banks and stock markets development on growth and revealed that there is no significant association among the regressors. They also reported that immature financial systems may cause to lead such relationship in the MENA region.

In the same vein, some authors also examined the finance-growth nexus focusing on long term cross section panel of countries data (see, for example, Beck, 2013; Gregorio & Guidotti, 1995; Graff & Karmann, 2006; Khan, 2000; Levine, 2005; Shen et al., 2011) and documented that finance-growth nexus varies among different economies on the basis of their level of economic advancement. By categorizing the economies based on their degree of financial expansion, Rioja and Valev (2004) found that finance in low region has an uncertain effect on growth, whilst, it is found positive for the intermediate and high regions. Deidda and Fattouh (2002) also reported that financial development has an insignificant effect on growth in low income countries while it is found significant and positive in high income economies. However, Bist (2018) found a positive and significant association between financial expansion and growth in 16 selected African and non-African low income economies.

Another part of prior research has explored the association between financial development and economic growth by employing cointegration methodologies. Christopoulos and Tsionas (2004) found long run cointegration relation between financial advancement and economic growth in a panel of ten countries. Apergis et al. (2007) reported a two-way causal relationship between financial development and economic expansion. Also, Cavenaile et al. (2013) explored the long run relationship between banks and stock markets development and economic growth by using Johansen-based panel cointegration technique and documented a significant long run affiliation between the regressors. The findings of the study also reported that banks and stock markets fundamentals might have varying effects based on the degree of economic improvement. More recently, Pradhan et al. (2017) found that financial development matters in the determination of long run growth in ARF countries.

2. Data, Variables and Methodology

2.1. Data and Variables

This study employs annual time series data ranges from 2003 to 2018 for a panel of four SAARC countries, such as Bangladesh, India, Pakistan and Sri Lanka. Consulting with the existing literature (see, for example, Barro, 1991; Beck & Levine, 2004; Bongini et al. 2017; Mankiw et al., 1992; Menyari, 2019 among others), this study chooses a large set of variables. The present study uses market capitalization (MK) and stock market value traded (STA) as a measure of stock market development. To measure the banking sector development, this paper selects domestic credit to private sector (DCP), liquid liabilities (LL), bank deposit (DEPO), and bank credit to bank deposit (BCD) as banking sector indicators. Further, some macroeconomic control variables such as real interest rate (INT), inflation (INF), trade openness (TO), and foreign direct investment (FDI) are used in the study. GDP per capita growth (GDP) is used to measure the economic growth of the selected SAARC countries. All the data are retrieved from the World Development Indicators (WDI) and the Global Financial Development (GFD) of the World Bank. The definition of the variables is provided in Table 1.

2.2. Methodology

Many empirical studies (see, for example, Beck and Levine, 2004; Bongini et al. 2017; Levine et al., 2000; Menyari, 2019; Saci et al., 2009; Rousseau and Wachtel, 2000 and Yao, 2006 among others) use panel Generalised Method of Moments (GMM) technique to explore the association between stock market development, bank development and economic growth. GMM techniques provide consistent measurements and originate from the instrumental variables principles. Moreover, these procedures restraint unobserved country-specific effects, first-difference nonstationary variables; overwhelm the endogeneity of the explanatory variables. For the above-mentioned reasons, we use the GMM estimators in this study.

Variables	Definition	Source			
Dependent Variable					
GDP growth (GDP)	Annual percentage growth rate of GDP per capita	WDI			
	based on constant local currency. This measure is used				
	as a proxy of economic growth in this study.				
Stock market developm	ent indicators				
Stock Market	It refers to the total market value of all of the listed	WDI			
Capitalization (MK)	companies in the exchange and calculated by the share				
_	price times the number of shares outstanding. This				
	measure is used as a percentage of GDP.				
Value of Stock Traded	The value of shares traded is the total number of	WDI			
(STA)	domestic shares traded multiplied by their respective				
	matching prices. This measure is used as a percentage				
	of GDP.				
Banking sector development indicators					
Domestic credit to private	DCP refers to financial resources supplied to the	WDI			

Table 1: Definition of The Variables

sector (DCP)	private sector by depository institutions. This measure	
	is used as a percentage of GDP.	
Liquid liabilities (LL)	Ratio of LL to GDP is the measure of the size of the	GFD
_	financial sector.	
Bank deposits (DEPO)	Bank deposits to GDP are the sum of all of the deposits	GFD
	in bank financial institutions as a share of GDP.	
Bank credit to bank	BCD is used to evaluate the liquidity of bank	GFD
deposit (BCD)	institutions and measured as a percentage of bank	
	credit to bank deposits.	
Macroeconomic indicat	ors	
Real interest rate (INT)	This rate adjusts the effect of inflation to replicate the	WDI
	actual fund cost of the investors.	
Inflation (INF)	Inflation discloses annual percentage change in	WDI
	purchasing powers of the consumers.	
Trade openness (TO)	TO is the sum of imports and exports of goods and	WDI
	services (% of GDP).	
Foreign direct investment	Foreign direct investment, net inflows (percentage of	WDI
(FDI)	GDP	

Source: By the author

The following is the traditional cross-country growth regression model used in this study:

 $GDP_{i,t} = \alpha + \beta \ GDP_{i,t-1} + \Omega \ STOCKMARKET_{i,t} + \lambda \ BANK_{i,t} + \Psi X_{i,t} + \theta_i + \varepsilon_{i,t}$ (1)

Where $GDP_{i,t}$ represents the per capita GDP growth of country i at time t, $STOCKMARKET_{i,t}$ indicates the different measures of stock market development, $BANK_{i,t}$ denotes the different banking sector development indicators, $X_{i,t}$ represents the set of macroeconomic determinants that are typically used as a measure of economic growth, θ_i is an unobserved country-specific effect, $\varepsilon_{i,t}$ is the error term which follows N(0, σ^2), i indicates the specific country and t represents the time period.

Equation (1) is the period's growth rate. Most of the empirical studies that are conducted to determine the economic growth suffer from several estimation problems. First, usually growth model uses a lagged value of endogenous variable which can make the model worse. Moreover, a serial correlation of errors may result from the exclusion of important exogenous variables which creates reliability problems of the estimated coefficients. Second, most of the growth models suffer from endogeneity problems. In order to play down these possible sources of bias in the estimates and to evade the fallacious regression problems, our study employs the system GMM (SYS-GMM) technique. The system GMM technique is able to handle the endogeneity problem of the explanatory variables. This technique jointly estimates the equation in first difference with that in level. In the first difference equation, the explanatory variables are instrumented using lagged values of the regressors. This differentiation improves the growth model and the use of instrumental variables help get rid of endogeneity of the explanatory variables.

3. Empirical Results and Discussion

Table 2 below exhibits the basic characteristics of the dataset used in the study. A considerable heterogeneity is found in the selected SAARC economies. For example, the per capita growth rate of GDP is 4.510n average in the sample countries. The maximum value of this indicator is recorded in Sri Lanka (9.00) while the minimum value is in Pakistan (-0.60). As far as the DCP is concerned, we find that India records the maximum value (52.38) while Pakistan holds the minimum value (15.31). Similarly, the average LL for the sample countries is 48.68 with a minimum of 29.86 in Sri Lanka and a maximum of 74.82 in India. For the stock market development indicator, the highest value of MK is recorded in India (149.51) while Bangladesh has the lowest value (4.75). Both maximum and minimum value of STA is recorded in Pakistan having a standard deviation of 33.11. A wide variation is also exhibited in the macroeconomics variables across the sample. Therefore, stock market progress, bank sector advancement and economic growth are far from being uniform within the countries of investigation.

	Mean	Std. Dev	Maximum	Minimum
GDP	4.51	2.01	9.00	-0.60
DCP	35.69	11.22	52.38	15.31
LL	48.68	14.09	74.82	29.86
BCD	75.88	11.94	94.01	48.16
DEPO	41.03	12.48	66.06	26.81
MK	38.47	26.77	149.51	4.75
STA	22.78	33.11	143.19	0.22
INF	7.62	3.84	22.56	2.14
INT	5.87	4.15	14.54	-10.25
FDI	1.39	0.72	3.67	0.38
ТО	43.91	12.39	79.48	25.31

Table 2: Descriptive analysis

Source: By the author

The correlation matrix of the variables of interest is documented in Table 3. The chosen banks and stock markets development fundamentals, viz, DCP, LL, BCD, DEPO, and MK are positively and significantly linked with GDP except for STA which is positive but insignificant. INT, INF, and FDI are negatively correlated with GDP while TO is found to be positive and significant. By and large, the correlation matrix provides a stable relation between all the variables of interest that may influence the analysis of this study.

We estimate eight SYS-GMM models (Model 1 to Model 8) by taking one development fundamental from each of the stock market and banking sector along with four selected macroeconomic control variables which results are documented in Table 4.

Taking one banking sector development indicator, namely DCP along with two other stock market development indices, such as MK and STA, we estimate Model 1 and Model 2 independently in Table 4 for measuring the economic development for the designated four SAARC countries. It is found in Model 1 that both DCP and MK are positive but insignificant. However, STA is positively and statistically significant in the presence of DCP (Model 2). This result is compatible with the finding of Beck and Levine (2004), Bist (2018), Guru and Yadav (2019), Levine et al. (2000), Levine and Zervos (1998) among others who document that DCP is positively connected to the economic development. But this finding is contrary to some other empirical studies such as Naceur and Ghazouani (2007), Saci et al. (2009) which report negative relation between DCP and economic expansion. The positive effect of DCP and stock market forces on economic development implies that SAARC countries are efficiently administering resources to the productive private enterprises. Moreover, DCP and stock market fundamentals complement each other to promote the economic growth of SAARC economies.

	GDP	DCP	LL	BCD	DEPO	MK	STA	INF	INT	FDI	TO
GDP	1.00										
DCP	0.47*	1.00									
LL	0.31**	0.74*	1.00								
BCD	0.30**	0.57*	-0.02	1.00							
DEPO	0.33*	0.82*	0.96*	0.05	1.00						
MK	0.40*	0.56*	0.76*	-0.03	0.73^{*}	1.00					
STA	0.16	0.19	0.43*	-0.09	0.35^{*}	0.64*	1.00				
INF	-0.21***	-0.12	-0.18	0.29**	-0.21	-0.16	-0.01	1.00			
INT	-0.66*	-0.48*	-0.13	-0.42*	-0.23**	-0.19	0.05	0.06	1.00		
FDI	-0.03	0.35^{*}	0.31**	0.32**	0.30**	0.36*	0.51*	0.32**	0.02	1.00	
TO	0.31**	0.41*	-0.09	0.63*	0.04	0.03	-0.14	0.24**	-0.59*	0.21***	1.00

Note: ***, **, and * represent that the test statistics is significant at 10, 5, and 1 percent, respectively.

Source: By the author

We estimate Model 3 and Model 4 separately in Table 4 keeping LL along with two stock market forces, namely MK and STA. Contrary to the empirical findings reported in Naceur and Ghazouani (2007), Saci et al. (2009), LL is found positive and significant (Model 3) with

MK (which is found positive but insignificant) whereas, Both LL and STA (Model 4) are found to be positively significant. The positive and significant influence of bank variable (LL) and stock market fundamentals imply that the economic growth of the selected economies accelerates with the channeling the savings of investors and/or existence of liquid capital markets.

In Model 5 and Model 6 of Table 4, this study finds a positive but insignificant coefficient of BCD and MK whereas, STA is found positive and significant along with BCD. This finding is consistent with the findings reported by Guru and Yadav (2019). The positive coefficient of BCD, MK and STA justify that an economy with higher banking penetration, efficient and liquid capital markets help accelerate economic growth.

This study also estimates Model 7 and Model 8 in Table 4 taking DEPO along with MK and STA. Both stock market indicators such as, MK and STA are found positive but insignificant with DEPO. This result indicates that higher deposits in the banking sector along with competent equity markets incline to encourage economic progress in the SAARC countries.

Furthermore, analogous to the empirical literature of Beck and Levine (2004), Caporale et al. (2014), this study estimates Model 9 (Table 4) considering both banks and stock markets fundamentals simultaneously. We find that LL has a positive and significant effect on economic development, due to the fact that money supply via saving mobilization tends to stimulate economic growth by facilitating economic activities. Moreover, stock market forces such as, MK and STA are found to be positive and significant in the presence of banks fundamentals. These findings imply that a more liquid and efficient capital market along with the increased size of this market leads to economic growth.

It is mentioned here that irrespective of all the models we use lag GDP as a regressor of economic growth. This variable is found significant in all 9 models. This result confirms that the previous period's economic development help accelerates the economic advancement in the selected SAARC countries.

For the control variables, this study finds an inverse convergence repercussion on economic development. Irrespective of all of the models, INF is found to be significant and have a substantial effect on economic progress. Consistent with the existing literature and general consensus, we find negative influences of inflation (INF) on economic expansion. FDI is found negatively significant in model 2, Model 4, Model 6 and Model 8. This result is contrary to the general economic predictions and economic theory that report positive relations. Moreover, a negative and insignificant effect is obtained for trade openness (TO). Finally, this study finds statistically insignificant but inverse effect of INT on economic development.

Regressors	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
GDP(-1)	0.50*	0.52*	0.52^{*}	0.53*	0.51*	0.47*	0.52^{*}	0.54*	0.45*
DCP	0.01	0.02							-0.17
LL			0.01***	0.01**					0.16*
BCD					0.00	0.01			0.07
DEPO							0.01	0.01	0.01
MK	0.00		0.00		0.00		0.00		0.05***
STA		0.01***		0.01***		0.01**		0.01	0.02***
INF	-0.23*	-0.23*	-0.23*	-0.23*	-0.23*	-0.23*	-0.23*	-0.23*	-0.27*
INT	-0.02	-0.00	-0.02	-0.00	-0.03	-0.02	-0.02	-0.01	-0.14***
FDI	-0.29	-0.56*	-0.30	-0.54***	-0.20	-0.57*	-0.28	-0.53***	-0.40
ТО	-0.02	-0.02	-0.01	-0.01	-0.02	-0.02***	-0.01	-0.01	0.03
Constant	4.36*	4.32*	3.88*	4.15^{*}	4.91*	4.57*	4.16*	4.35^{*}	-1.82
Sargan	0.05	0.05	0.06	0.06	0.04	0.02	0.05	0.05	0.01
test									
Arellano–	-0.18	-0.18	-0.20	-0.20	-0.19	-0.19	-0.20	-0.21	-0.25
Bond test									
Wald test	2629.71*	3781.32*	2592.37^{*}	2971.91*	2463.87*	4147.14*	2269.05*	3034.66*	2382.0
for joint									4*
Significanc									
e									

Note: ***, **, and * represent that the test statistics is significant at 10, 5, and 1 percent, respectively. The null hypothesis of Sargan test is that the instruments used in the study are valid and independent from error terms. The null hypothesis of Arellano–Bond test for autocorrelation is that the residual errors in the first-difference regression show no second-order serial correlation.

Source: By the author

Different diagnostic tests are also performed in Table 4 to check the consistency of the estimated models. Firstly, Sargan test is performed to check the overall validity of the instruments. The null hypothesis of Sargan test is that there is no correlation between the instruments and the residual errors. Results of this test statistic suggest that all the instruments used in the models are valid and independent from the residual errors. Secondly, we check whether there is any existence of second order serial autocorrelation by employing Arellano–Bond test. Acceptance of the null hypothesis confirms the absence of second order serial correlation in all of the estimated models. Finally, Wald test is performed to verify the overall fit of the regressions. Results of the test statistic reveal that all of the explanatory variables used in the estimated models are collectively significant. Since all the outputs of the post-optimality tests are up to the mark, it can make inference that all of the estimated models are well specified.

CONCLUSION

This study aims to explore the impact of stocks market development and bank sector advancement on economic development by using a sample of four SAARC economies covering the period of 2003 to 2018. For this purpose, eight System GMM (SYS-GMM) models were estimated by taking one variable from each of the banking sector and stock market along with four selected macroeconomic control variables. Furthermore, we estimated another model keeping both stock markets and banks variables together.

This study finds a positive association between stock market development, bank sector development and economic growth. In essence, it is revealed that liquid liabilities (LL) and value of stock traded (STA) are important in determining the economic growth in the selected four SAARC countries. Particularly, among all of the banking sector development indicators, only LL can positively and significantly influence economic growth in the presence of STA. Other bank variables, namely domestic credit to private sector (DCP), bank credit to bank deposit (BCD) and bank deposits (DEPO) are found positive but insignificant. Similarly, value of stock traded (STA), one of the stock market development measures, is found to be positively and significantly affecting the economic growth in the presence of all of the bank indicators except DCP. However, stock market capitalization (MK) was found positive but insignificant in determining the growth of the selected four SAARC countries in the presence of all of the banking sector development indicators.

As a matter of policy implications, the decision-makers should promote economic growth by supporting the development of stock markets and banks in terms of both size and degree of sophistication. Regulators of the financial markets should establish well developed regulatory infrastructure so that they can implement the economic policies that guarantee the stability in the financial system and macroeconomic environment of the SAARC region to spur economic growth.

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