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RESEARCH ARTICLE

# The relationship between trade openness, financial development and economic growth: Evidence from Generalized method of moments

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**Abstract**
This study examines the effect of trade openness and financial development on economic growth four South Asian countries for the period of 1980-2017 using static and dynamic models. The results indicates that stock market development positively effect economic growth. The results validate that all three proxies of stock market perform a significant and positive role in augmenting economic growth in the sample countries. Trade openness, inflation and real interest rate significantly reduce economic growth while saving rise economic growth. The findings of this study have important policy implication for the sample countries regarding rising stock market in order to strengthen economic growth.

**Keywords**: Trade Openness, Stocks Market development, Difference GMM, System GMM

## Introduction

The previous literature on trade openness and financial development and its relationship with economic growth indicates that a developed and well-operative economy requires a sound financial system which have strong financial regulations and institutional framework which efficiently allocate savings into investments. Likewise, international trade openness is also been considered that its plays a very important role in rising economic growth. The composition of financial institutions, financial markets, pension funds, securities markets and other intermediaries as well the regulatory institutions that allows the flow of money to accelerate economic activities is termed as financial system. The improvement of financial services poised of the establishments and development of financial institutions, and markets that upkeep investment and growth process ((FitzGerald, 2006). Therefore, it is agreed that a well-established financial structure is a crucial driver of economic progression which should be integrated to developmental policies. A well-established financial structure which is composed of better financial markets help ease savings into investments. It's also strengthening financial activities which in-turn increase the supply of financial facilities and enhance the growth level. According to (Patrick, 1966) countries trying to achieve self-sustained growth of their economies and for this purpose they are trying to develop their financial sector Patrick (1966). Although it's widely accepted that financial development and economic growth have a strong and positive link but still there is noproper way to find the nature of association between the two. Many of empirical finding about financial development and growth are failed to establish this association. Some studies indicate the unpredictable association and the nature of direction about the link of financial advancement and economic growth. Many researches have been done on the linkage of financial development and growth and have found different views and opinion of this topic. Further, (Demetriades & Hussein, 1996), (Zang & Kim, 2007), (Odhiambo, 2008), (Liang & Jian-Zhou, 2006) have identified that better financial services increase the real output of a country. Therefor it is suggested that the development of an economy needs better financial structure. The study of (Lucas Jr, 1988), Stern (1989 and Robinson (1952) supports the insignificant link or they statutes even no link of financial development and growth. The common effect of financial advancement on economic growth has been still continuing. In the existing empirical studies, some studies have used only bank based financial indicators and have ignored market-based indicators for financial development proxy (Anthony Enisan Akinlo & Egbetunde, 2010). Some other debates

about the issue is undergoing about financial intermediaries and stock market development role in economic growth. On the other side, the relative prominence and contribution of banks and stock markets in influencing economic growth positively. Based on this debate, most of all countries need to rise economic growth where financial institutions such as banks and stock markets are the driver of economic growth. Other economic factors such as trade openness also rise economic growth where financial institutions are connected with trade facilitations. Thus, a well-established financial institution can contribute both to economic activities such as trade openness which in turn rise economic growth. This study aims to investigate whether stock market growth in four south Asian countries have any role in rising economic growth. This will identify the strength or weakness of the sample countries financial institutions specifically the stock market. Likewise, the study focusses to identify the role of trade openness of these four developing countries economic growth. Previous studies have identified the role of financial development on economic growth using single or common proxies however this study use three indicators of stock market development and created an index to investigate its effect on economic growth. similarly, trade openness in such association has not been investigated along other variables used in our study. The study used fixed effect, difference GMM and system GMM models where the results confirm that stock market development significantly increase economic growth while trade openness, inflation and real interest rate significantly reduce it in the sample countries. However, saving is significant and positive which illustrate that a rise in saving in the four countries leads to higher economic growth.

The remaining parts of the paper is structured as follows; part 2 is composed of literature review, part 3 present the methods used in analysis, section 4 presents the results while the section 5 conclude the paper and provide policy recommendations for the sample countries.

**Literature review**

Large number of researches have been conducted for different sample of countries and regions using different econometric models on the effect of financial development on economic growth. Some studies used banking sector variables while some use stock markets indicators to find its role in rising economic growth. likewise, no comprehensive study on stock market development or bank based financial development has been conducted as the previous studies use only single or commonly used indicators. Therefore, its is important to use all indicators of financial development and find its role in economic growth however this study only focus on stock market development deeply in order to efficient estimate the role of stock market in economic growth. It is accepted widely that financial system performs a very prominent role in economic growth and development of country's economy since it's contributing to the decisions related to saving and investments and hence it enhances the growth level (Levine, 1997). A developed financial system contributes more to the efficient financial resource utilization and help monitor the production of borrowers. The stock and bond markets work as a motivator with banks and driving the economic activity through resource allocation and saving mobilization as well the managing of corporate side and risk management, that system of the economy is called a market-based financial system and financial market development is called the market-based financial development (Demirgüç-Kunt & Levine, 2004).When the control of financial system is holding by stock market activities in the market-based system and the monetary progress completely depends on the fluctuation of stock market accomplishments (Trehan, 2013). If they system of an economy is market based, so the banks dependency are lower upon interest of gain or loans of their income over fee-based facilities as the checking financial records of accounts. In the market based financial system of a country, the wealth is not contributed equally. It's changing continuously and each single individual of an economy has the chance to lose or gain at any given time period (Trehan, 2013). Specifically, Schumpeter (1911) identified the prominence of financial sector contribution to economic progress by emphasizing that financial sector is an energizer of economy growth. He examines that the role played by financial sector is due because it allocates saving and improve the level of production. It's also bringing changes in technology and in turn economic growth (Schumpeter, 1911). Sanusi (2011) examined the performance played of financial system in an economy. He states that financial system performs a vital part in economic growth though the way of mobilizing an economy resource for investments and a channel for the amplification of regulatory policy. The previous literature acknowledged the importance of banks and stock markets which play a crucial role in economic development. Financial system also contributes its importance to the process of production and capital allocation which enhance the level of economic growth of a country. Financial system helps to get information about credible investments (Levine, 1997; 2004). Tripathy (2019) and (AYAYDIN, KARAKAYA, & Fahrettin) have studied financial development, trade openness and economic growth and have found that financial development effect economic growth positively and significantly while (Arestis, Demetriades, & Luintel, 2001; FUINHAS, FILIPE, BELUCIO, & MARQUES, 2019) have found that banks have a governing contribution to economic growth rather than stock markets. (Kpodar, Le Goff, & Singh, 2019) states that banking sector development acts as a shock-absorber in poor countries and developing countries. The information of production and collection cost are lowered

to a minimum level and the resource allocation are revised (Boyd and Prescott, 1986). Inefficient information about production goes to the optimum capital resource utilization. Financial system persuades information about financial services at a lower cost which help to improve the capital flow to the highest value. In other words, the financial system beneficial for investment opportunities assessments with a positive implication of resources allocation by economizing procurement costs information (Levine. 2004). Besides the performing role in the provision of production information and capital allocation, financial system also helps monitoring firms and keep an eye on corporate governance (Levine, 1997; 2004). A well systemic financial market used as the optimum allocation of capital resources and development economic growth. Levine (2004) argues that capital providers can control and effect the capital allocation of savings along with the national level decision effectively (Levine. 2004). In the case of the stock markets when the providing information about firms and it's difficult to discuss information which creates discouragement in this information where investors lose hope about this information. The banks are better in this case because banks have access to firms' information (Boot et al.1993). In the stock market there some individual performs for the easiness of trade assets or just for fun rather than as a crucial contributor of economic growth. There already exist some views which statutes that the stock markets which is efficient, contribute positively to economic growth because the stock markets provide trade assets very easily and fast. This quick response to investors. This permit investors to be less hesitant for giving up their investment markets and ensure the firms for constant capital access (Levine & Zervos, 1996). There is truncation associated costs with pulling funds from investors, this can be overcome stock markets service providers since its minimize the saving mobilization costs which work to improve the investment in creative technologies (Greenwood & Smith, 1997). Furthermore, Diamond (1984) states that markets give information about specialization and also acquisition which ease the level of further investments. (Obstfeld,1994) further, indicates that stock markets play a pivotal role in augmenting growth since these markets help ease the risk associated with investment and it strengthen the efficient allocation of resources and enhance growth. When there is competition, the stock prices provide information about firms to investors which is helpful for financial and in turn for economic growth while bank can't perform this (Allen and Gale, 1999). Levine (2004) statutes that those intermediaries which are powerful and have an enormous influence on firms may be in the bank-based financial structure and the influence related to this case maybe negative. For instance, Levine states that when the banks get information about different firms so they can abstract rentals from these firms and these firms pay for entree to capital. Furthermore, (Morck, Nakamura, & Shivdasani, 2000) states that financial institutions of a country are debt providers are biased to farsightedness. As the bank based financial systems may limit the corporate invention and economic growth. Those companies which have a close connection with a main bank will have a strong approach to capital than of those firms deprived of a central bank. Levine (2004) identified that the firms which have a main bank method and don't grow faster than those companies without a central bank. Furthermore, they state that the use of additional capital-intensive procedures than the non-central bank firms which take other things constant; they produce less profits. The next advantage, as Levine (2004), identify those markets gives some better tools to manage the risk and these tools allow high customization of risk-ameliorating appliances (Levine, 2004). Some supporter's claim that a well-functioning bank based financial system discover information easily in the public markets. Therefor it is reducing investor's incentives to get information (Stiglitz, 1985). The growing market development may reduce incentives for classifying pioneering projects that nurture growth. As Levine and Zervos (1996) have used market capitalization, total value traded and turnover ratio to proxy for stock market development in a sample of 41 countries. The regression results states that stock market influence growth positively and robustly. Likewise, Caporale *et al*. (2003) have identified the role of market development in economic growth. They have sampled found developing countries and have used market capitalization and total value traded as a proxy for stock market. Their results evidence the strong and positive link between the two in the sample study countries. In 2005, Bekaert *et al*. (2005) examined financial liberalization role in economic growth in large sample countries. They used turnover ratio for financial liberalization proxy and found positive relationship. Their results conclude that the market liberalization leads to 1 percent increase in real economic growth per year when it takes on average. These results give the largest response for growth in these countries with high quality institutions. (Adjasi & Biekpe, 2006) have examined stock market advancement and its association with economic growth. Sample countries of their study were 14 counties of Africa. They dynamic panel model was applied to the data. Their result indicates positive association between stock market development and economic growth. Furthermore, the results statutes the positive association of stock market growth and economic development is significant in upper-middle income countries. Nurudeen (2009) studied to analyze that is the stock market development effect economic growth. His study country was Nigeria and was applied error correction methods. His results show the market capitalization enhance economic growth in Nigeria. Likewise, Akinlo and Akinlo (2009) also explore the association of stock market development and growth in a sample of seven sub-Saharan Africa economies. They indicate the positive affect of stock market on growth in long-run. Ujunwa and

Salami (2010) studied stock market advancement and its impact on economic growth in long run by using OLS estimation in Nigeria. In this study they have used, turnover ratio, value of stocks trades and market capitalization to proxy for financial development. Form the regression, they have got result which shows that the two variables that is stock market size and turnover ratios effect economic growth positively in Nigeria. On the other hand, Bernard and Austin (2011), have used to examined the relationship of stock market development with economic growth in Nigeria. They have applied time series data with ordinary least square for the period of 19994 to 2008. To proxy for market size, they have taken market capitalization ratio while to proxy for market liquidity they used market size. They have found positive association between growth and development in presence of turnover ratio proxy of stock market development. The literature is rich of evidences which show the positive association of market-based finance and economic growth. Some of the empirical studies that presented by Ujunwa and Salami (2010) and Bernard and Austin (2011). These authors have studied the role of stock market development on economic growth have got the positive link in presence of stock market size and turnover ratio in the study country Nigeria. They further identified then when the stock market liquidity proxy by stock market liquidity, the relationship of stock market with economic growth was negative. Similarly, Bernard and Austin (2011), found negative result which shows the negative relation between stock market and growth. They have used stock market capitalization and total value trades for proxy in Nigeria. Following are some studies which summarize the nature of association of market-based finance and growth. Levine and Zervos, 1996 have examined the long run relationship between economic growth and Stock market growth in 41 countries. They have employed different variables Market capitalization, Total value of trades and Turnover ratio. They used Cross-country regressions and have found positive association. On the other hand, Caporale *et al.*, 2003 have studied Endogenous growth models and stock market development in a sample of four developing countries. Their study variables are GDP in levels, Market capitalization ratio, Value traded ratio, Level of investment and Investment productivity. They have followed Quarterly time-series method and non-causality tri-variate test and have found positive association. Bekaert *et al*. 2005 have studied the weather financial development enhance the level of growth? they have selected a sample of large number of countries. The variables they have used are real per capita GDP, Turnover and 25 other variables. They have also found positive association. Adjasi and Biekpe, 2006 have examined the link between Stock market development and economic Growth in African countries. GDP, Market capitalization to GDP, Total value of shares traded to GDP, Turnover ratio, Investment and Trade variables are used. They have used Dynamic panel modeling to investigate the relationship. They have found positive association. Nurudeen, 2009 examines the role of stock market in raising economic growth in Nigeria. The Real GDP, Market capitalization, the ratio of market turnover, minimum discount rate and Openness variables are executed in the study. Time-series and Error-correction approach were used for analysis. Their study has found positive association between growth and stock market development. Similarly, (Anthony E Akinlo, 2009) investigated the Stock market development and economic growth for a sample of sub-Sahara African countries. They have used different variables such as; Per capita nominal GDP, Value traded ratio, Market capitalization ratio, Discount rate and Openness ratio and have applied ARDL bound testing. Their study has found positive association between the two. Moreover, (Ujunwa & Salami, 2010) investigates Stock market enhancement and economic growth. They have taken different variables including GDP per capita, Total value of shares traded, Turnover ratio, Total market capitalization for Nigeria. They also used Inflation rate, Government consumption expenditure and Gross capital formation. They have applied Time-series Ordinary Least Squares techniques and have found Positive association in presence of the stock market size and turnover ratios proxies of stock market development. Bernard and Austin, 2011 have identified stock market development influence on economic growth in Nigeria. They have done analysis by using a time-series OLS approach for the study variables those are; Real GDP, Stock market capitalization, Value traded ratio and Turnover ratio. They state that the relationship is positive when the when stock market development is proxied by turnover ratio. Ujunwa and Salami, 2010 have used GDP per capita, Total market capitalization Total value, of shares traded, Turnover ratio, Inflation rate, Gross capital formation Government consumption expenditure variables for analyzing the stock market development role in economic growth for Nigeria. They have applied ordinary least square method and have found negative relationship when stock market development is proxied by total value of shares traded. Bernard and Austin (2011) have found positive association between market-based financial development and economic growth. The literature is rich of evidences which show the positive association of market-based finance and economic growth. There's ongoing debate about financial system in which the dilemma shows that bank-based financial structure is better than market-based financial structure in explaining growth rate. Specifically, it is believed that the banking sector contributes more to economic growth because its induce long-term investment in the real sector. On the other hand, there maybe sensitivity to stock market prices in the market-based system where involved the number of short-term investments (Hoshi *et al*., 1990). Furthermore, Morck and Nakamura's (1999) states that financial institutions of a country are debt providers are biased to farsightedness.

Levine (2004), identify those markets gives some better tools to manage the risk and these tools allow high customization of risk-ameliorating appliances (Levine, 2004). Furthermore (Greenwood and Smith, 1997) states that Stock market minimize saving mobilization costs which works to improve the investment. Diamond (1984) states that markets gives information about specialization and also acquisition which ease the level of further investments. The Endogenous growth literature supports the positive role of financial development in economic growth (Bencivenga & Smith, 1991).

**Need and Objectives of the Study**

The previous literature illustrates that financial development drives economic growth in developed and high-income economies of countries. This study is to examine whether it's also significant in the developing south Asian countries. This study employing panel data for the time period of 1980- 2017 to explore the role of stock market financial development indicators on economic growth. The previous studies have used single proxy, variables or mixed components for financial development but this study practice only stock market indicators to find its impact on economic growth.

**Methodology of the study**

**Data**

This study explores the effect of market based financial development on economic growth by employing panel data set for the time period of 1980 to 2017 of four south Asian countries namely Sri Lanka, Bangladesh, India and Pakistan. The selection of this sample is entirely based on data convenience for a adequately longer time period. Data for all variables on stock markets as well as the control variables all were downloaded from the (WDI) World Development Indicators, published by (WB) World Bank. Market based financial development variables used are; the total stocks traded value (TVTR), the turnover over ratio of stocks (TUOR) and stock market capitalization while economic growth is proxy by per capita. Other control variables were added, namely: inflation, real interest rate, saving and trade openness.

**Estimation method and Model of the study**

This study employs dynamic panel to study the role of market based financial development in economic growth in south Asian-4 countries. Following are the models illustrate the linkage of bank based and market based financial development with economic growth.

$$GDPPC_{it} = \alpha_0 + a_1 MFD_{it} + a_2 TO_{it} + a_3 INF_{it} + a_4 RIR_{itt} + +a_5 SAV_{it} + \delta i + \epsilon_{it}$$

Model 1 states to examine the impact of Market-Based financial development index on economic growth. Above equation illustrates the dependent, explanatory and control variables where, GDPPC is GDP per capita which denote economic growth, MFD is the index of market based financial development constructed of three stock market variables namely; turnover over ratio, market capitalization (CAP) and total value of stocks traded (TV) used as a proxy for market based financial development. Other control variables used are; trade openness (TO), Inflation (INF), real interest rate and saving (SV), $\boldsymbol{\delta}$ is unobserved country specific effect, while εt is the error term. The dependent variable in the model is lagged GDPPC and there are time invariant country specific fixed effects. Country fixed effects emission in the panel data will lead to inconsistent estimators in levels and will be biased (Hsiao,1986). The explanatory variables here can be endogenous, thus it need to be controlled for endogeneity issue of the explanatory variables. (Chen, 2006) and (Levine & Zervos, 1998) used the initial values of the explanatory variables to avoid the simultaneity problem such result loss in information and potential consistency loss interpreting the estimation inefficient ((Beck & Levine, 2004). For efficient consistent model construction, the initial values be replaced with instruments. For the said purpose the developed model of Arellano and Bond (1991) first-difference GMM estimation method is used. Thus, following the methodology of (Arellano & Bond, 1991) the given model below has been specified for the current study. In equation (2), first-differencing eliminates the intercept as well as the country-specific effects.

$$Y_{it} = Y_{i,t-1} = \beta(Y_{it-1)} - Y_{i,t-2}) + Y(X_{i,t} - X_{i,t-1}) + (\epsilon_{it} - \epsilon_{i,t-1})$$

**Analysis and findings**

**The effects of Market-Based financial development on economic growth**

The results of the FE, difference GMM and system GMM dynamic panel estimations with regard of market-based financial development for in four South Asians countries (Pakistan, India, Bangladesh and Sri lanka) are given in Table 1.

The results of the FE, difference GMM and system GMM dynamic panel estimations for South Asians four countries (Pakistan, India, Bangladesh and Sri Lanka) are given in Table 1. GDPPC is the gross domestic per capita is the dependent variable along with a set of independent variables, including the composite index for market based financial development (FDM).

**Table 1**: The effects of Market-Based financial development on economic growth

| Variables | (FE) Loggdppc | (DGMM) Loggdppc | (SGMM) Loggdppc |
|---|---|---|---|
| FDM | 0.001*** | 0.001*** | 0.001* |
| | (0.001) | (0.001) | (0.001) |
| Trade Openness | -0.005*** | -0.000*** | 0.0001 |
| | (0.002) | (0.0002) | (0.000) |
| Inflation | 0.002 | -0.002*** | -0.001** |
| | (0.008) | (0.0007) | (0.000) |
| Real Interest Rate | 0.007 | -0.003*** | -0.002** |
| | (0.010) | (0.0009) | (0.000) |
| Saving | 0.031*** | 0.000 | 0.001*** |
| | (0.004) | (0.000) | (0.000) |
| | | 0.959*** | 1.003*** |
| $Loggdppc_{it-1}$ | | (0.0125) | (0.003) |
| | | | -0.002 |
| Constant | 6.312*** | | (0.030) |
| | (0.212) | | |
| Observations | 62 | 57 | 62 |
| R-squared | 0.671 | | |
| Number of id | 4 | 4 | 4 |
| AR1 | | -0.60(0.550) | -0.50(0.531) |
| AR2 | | -1.24(0.213) | -1.23(0.212) |
| Sargan Test | | 111.63(0.060) | 132.47(0.070) |

Note: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

This study employs three proxies. Market-Based financial development is proxies by three indicators of stock market, namely stock traded value (VT), Market Capitalization (MKT) and stock turnover ratio (TR) for investigating the role of stock market development in economic growth.

The results indicate that the coefficient of the lagged dependent variable is positive and statistically significant. The findings of this study on the relation between stock market development and economic growth are positive and significant in all three models indicates that all three proxies collectively to stock market coefficient are positive and statistically significant Therefore after controlling for the potential endogeneity of the explanatory variables, it can be concluded that market based financial development index has a positive impact on economic growth in south Asian-4 countries. The finding of current study re-enforced by the studies of Carp 2012; Azam et al. 2016; Masoud 2013, (Enisan & Olufisayo, 2009). These findings indicates that the stock market development have an important role in financial development proxies by market based financial indicators with liquidity, capital adequacy and investments as well economic resources mobilization in an inefficient way. Furthermore, Beck and Levine (2004), Rousseau and Wachtel (2000) have also found that stock market development have positive impact on economic growth.

Furthermore, stock market development also assists in capital accumulation which can allow small investors which invest financial assets in the capital markets such as investment in bonds, stocks and debenture. According to the results of this study, a well preforming and development of stock market is a key indicator of macroeconomic development because it can motivate domestic and foreign investors for investment into the country which is an energizer for industrialization (Cos¸kun et al. 2017; 2016; Petros 2012); Pohoa¸tă et al. Cooray 2010).

According to the results, market based financial indicators positively affects economic development in Asians markets of four south Asian countries (Pakistan, India, Bangladesh and Sri Lanka). Further, this relationship is statistically significant at the 1, 5 and 10 percent level confirming that market based financial development stimulates economic growth of sampled south Asians countries. . In addition, per capita income is also a common factor in growth regressions and the current study observed a positive relationship between the GDP per capita income and market-based financial development which is consistent with the findings of Deyshappriya (2016), Banda (2005), Beck and Levine (2004), Levine (1993) and Osinubi (2002) and(Moyo, Khobai, Kolisi, & Mbeki, 2018). This is also consistent with the argument that well-developed domestic financial sectors in countries contribute significantly to economic growth. For example, a 1% increase in the ratio of credit to private sector implies

an increase in growth for 0.1% as predicted by FE, GMM and system GMM. The results are consistent with previous studies, which find a positive relationship between the measures of financial development and growth (Nyasha and 2015; (Odhiambo, 2011); Sahoo 2014; Adu *et al*. 2013; Hassan *et al*., 2011; Levine 2005; Levine and Zervos (1996)). A well financial system of countries of financial market development plays a crucial role to boost of economic growth resulting good living standard and prosperous countries. Apart from that GDP per capita and saving are positively affected economic growth and are highly statistically significant in FE and system GMM, while the results of trade openness is statistically significant in FE and difference GMM, and the relationship is negative which reveal the trade openness of trade among four countries are not very well, due to many political reasons and international relationship. Infect the trade is of the most important drivers of economic growth but there is almost very less trade occur among those four countries due to some big reasons such as political reasons and weak governance. In additions, Openness of the economy has also been considered a source of growth by many scholars such as Banda (2005), Levine and Zervos (1998) and Beck and Levine (2004). They have verified that there is a positive relationship between economic openness and economic growth in both developed and developing countries. According to Banda (2005) free trade and economic liberalization stimulate the allocation efficiency of an economy which, in turn, stimulates higher economic growth. In addition, Krueger (1997), Helpman and Krugman (1969) highlighted the inefficiencies of import-substitution policies, and mentioned that free trade shifts resources from inefficient import-substitution activities to efficient comparative advantage ones.

Likewise, the estimated coefficient of inflations and real interest rate are statistically significant and the relationship is negative which implies that 1% increase in the real exchange rate cause to decrease economic growth in south Asians four countries (Pakistan, India, Bangladesh and Sri Lanka). Indeed, the ups and downs of real interest rate in four countries decrease the economic growth due to political instability and weak governance resulting increase in inflation which effects economic growth of the four sampled countries of the current study. Conversely, inflation has become an insignificant factor in explaining economic growth. Ireland (1994) and (Deyshappriya, 2016) also obtained the insignificant results, and stressed that the impact of inflation on economic growth is considerably low, and may die out entirely in the long run. In the context of model specification, the null hypothesis of the Sargan test suggests that over-identifying restrictions are valid. According to the p-value of the Sargan test, the null hypothesis cannot be rejected at 1 and 5 level; therefore, the included instruments in the model are valid. Similarly, the null hypothesis of the serial correlation test of difference and system GMM indicates that the error terms are not serially correlated. Further, the AR2 insignificant p-value (0.213) and (0.212) of the serial correlation test confirms that the error terms are not serially correlated. Therefore, the estimated GMM dynamic panel data model aligns with the econometric theory.

## Conclusion

The current study investigates the impact of both Bank based financial development and stocks market development on economic growth in south Asian-4 countries (India, Pakistan, Sari Lanka and Bangladesh) for the time period of 1980-2017. Utilizing four alternative panel models (fixed effect, Difference GMM and System GMM). The null hypothesis of the study is abnegated. Controlling for endogeneity issue and specific country's effects, the data are reliable with theories that accentuate a consequential positive role in the process of economic growth for stock market financial development and banks based financial development jointly. The paper assessed both index of financial development and finds its effect on economic growth individually. We have applied different estimation techniques and procedure along with different control variables which gives the positive significant impact of both banks and stock markets development on economic growth. For instance, the two-step estimator of system GMM results prove that the bank based financial development index constructed of three variables are significant and positive mostly in all models, which betokens that bank based financial development play consequential role in boosting economic growth in samples countries of South Asia. Similarly, for markets based financial development such as market capitalization, stock turnover ratio and stock value traded, we find that market-based individual's financial development increases economic growth in four sample countries of South Asia.

The results of this paper have paramount policy implicative insinuation that a well performed financial system and policy is paramount for enhancing the development of financial market including that both bank and stock market improvement are paramount for growth rate in developing countries concretely the sampled south Asian-4 countries of this study. The study suggest the policymakers of sampled countries to further improve both market based and bank based financial system in terms of regulation and supervision which may further upsurge the vigorous link of financial development on economic growth in the sample countries of this study.

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