MINHAJ Journal of Economics & ORGANIZATION Science

Volume 1, No. 2/ July-Dec 2021

FINANCIAL DEVELOPMENT DETERMINANTS FOR SELECTED SAARC COUNTRIES: A PANEL DATA ANALYSIS

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Abstract

The present research investigates the determinants of financial development using a panel data analysis of four SAARC countries i.e. Pakistan, India, Bangladesh and Sri Lanka. Financial development was used as dependent variable which was measured by developing a financial development index using principal component analysis, PCA, by adding five different banking and stock related variables in it. The estimation was done using fixed effect models from the time period 1996 to 2018. The results revealed that CPI, Rule of Law and corruption index were negatively related to financial development, while, GDP, Financial openness, Population, Education and Trade were positively related to financial development.

1. Introduction

In the present times, the financial sector has gained so much importance in the development of any nation that researchers are digging deeper these days, the determinants of financial development. Different studies have declared financial development to be an evident factor for economic development because it is important for betterment of resource allocation. The basic difference between developed and underdeveloped nations lies from the root of their financial stability condition. On the other hand, a weak financial system has proven to be a threat to lost output and under development of any nation. For this reason, many nations have introduced different departments to look after and regularly monitor ups and downs in financial stability (Samia Nasreen, 2015).

In order to examine the determinants of financial development, we must first dig deeper into the main components of financial sector and macroeconomic variables affecting them. Studies show that there are two main components of financial sector, namely, Banking sector and Stock market sector. Among these major sectors, there exist different sub-sectors like assets, bonds, their prices, credit provided by banks or financial institutions, capitalization etc. These factors along with some other variables combine to develop a financial sector of any nation. Now, the important part to note is which factors actually determine the performance of financial sector. In other words, which factors positively or negatively affect a financial sector of any nation?

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Well, studies show some macroeconomic variables and some institutional variables. Such as variables like inflation and rule of law in any nation is expected to impact financial development negatively (Cherif & Dreger, 2016). Moreover, variable like GDP is expected to be directly proportional to financial development (habibullah s. h., 2009).

The present study is also an attempt to investigate the macroeconomic and institutional determinants of financial development by constructing a financial development index using different variables of financial sector. This will be a panel data analysis in which four different SAARC countries are selected, namely, Pakistan, India, Bangladesh and Sri Lanka. The major reason for choosing SAARC countries is to truly identify the financial development determinants. By this statement I mean that, all these above mentioned countries have almost similar economic condition relative to their respective population, of course. But the point is, having similar economic condition, they differentiate in development of financial sectors. The remaining four countries have been wiped out of our study because the latest data is not available for these nations. From this analysis, we will come to know what are the real factors that distinguishing the financial performance of these nations among themselves. Another such research has been done already and we have taken that research as a base research but of course there is a difference. In this study, the updated data for all the selected variables have been used for all the countries and the most common and important variables that have been used in the previous researches, have been used. After developing financial development index, we will analyze the impact of selected macroeconomic and institutional variables on financial development index from the time period 1996 to 2018.

The remaining paper is organized as follows: - Section 2 discusses the previous literature on current topic under discussion. Section 3 represents the description of data and variables used in the study. Section 4 represents the econometric techniques and model used to estimate our results. Section 5 discusses the results. Section 6 presents the conclusion of the study. Section 7 presents the policy implications and section 8 presents some limitations of the current research.

2. Literature review

The main factor of economic development is the development of financial sector; it is evident to investigate the determinants of development of financial sector. Not only determine the factors but also to investigate the key macroeconomic variables that can affect financial development. Our study has also the similar interest of investigation among four SAARC countries. The reason for choosing SAARC countries is that their economic condition is almost same so we will truly come to know that why they differentiate in financial growth. Many studies have been done

on the same topic all over the world. We are about to review some of the major studies done in order to clarify our concepts and make our study unique from the others.

(Habibullah, 2009) looked at the determination of financial sector development from institutional, commercial and financial point of view using the GMM measure and the time period from 1980-2001. Financial sector development is a dependent variable and includes two other variables, namely, the first is the stock market / GDP and the second is the Private Fund / debt. Commercial openness and two indicators of the Agency's assets and financial release were used as independent variables. An index of institutional characteristics was developed using the following criteria: Corruption, the rule of law. Bureaucracy, government repatriation, and risk of expropriation. In addition, the index of financial freedom was developed using the following: liberalization of the domestic finance sector, capital account liberalization, Stock market liberalization, as well as full financial relief. The results revealed that GDP per capita, Institutional quality, Commercial openness. While capital account liberalization had little impact on the financial industry which showed that financial liberalization had a very weak impact on the development of the financial sector for economic development.

(Rym Ayadi, 2013) analyzed what clarified the development of the financial sector and observed the effect of several different economic forces on it, across various Mediterranean countries using the Random Effect model during the period 1985-2009. The dependent variable was "Growth in Financial Development". The financial development trends were as follows: - Home debt registrations as% of GDP, bank deposit / GDP dividend, technical growth rate, Meta-Performance, Market capitalization / GD, market share of stocks / GDP. Corrupt financial development and the frequency of macroeconomic variables were used in the study as independent variables. The macroeconomic vector included the following variables: GDP per capita, Inflation rate, Unlocking index, Growth of government debt as% of GDP investment, Net portfolio investment, Legal Aid, Issuance cash, Net investment. Recovery results have shown that inflation and the increase in government debt are linked to financial development. On the other hand, legal institutions, democracy, good governance and monetary market regulation and the banking sector in the country were strongly associated with financial development.

(Kojo Menyah, 2014) explained the causality between financial development and trade among 21 different countries of Africa using Seemingly Unrelated Regression (SUR) Estimator between the time periods 1965-2008. Dependent variable i.e. Financial development index, was developed using following four variables: Log of M2/GDP, Log of liquid liabilities/GDP, Log of Banking domestic credit/GDP and Log of domestic credit provided to private sector/GDP. Two independent variables were used in the research: Real GDP per capita and net exports

to GDP ratio. The results recommended that economic growth and financial development had unidimensional causality in Benin, South Africa and Sierra Leone. A bidimensional causality in Zimbabwe and no causality in rest of the countries. In case of Trade and financial development; Burundi, Malawi, Niger, Senegal and Sudan showed unidimensional causality, while, rest of the countries showed no causality. It means there was a very little impact of trade openness on financial development in African countries.

(Elsherif, 2015) determined the key factors of financial development in Egypt using Autoregressive Distributed Lag Model, Johansen Test and VEC Model between time period 1974-2012. Dependent variable i.e. Financial development index, was developed using following variables: Liquid liability/GDP, Private sector credit to GDP ratio, Stock market capitalization to GDP ratio and turnover ratio of capital market. The independent variables used were: Net exports to GDP ratio, Gross domestic fixed capital formation to GDP ratio, Secondary school enrollment ratio, Consumer price index and per capita GDP. The concluding remarks from the regression results expressed that Inflation had inverse relation on financial development. On the other hand, per capita GDP, education, human capital, trade, and investment had a positive relationship with financial development.

(Cherif & Dreger, 2016) looked at the determination of financial sector development from institutional point of view in different countries of middle east and north African region using simple OLS method to estimate the panel data of 15 MENA countries between the time period 1990-2007. Dependent variable used in the study was Financial Development. This index was developed using following variables: Domestic credit/GDP, Assets held domestically & liquid liabilities/GDP ratio, Market value of shares/GDP and Organized trade of domestic equities as % of GDP. Two indices of different variables were taken as independent variables. The institutional index included the variables of Bureaucracy, Law and order and corruption. While, the control index included macroeconomic variables of Real per capita income, Inflation rate and Trade openness. The results analyzed that for the banking sector to grow, corruption and bureaucracy are key features of financial development. Law & order surprisingly showed a negative relation with the banking sector to grow. However, for stock market to grow, law and order along with corruption exert a positive effect while bureaucracy has a little effect on stock market. Talking about macroeconomic variables, per capita income and inflation do not play a significant role in the financial development, which is a bit surprising as compared to other studies.

(Dr. Sofia Anwar, 2017) developed a financial development index and examined the impact of different macroeconomic variables in different SAARC countries on it from the time period 1994 to 2012 using Fixed Effect Model. The index

of Financial Development was constructed using following variables for dependent variable: Central Bank Assets/GDP, Domestic Private Credit/GDP, Liquid Liabilities/GDP, Banking domestic credit/GDP, Commercial Bank assets/GDP, Deposit Money Bank Assets/Deposit Money Bank Assets & Central Bank Assets in %, Claims on Private Sector/broad money and Stock Market capitalization/GDP. On the other hand, eight independent variables were used in the study: CPI, Trade openness, Secondary school gross enrolment ratio, Democracy index, Financial openness, Law index, GDP and Population/GDP ratio. The results revealed the negative relationship of Inflation and Rule of Law with Financial development. While, the remaining explanatory variables were directly proportional to financial development.

At last, (Sare, 2018) estimated the key determinants of financial development among 46 countries of Africa between the time period 1980-2015, with a focus on interaction between human capital and trade openness using Generalized Method of Moments. Dependent variable used in the study was "Financial Development". This index was developed using two variables i.e. Private credit and Domestic credit (as % of GDP). The independent variables used in the study are as follows: - Trade openness, Government expenditures, Inflation, Gross fixed capital formation, Real GDP per capita, Gross enrollment rate, Pupil-Teacher ratio (primary) and savings. The estimation results showed that human capital, trade openness, enrollment rate, government expenditure, gross fixed capital formation, domestic savings and real GDP per capita were directly proportional to financial development. On the other hand, only inflation showed a negative relation with financial development.

(Jianqiang Gu, 2021) established the correlation between financial development and its determinants among emerging economies. Specifically, they targeted the impact of innovation and natural resources on financial development in nations such as china, India, Mexico, Russia, Indonesia and turkey. They estimated the data from year 1990 to 2017 and concluded that technological innovation, natural resources and human resource development has the most important long run positive impact on financial development.

(Mohammed Ruqaiyat, 2021) examined the financial determinants of Nigeria using the time series data of year 1981 to 2016. They deployed the ARDL model and investigated that quality of life, foreign direct investment and debt services carry a direct relationship with financial development. While, inflation, economic growth, government expenditure and trade openness had negative influence on financial development of Nigeria.

(Betgilu Oshora, 2021) estimated the determinants that impacted the finance of medium and small enterprises. The results revealed that demand-side factors,

supply-side factors and market opportunity had positive impact on firm's access to finance which in turn lead to increased profitability and hence, increased economic growth for the nation. Alternatively, the cost of borrowing and institutional framework factors negatively affected the firm's access to finance which in turn lead to decreased profitability and hence, decreased economic growth for the nation.

(Tran, 2022) Investigated the impact of information and communication technology [ICT] on financial development among ten ASEAN countries between the time periods of year 2000 to 2020. Financial development indexed was comprised of domestic credit / GDP and money supply / GDP. The results clearly indicated that the impact of ICT was positive on both the proxies of financial development.

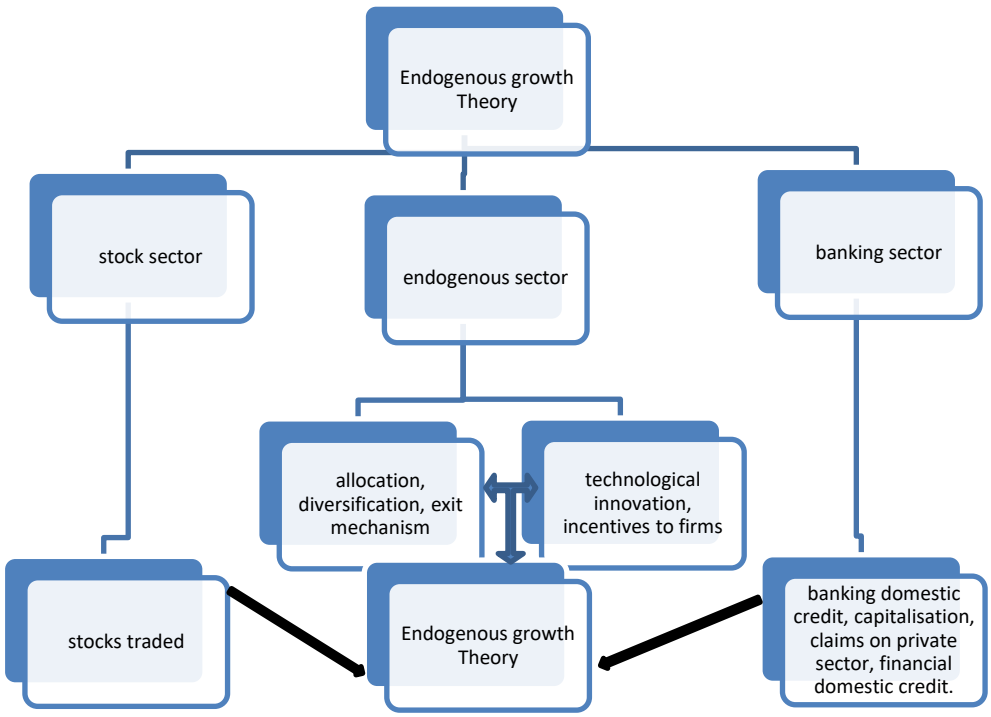
Hence, the conclusion from the above reviewed literature is that all the studies have developed financial development index with focus on banking sector and stock market. Although, different independent variables have been used by different studies among which commonly used were GDP, Trade and Inflation. Most of the studies have been done in the developing countries with a common goal of determining the factors affecting financial development. However, our study is different from others in a sense that we have taken into account the latest data set of all the variables i.e. from 1996 to 2018. Moreover, we have included some unique macroeconomic variables that have not been used in the previous studies, apart from our base paper of course. They include education and population of the country as they both are important factors in determining the development of any country whether it is financial or economic. Furthermore, while constructing the index of Financial Development, we have given same weight to banking sector as well as stock market sector i.e. we have included two variables for banking and two for stock exchange sector which are common in all the studies. The reason for doing this was that in the previous studies more weight was given to banking sector due to which banking sector problems were more prominent and importance was given more in banking sector development. In our study, we can focus on both the sectors of financial development equally so that analysis of our data can be used to determine that whether actual problem is in banking sector or stock market sector. The details of variables and data are given in the methodology section.

2.1 Theoretical framework

Our study is in accordance with the endogenous growth theory. This theory states that the growth of an economy is dependent on internal factors of the economy rather than factors outside of economy. From financial point of view, there are certain endogenous financial factors that contribute to accelerated economic growth. These factors are mainly divided into two sections i.e. the banking sector and the stock market sector. These two sectors are further divided into five different financial

determinants. First of all, allocative role of financial institutions. It is to be analyzed that weather certain financial institutions are playing their role up to a certain level of prosperity or not. Secondly, financial markets must allow firms to diversify their assets and reduce the risk which in turns leads to profitability and prosperity of economic growth of nation. Thirdly, financial markets must provide firms the exit mechanism i.e. at any time period where firms think that they will lead to losses, the system should allow them to gather their assets and leave the financial system in order to assure safety from loss. Fourthly, financial institutions must stay updated with technological innovation in order to accelerate profitability with time management. Finally, the financial institutions must provide incentives to corporations' time-to-time for the assurance of motivation and hence, profitability in the long run. Along with these five determinants, the focus should remain on the proxies used in this study such as financial domestic credit, banking domestic credit, Claims on private sector, Market capitalization of domestic companies and stocks (durusu-ciftci, 2016).

In summary, the inside factors of banking sector and stock sector along with some institutional factors, as mentioned previously, will collectively contribute to strengthen our financial sector and hence, which in long run lead to economic growth and prosperity of our nation. The graphical representation of our theoretical framework is displayed below, which clearly displays the blueprint of our discussion above.



3. Methodology

This section discusses the research methodology which will be employed in the current research. Methodology includes the details of data, variables and analytical techniques used to fulfill our objectives.

3.1 Data and variables

It will be a secondary research i.e. panel data analysis. The dependent variable used in the study was the index of financial depth. The financial depth is used to measure the overall size of a country's financial sector relative to its economy size. There are two main sectors defining financial depth i.e. the banking sector and the stock market sector. This index was developed using the following five variables: -

3.1.1 Financial domestic credit

It describes the financial resources that are supplied through financial sector domestically and is represented as percentage of GDP.

3.1.2 Banking domestic credit

This variable represents the debt of private sector provided by banking but excludes the loans to central government and is represented as percentage of GDP.

3.1.3 Claims on private sector

"It includes gross credit from the financial system to individuals, enterprises, nonfinancial public entities not included under net domestic credit, and financial institutions not included elsewhere and is expressed as percentage of broad money".

3.1.4 Market capitalization of domestic companies

This variable represents the value of all the shares listed in domestic companies measured as percentage of GDP.

3.1.5 Stocks traded

This variable represents the value of shares that are traded domestically & internationally. It is presented as percentage of GDP.

The index of financial development needed to be developed because our study was related to only banking sector and stock market sector. Some of the financial development proxies has been held constant due to their lack of greater importance. Furthermore, financial development is used as dependent variable so to create simplicity, we have created an index representing all the selected proxies of financial development.

There were eight independent variables used in the study. These were macroeconomic variables whose impact was observed on the financial depth index. The description of independent variables used in the study is as follows: -

3.2 CPI

Consumer price index is used to measure the inflation in an economy.

3.3 Trade (% of GDP)

It is equal to total imports plus total exports as a percentage of GDP in an economy.

3.4 Secondary education enrolment ratio

It is equal to the total number of students enrolled in the secondary schools as a percentage of total population.

3.5 Financial openness

It represents the net portfolio investments measured as percentage of GDP.

3.6 Corruption index

This variable explains the extent to which corruption is controlled in a nation and to which extent corrupt officials are punished according to law. This index is ranked from 0(lowest) to 100(highest). (WORLDWIDE GOVERNANCE INDICATORS)

3.7 Law index

This variable explains the situation of law in a country i.e. to which extent government officials implement the law in society including safety rights and property rights. This index is ranked from 0(lowest) to 100(highest). (WORLDWIDE GOVERNANCE INDICATORS)

3.8 GDP

Gross domestic product is expressed in constant 2010 US$ market prices.

3.9 Total population

Total population of a country is expressed in logarithm form.

The data for all these variables has been extracted from the World Development Indicators (WDI), World Bank and Worldwide Governance Indicators (WGI), World Bank. The time period for which the data has been extracted ranges from 1996 to 2018, making a total of 23 observations. The cross-sectional data for four SAARC countries has been included in the study i.e. Pakistan, India, Bangladesh and Sri Lanka.

3.10 Model and analytical techniques

(Dr. Sofia Anwar, 2017) used following model to estimate relationship between financial development and macroeconomic variables: -

$$FDEBI= \alpha + \beta 1CPI + \beta 2\ FDI + \beta 3\ TOP + \beta 4\ SS + \beta 5\ DEM + \beta 6\ FO + \beta 7\ RL + \beta 8GDP + \beta 9TP + \beta 10\ DEM * RL + u \text{------eq. 1}$$

Using the above model as our base model, we have developed our model according to our variables as: -

$$FDI= \alpha + \beta 1CPI + \beta 2\ TOP + \beta 3\ SS + \beta 4\ TP + \beta 5\ GDP + \beta 6\ FO + \beta 7\ RL + \beta 8CI + u \text{-----eq. 2}$$

Where, CPI: - Consumer Price Index as a measure of Inflation

TOP: - Trade openness

SS: - Secondary education enrollment ratio

CI: - Corruption index

RL: - Law Index

GDP: - Gross Domestic Product

TP: - Total population

FO: - Financial openness

U: - error term

To estimate our data, first of all an index of financial depth has been developed using principal component analysis (PCA). All the variables of financial sector, as described above, has been included in the index. After that the ADF test has been applied to investigate that whether the variables are stationary or not. The stationarity test is important to be analyzed in order to check the validity of time series data. At last, fixed effect model has been used for the estimation. The general form of fixed effect model is as follows: -

$Z_{it} = \alpha_i + \beta Y_{it} + \mu_{it}$---------eq. 3

The fixed effect model is defined as an estimation technique in which all the parameters of the model are fixed and some dummy variables are included in the model to nominate a specific country. In order to run the regression using fixed effect models, we first generated four dummy variables for our respective countries. By adding the dummies to our model, our final regression equation took the form as: -

$FDI_{it} = \alpha 1D1 + \alpha 2D2 + \alpha 3D3 + \alpha 4D4 + \beta 1CPI_{it} + \beta 2\ TOP_{it} + \beta 3\ SS_{it} + \beta 4\ TP_{it} + \beta 5\ GDP_{it} + \beta 6\ FO_{it} + \beta 7\ RL_{it} + \beta 8CI_{it} + u$--------eq. 4

Where, D1 = 1 if Pakistan, otherwise D1 = 0

D2 = 1 if India, otherwise D2 = 0

D3 = 1 if Bangladesh, otherwise D3 = 0

D4 = 1 if Sri Lanka, otherwise D4 = 0

After this, our regression equation was estimated using fixed effect model in STATA software. The results are discussed in the next section.

Results

The first step in our estimation was to develop an index of our dependent variable i.e. Financial Development. The previous studies have used different techniques in order to develop this index such as weighted average method, financial

composite index, principal component analysis and some other averaging techniques. We have used the Principal Component Analysis, PCA to develop our index because it involves the process of converting a large number of correlated variables into small number of un-correlated variables. All the finance related variables i.e. dependent variables were transformed into a single index named as Financial Development Index (FDI). The respective values of financial development index obtained through principal component analysis are given in appendix.

After that each variable was tested for stationarity using ADF unit root test. According to this test, if variable is not stationary after applying the test then its first difference is taken and tested again to make it stationary. If still it remains non-stationary, then its second difference is taken and tested again. Most probably after taking second difference it becomes stationary. The results of ADF root test are as follows: -

VARIABLE	ADF TEST P-VALUE	STATIONARY LEVEL
FDI	0.0006	I(1)
CPI	0.001	I(0)
TOP	0	I(0)
SS	0	I(0)
TP	0	I(0)
GDP	0	I(0)
FO	0.053	I(0)
RL	0	I(0)
CI	0	I(0)

The ADF unit root tests show that only CPI and Financial Openness (FO) were stationary after testing initially, at first lag i.e. I (0) and having p-values of 0.001 and 0.053. This means that both were almost at significant level. All other variables were made stationary by taking first difference, with all showing statistically significant results. The first differences of these variables were stationary at first lag except for the dependent variable i.e. FDI which showed stationarity at second lag i.e. I (1).

After that eq. 4 was estimated using fixed effect model. The results are presented as under: -

FIXED EFFECT MODEL RESULTS		
DEPENDENT VARIABLE= FD		
VARIABLES	FIXED EFFECT MODEL	Column1
	COEFFICIENT	P-VALUE
CPI	-0.0199	0.003
TOP	0.0082	0.151
SS	7.65E-09	0.598
TP	1.07E-09	0.269
GDP	5.72E-13	0.126
FO	0.0182	0.542
RL	-0.017	0.006
CI	-0.009	0.038
DUMMY1 (PAKISTAN)	0.1192	0.082
DUMMY2 (INDIA)	0.146	0.04
DUMMY3 (BANGLADESH)	0.239	0.004
DUMMY4 (SRI LANKA)	0.235	0
	R-SQ=0.74	F-VALUE=19.54

Starting with the dummy variables, we have considered Pakistan as the benchmark category. The financial development index in Pakistan has the value (D1) of 0.1192. Comparing it with other countries show that all other countries are better off in Financial Development as all other countries have coefficients of financial development index (D2, D3 and D4) greater than Pakistan with Bangladesh showing a maximum of 0.239. Moreover, only dummy variable 1 i.e. Pakistan is showing insignificancy showing p-value less than 0.05. Talking of the remaining independent variables, CPI is negatively and significantly related to financial development showing that if inflation is increased by 1 percent then financial development is decreased by 0.0199 points. This clearly assembles with the previous studies that

inflation is a hurdle in a way of financial development. Increase in price level alters the consumption and saving patterns of individuals negatively. This, in turn, reduces the deposit rate and lending rates further corresponding to reduced investments and hence, negatively impacting financial development. Trade openness is positively but insignificantly related to financial development showing that if trade openness is increased by 1 percent then financial development is also increased by 0.0082 points. It means that if imports and exports are balanced in such a way that they increase GDP then financial sector is also expected to develop. Moreover, better condition of trade balance also impacts external funding and foreign direct investment in domestic financial markets leading to improvement in financial sector. Secondary school enrollment rate is positively but insignificantly related to financial development showing that if secondary school enrollment rate is increased by 1 percent then financial development is also increased by 0.00000000765 points. However, this is a very minor effect but still education is an important factor in developing the financial sector. This result is quite surprising because earlier studies showed that education contributed much more in financial development. This may be due to not very good quality of education provided in these developing countries. Total population is positively but insignificantly related to financial development showing that if total population is increased by 1 percent then financial development is also increased by 0.0000000107 points. This is also very minor effect in development of finance may be due to over population issues since few decades especially in SAARC countries where resources are low as compared to increasing population. GDP is also positively but insignificantly related to financial development showing that if GDP of these countries is increased by 1 percent then financial development is also increased by 0.0000000000572 points. This result is also very surprising as previous studies have shown that GDP is also a main factor in financial development. These three results i.e. effect of GDP, TP and SS on FDI is very small, although, all these factors are very crucial in development of any nation. This makes our data and results a bit suspicious but still they support the positivity impact. Financial openness is positively but insignificantly related to financial development showing that if financial openness is increased by 1 percent then financial development is also increased by 0.018 points. This means that as the portfolio investments increase they result in increased output and number of assets which further resultantly increases financial development. Rule of Law and Corruption indexes are both negatively and significantly related to financial development. This explains that weak property rights, civil rights, consumer rights, poor justice, increasing terrorism and increasing corruption in SAARC countries frightens civilians to make investments in financial sector of these nations and hence, financial development decreases. Overall, only three variables have shown significant results in SAARC countries i.e. CPI, Rule of Law and Corruption Index. The value of R-square shows that independent variables explain almost 74 percent of variation in dependent variable. The F-value represents the overall significance of the

model if its value is greater than 4. In our result the F-value is 19.54 which means that overall our model is significant.

At last, the test for robustness was executed in order to examine that whether by excluding some insignificant variables, the remaining variables remain significant or not. The results are as follows: -

ROBUSTNESS CHECK FOR FIXED EFFECT MODEL

DEPENDENT VARIABLE= FD

VARIABLES	**FIXED EFFECT MODEL**	**Column1**
	COEFFICIENT	**P-VALUE**
CPI	-0.0199	0.0047
GDP	5.72E-13	0.049
RL	-0.017	0.029
CC	-0.009	0.038
DUMMY1 (PAKISTAN)	0.1192	0.082
DUMMY2 (INDIA)	0.146	0.04
DUMMY3 (BANGLADESH)	0.239	0.004
DUMMY4 (SRI LANKA)	0.235	0
	R-SQ=0.73	F-VALUE=28.30

The results for robustness showed that by eliminating some insignificant variables, the remaining variables remained significant but in fact another variable i.e. GDP became significant. The value of R-square showed that independent variables explain almost 73 percent of variation in dependent variable. The F-value represents the overall significance of the model if its value is greater than 4. In our result the F-value is 28.30 which means that overall our model is significant after robustness test.

4. Conclusion

The objective of this study was to examine the determinants of financial development of selected SAARC countries by examining the impact of different macroeconomic and institutional variables on Financial Development Index. The time period taken for this panel data analysis was from 1996 to 2018. The financial development index was developed using Principal Component Analysis (PCA) by considering different banking and stock market sector variables. After that this index was regressed on several macroeconomic variables using fixed effect model, following the ADF unit root test. The results showed that CPI, Rule of Law and

Corruption index were negatively and significantly related to financial development. On the other hand, Trade openness, Secondary School Enrollment rate, Total Population, GDP and Financial openness were positively and insignificantly related to financial development. However, the overall model was statistically significant. Furthermore, the financial development index of Pakistan was weak comparatively to India, Bangladesh and Sri Lanka. At last, robustness test was undertaken which showed that even after eliminating insignificant variables, other variables remained significant and overall significance also remained.

5. Policy Implications

The authorities and respective institutions are suggested to work on the following policies in order to improve financial development in SAARC countries: -

As inflation negatively affects the financial sector, so monetary authorities are suggested to acquire such a policy which can reduce price level. An example of such a policy can be to reduce money supply in an economy which resultantly will increase the interest rates and hence reduced demand will lead to reduced output and hence, reduced price level.

Most important thing is to maintain law and order in the nation. This will increase confidence in international investors that they will be given proper rights and their investments will remain safe in SAARC countries. Resultantly, foreign direct investment will be increased and financial sector will develop.

Development of investment consultation agency will also be a good step in increasing FDI.

Education, I believe, is one of the most important factors which should be noticed in SAARC countries. Investment in human capital will generate new ideas and increase productivity in every aspect. Quality education should be provided in order to increase literacy rate and develop our financial sector in a professional way with new innovative minds in economy.

SAARC countries should announce some sort of protection guarantee for foreign investors which assure them that their assets will be secured once they invest in these countries. Moreover, incentive schemes should also be given to foreign investors in order to increase foreign investments.

6. Limitations of research

I would like to highlight some limitations of this research that future researchers are suggested to take care of: -

Some important variables have been excluded in this research due to non-accessibility of data of respective time period such as democracy index, central bank assets and deposit money assets etc.

An important SAARC country has also been excluded due to non-availability of respective variables for the used time period in this study.

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Appendix

The table below represents the results for financial development index developed through principal component analysis (PCA). The last column (FDI) represents financial development index, while, rest of the columns are finance related variables used to develop the index.

YEARS	COUNTRY	DCF	DCB	CP	MC	Stocks Traded	FDI
1996	PAKISTAN	54.35574	24.69398	8.839997	24.91156	8.7817107	-0.72624
1997	PAKISTAN	52.11641	24.64622	7.67624	15.59998	16.91869554	-0.73072
1998	PAKISTAN	51.45054	25.11394	6.32007	18.41509	14.45479545	-0.68682
1999	PAKISTAN	49.1276	25.47432	6.025009	18.90869	33.06800856	-0.65299
2000	PAKISTAN	41.60121	22.3361	8.05413	8.712718	41.91859966	-0.94758
2001	PAKISTAN	38.08547	21.7755	4.206542	11.12811	17.22147001	-1.00021
2002	PAKISTAN	37.21553	21.67395	2.86105	8.957927	35.08190494	-1.00974
2003	PAKISTAN	37.88409	24.59728	11.78455	6.781106	81.34827534	-0.73532
2004	PAKISTAN	43.01858	28.73612	17.99927	14.0631	143.1883839	-0.34679
2005	PAKISTAN	46.48285	28.64556	8.654182	19.97642	127.3366692	-0.35529
2006	PAKISTAN	42.19633	26.76008	10.61852	46.53671	90.94197636	-0.53229
2007	PAKISTAN	45.46465	27.73678	7.915553	41.38485	65.51254436	-0.4406
2008	PAKISTAN	51.2344	28.60221	8.897938	32.7154	24.85915651	-0.35936
2009	PAKISTAN	46.69671	22.62083	-0.9888	45.74929	10.46269975	-0.92085
2010	PAKISTAN	46.18674	21.28855	2.701834	13.73139	6.57779371	-1.04592

2011	PAKISTAN	42.70801	18.03235	1.657353	18.9631	4.51239137	-1.35159
2012	PAKISTAN	46.22445	16.84173	0.944576	21.45291	5.337287969	-1.46336
2013	PAKISTAN	49.51102	16.01613	2.051116	15.24806	0.243449307	-1.54086
2014	PAKISTAN	47.48141	15.48871	2.702056	19.46379	0.220861858	-1.59037
2015	PAKISTAN	48.76295	15.30549	2.291038	24.78644	10.01926285	-1.60757
2016	PAKISTAN	52.35623	16.40894	3.979764	30.06553	9.881909816	-1.50398
2017	PAKISTAN	53.92995	16.99633	3.847764	24.42019	10.45190982	-1.44884
2018	PAKISTAN	57.90331	18.76556	5.874602	32.96688	11.87690982	-1.28276
1996	INDIA	45.12437	23.40244	10.48336	25.42286	33.75528656	-0.84748
1997	INDIA	45.58629	23.55533	6.028536	28.33955	36.33276549	-0.83313
1998	INDIA	45.9911	23.67775	7.586759	28.61942	37.54729574	-0.82164
1999	INDIA	48.33844	25.42286	9.903696	32.30649	40.94629537	-0.65782
2000	INDIA	52.08465	28.33955	9.943915	40.64826	40.94629537	-0.38402
2001	INDIA	53.79598	28.61942	4.803978	42.54628	41.54638456	-0.35774
2002	INDIA	57.95692	32.30649	10.67228	44.46735	42.76395737	-0.01162
2003	INDIA	56.65916	31.62627	4.990637	45.92614	44.76445119	-0.07548
2004	INDIA	58.59359	36.1918	15.30454	54.69252	55.3860273	0.353105
2005	INDIA	59.34584	40.06798	14.66991	67.41664	56.54195591	0.716975
2006	INDIA	61.44831	43.62775	16.83811	87.09066	69.31948685	1.051144
2007	INDIA	61.90783	45.62776	13.0861	149.5067	93.97142641	1.238893
2008	INDIA	69.09645	49.55937	14.05424	53.98341	77.19226793	1.607968
2009	INDIA	71.3773	48.12445	7.758629	97.36443	81.27035457	1.473268
2010	INDIA	73.41482	50.55537	15.80848	97.38688	64.51697398	1.701467
2011	INDIA	76.14589	51.28922	10.47407	55.24712	35.40468426	1.770356
2012	INDIA	77.17947	51.88851	9.858516	69.12395	33.70874197	1.826613
2013	INDIA	77.91685	52.38571	9.47876	61.33573	28.96380367	1.873287
2014	INDIA	75.90817	51.88219	6.648251	76.41993	35.83414422	1.82602
2015	INDIA	75.61106	51.86752	6.944482	72.07765	36.69910545	1.824643
2016	INDIA	74.50302	49.19482	3.856847	68.40109	35.00976993	1.573747
2017	INDIA	72.07673	48.77986	6.810138	87.90925	44.71728509	1.534792
2018	INDIA	77.56739	50.04557	9.271578	76.63435	46.32669554	1.653611
1996	BANGLADESH	25.1108	18.912	9.260889	1.399303	0.044623314	-1.26902
1997	BANGLADESH	26.26129	19.98663	10.78906	3.020256	0.318934767	-1.16814

1998	BANGLADESH	26.709	20.49664	9.994048	5.07705	0.39552186	-1.12026
1999	BANGLADESH	28.32498	20.67917	8.772808	15.89524	1.836709394	-1.10313
2000	BANGLADESH	30.17772	21.49235	9.809512	5.742252	1.179724635	-1.02679
2001	BANGLADESH	41.57848	23.85955	14.58547	4.060334	2.018223249	-0.80457
2002	BANGLADESH	43.84632	25.86442	10.16332	3.045782	1.888783375	-0.61637
2003	BANGLADESH	42.84762	25.69397	6.202019	4.10753	1.752920607	-0.63237
2004	BANGLADESH	45.05014	27.5559	10.63339	1.811959	0.483596522	-0.45758
2005	BANGLADESH	47.63738	29.03033	10.48177	27.21299	0	-0.31917
2006	BANGLADESH	50.07151	30.87688	12.34615	8.564728	0	-0.14583
2007	BANGLADESH	49.72269	31.78736	10.61662	9.456284	0.381055978	-0.06036
2008	BANGLADESH	51.54121	33.8182	13.68994	4.751541	0.2960128	0.130283
2009	BANGLADESH	52.5697	35.98536	12.78889	5.361124	0.329285738	0.333722
2010	BANGLADESH	57.39454	40.76793	18.48006	10.96917	0.889113443	0.78268
2011	BANGLADESH	61.27154	42.25899	13.29124	12.79156	1.59518674	0.922652
2012	BANGLADESH	59.93688	42.77812	11.8279	20.42289	2.282728742	0.971385
2013	BANGLADESH	57.92235	41.58144	7.386175	36.10097	4.196416302	0.859048
2014	BANGLADESH	60.02091	43.51297	11.76194	37.08045	1.729223169	1.040367
2015	BANGLADESH	60.16386	44.20416	10.04063	31.80424	1.082143069	1.105252
2016	BANGLADESH	61.443	45.09467	11.4043	34.50962	0.823998589	1.188847
2017	BANGLADESH	63.66931	47.41129	13.62993	28.24214	2.346533	1.406317
2018	BANGLADESH	64.0615	46.77068	8.952911	33.45667	5.890748492	1.346181
1996	SRI LANKA	32.56239	29.81175	8.977227	10.11751	0.423809964	-0.24582
1997	SRI LANKA	40.91347	29.35724	75.39366	6.577382	2.048779249	-0.28849
1998	SRI LANKA	38.73271	28.68103	8.550592	8.454291	1.782845737	-0.35196
1999	SRI LANKA	36.77938	29.23912	11.24993	10.1618	1.331474416	-0.29957
2000	SRI LANKA	36.62304	28.81872	9.074616	14.35814	0.81808536	-0.33904
2001	SRI LANKA	39.16178	30.70659	8.256369	17.69871	0.828711367	-0.16182
2002	SRI LANKA	43.74526	31.00352	9.1179	23.43702	1.907654703	-0.13394
2003	SRI LANKA	43.30998	30.70586	14.45892	27.47136	3.814367901	-0.16189
2004	SRI LANKA	43.31571	32.35024	10.63475	23.34811	2.701121836	-0.00752
2005	SRI LANKA	41.05892	33.04695	11.14852	10.52702	4.424605611	0.057881
2006	SRI LANKA	42.97324	34.6373	16.27399	22.69436	3.460524769	0.207173
2007	SRI LANKA	43.52123	34.22546	15.62215	35.12313	2.98690133	0.168512

2008	SRI LANKA	46.58433	29.53174	20.30491	29.76899	2.378725904	-0.2721
2009	SRI LANKA	44.47507	25.70873	17.14097	24.80333	2.960332692	-0.63098
2010	SRI LANKA	42.76605	25.44442	5.532627	25.30558	8.805348662	-0.65579
2011	SRI LANKA	39.00005	34.91422	-3.83501	29.82129	7.345256218	0.233169
2012	SRI LANKA	35.52602	34.92272	21.69693	25.81024	2.44679543	0.233965
2013	SRI LANKA	53.6374	34.63999	42.6002	22.66813	2.062264848	0.207426
2014	SRI LANKA	54.19876	35.75256	16.91426	21.54009	3.274403032	0.311869
2015	SRI LANKA	57.53762	41.47928	7.461007	17.51956	2.224800512	0.849458
2016	SRI LANKA	60.91771	45.21869	8.94313	20.3603	1.460907845	1.20049
2017	SRI LANKA	68.30038	46.91421	17.07529	23.45628	0.862085138	1.359655
2018	SRI LANKA	71.32419	49.46678	15.43565	25.64573	1.234435975	1.599274