Banking Depth and Economic Growth of South Asian Countries

Kajal Malla[1]

Abstract

This study aims to find the effect of banking depth on economic growth of South Asian countries. For analysis, different models are selected based on different tests (BP tests, Hausman tests) rather depending solely on the possible theoretical explanations. Six SAARC countries are selected for the study with data ranging from 1983-2020. The findings conclude negative and positive significant effect of credit flow to private sector and broad money respectively. Overall, banking depth has significant effect on GDP of SAARC nations. Meanwhile, gross domestic savings have significant positive contribution to GDP growth, whereas; inflation and gross capital formation negatively and positively insignificantly impact the economic growth respectively. These insignificances show the weakness of the economy in utilizing the credit and capital in the productive sectors of the economy. It further adds empirical evidence to existing finance-growth nexus in SAARC nations.

Key words*: Financial development, SAARC, Growth, Financial institution depth, Domestic credit, Broad money.*

I. Introduction

One of the goals of every nation is economic development, which is sustained economic growth. Simply, economic growth refers to the positive or negative changes in the macroeconomic indicators, indicating the strength of an economy. The growth rate of real GDP is generally used as the indicator of the general health of the economy (IMF, 2020). Growth is a dynamic process and Kira (2013) states that there are various factors that affect economic growth and intensity of influence of these factors differ in developing and developed countries.

Regarding smooth economic development, Ductor and Grechyna (2015) claim and empirically prove in their study that balanced real and financial sectors growth is vital for developed and developing countries. Moreover, the authors found that when financial deepening increases, the systematic risk also increases because if the investment becomes successful, it not only improves the performance of the banks but also the productive sectors can run smooth and hence all other macroeconomic indicators, such as: employment, profit, output, productivity, becomes positive and inclining, eventually economic growth is surged. This situation can go reverse in otherwise situation. When various authors were focused on the macro-economic variables affecting the economic growth and development, Schumpeter (1912) pioneered new vision of achieving economic growth through financial development, called supply-leading hypothesis, i.e. economic theory stating that finance leads economic growth. It means, economic growth, is an outcome of financial sector development. Similar concepts advocating that the financial sector must flourish in order for the economy to grow were developed by Gurley and Shaw (1960), Goldsmith (1969) and Mckinnon (1973).

1. Ms. Kajal Malla, MBA-BF Scholar at lumbini Banijya Campus, Tribhuvan University, she can be reached at kajolmalla13@gmail.com

The great financial crisis of 2007-10 in USA affected not only US economy, but other developed, emerging as well as developing economies faced plunged growth rate (IMF, 2010). One of the key takeaways from global financial crisis is that financial stability is essential for the economic growth. Moreover, World Bank (2013) points out that a stable financial system absorbs the shocks through the self-correction mechanism preventing adverse events from having a disruptive effect on the real economy or on other financial systems.

The contradictory view was proposed by Robinson (1952) the demand following hypothesis which states that economic growth contributes to the financial development. Singh (1999) proposes that macroeconomic activity increases as an economy grows, which leads to the development of the financial sector. Patrick (1996) posited a further aspect of the relationship between financial development and economic expansion, incorporating demand-follow and supply-lead hypothesis at once.

Banking depth is the combination of size of a nation's financial markets, banks, and other institutions' sizes when compared to an indicator of economic output. Banks, due to their size, number of employees, access to employees, access to information, &their expertise, are better able to calculate the risk, and thus, charge an appropriate premium or refuse to extend a loan. Individual lenders and borrowers cannot distribute resources as efficiently as the banking system, which boosts economic growth and increases economic efficiency (Naghshpour & Sergi, 2018). Similarly, in case of developing and emerging economies, capital market is not efficient, so the financial institutions are the major party in the financial system. For financially underdeveloped regions, such as emerging Asia, financial development means the fundamental activity of creating stronger and more effective banks, equities markets, and bond markets (ADB, 2015). Caporale, et al. (2014) explains that lack of financial depth limits the economic growth in the less developed economies from European Union.

As compared to other nations, the South Asian countries are still not able to take the pace in the economic growth (World Bank, 2022). Moreover, recently high inflation in food, petroleum products amid Ukraine-Russia war, worst-ever economic crisis of Sri Lanka, catastrophic flood in Pakistan causing high commodity prices that worsened Pakistan's external imbalances, less flow of tourism in Nepal and Maldives, Taliban in Afghanistan, are highly challenging the South Asian, whereas India, Bhutan and Bangladesh seem to be recovering from the shocks. These shocks are challenging the developing South Asian economies to maintain GDP (World Bank, 2022).

There are different studies to prove finance-growth nexus, however; contradicting results are obtained. There are very few studies about banking depth and growth in south Asian countries.

Rana and Barua (2015) did first study about the financial development and economic growth on South Asian countries by taking proxies: for the former: Domestic Credit Provided by Financial Sector, total Debt Services, Gross Domestic Savings, Broad Money, and Trade Balance and for latter: GDP growth rate. The results found that broad money, trade balance and domestic credit have no considerable influence on economic growth. However, another study by Ahmed and Bashir (2019) examined taking key banking sector development variables: money and quasi money (RQM) and domestic credit to private sector by banks (PC) have a positive and statistically robust effect on economic growth of SAARC countries. The study concludes that no economy can develop without a substantial growth in the banking sector and it is important to have a sound and rigorous banking system for building a sustained economic growth. Therefore, the SAARC economies are suggested to focus on the development of the banking sector for their long run growth.

As highlighted by the World Bank, 2020, regarding the need of banking sector development required for the long-term growth of especially, South Asian countries, but few studies justifying this relation; contradicting results and multiple indicators to measure banking development and economic growth provide gap to the ongoing finance-growth nexus in south Asian countries, which this study aims to cover. Thus, research question is: do banking depth affects the economic growth of the South Asian countries?

Objectives of the Study

- To access the effect of private sector domestic credit on economic growth.

- To examine the effect of broad money on economic growth.

- To access the effect of inflation on economic growth.

- To examine the effect of gross domestic savings on economic growth.

- To examine the effect of gross capital formation on economic growth

II. Theoretical Framework

Finance-growth relation has been tested empirically by different authors in different countries, individually as well as in panel form. However, no studies have universal conclusion. Most of the previous studies have used financial depth variables synonym to the financial development. Pagano (1993) concludes that efficient financial function (financial deepening-generally credit provisions) can affect growth. Guru and Yadav (2019) studied in the five major emerging economies: Brazil, Russia, India, China and South (BRICS) from 1993-2014 using banking development indicators (size of the financial intermediaries, credit to deposit ratio (CDR) and domestic credit to private sector, CPS) and stock market development indicators using generalized method of moment system estimation (SYS-GMM), and control variables: inflation, exports and the enrolment in secondary education were used. All the selected banking development indicators such as size of financial intermediaries, CDR and CPS are positively significantly determining economic growth.

Within Europe, significant and strong correlation between financial development and economic growth (GDP per capita) was evident (Hugh, 2017). Eryilmaz, et al. (2015) took 1980-2012 data of 23 OECD countries with random effect model found financial development (domestic credit volume to GDP and Domestic savings to GDP) positive significantly affects growth (real GDP, GDP per capita). Matei (2020), however, found interesting result. The study found inverted U-shaped relationship of financial development (FD) with growth. Up to certain threshold, FD provides beneficial impact on economic activity, but relation turns negative after the threshold is crossed. Similar conclusions are drawn by Samargandhi et al. (2015); Fattouh (2002). With financial development variables: broad money, bank credit, liquid liabilities, financial system deposit to GDP and macro-economic variables (government consumption, investment, trade terms, life expectancy, schooling, democratization index, rule of law index, Grundler and Weitzel (2013) employed GMM model and found the significant negative impact in developed countries, whereas, positive significant impact on developing economies. Kerimov (2021) found negative significant relation between FD (bank and non-bank loans to non-financial corporations, grain export) and GDP in Ukraine. Estrada, Park and Ramayandi (2010) evident the reduced contribution of financial depth on GDP per capita, however, there is a need to develop financial system as a whole rather than developing

Definitions of Variables

Actually, the financial institution depth variables given by WB (2015) are: Domestic private sector credit to GDP, deposit bank assets to GDP, broad Money (M2) to GDP, deposits to GDP, gross value added of the financial sector to GDP. Although the terms for these variables are different, they have similar concepts. For instance: broad money is the broad concept that incorporates all forms of deposits: demand deposits, fixed deposits, savings deposits, and foreign currency deposits made by residents in sectors that do not use the currency of the central government. To remove multicollinearity (as suggested by the Pearson's correlation), the author came up with two main banking depth variables as follows:

1. Domestic Private sector credit to GDP (DPSC)

World Bank has defined it as the credit lent to all sectors of the economy on a gross basis, except to the governments, government agencies, central bank and public enterprises. Previous studies of (Beck & Levine, 2002) used this variable as a main proxy for financial development. World Bank states that DPSC indicates the credit flow in the domestic economy, which eventually transforms to the capital formulation. Domestic private sector credit indicates for the credit provided to the private sectors in the form of loans, purchase of non-equity securities, and trade credits and other accounts receivable, which establish a claim for repayment. There are contracting conclusions regarding DPSC and GDP. Guru and Yadav (2015); Hoi, et al. (2019); Hassan, et al. (2011) found negative significant effect of credit flow to domestic sector and GDP. Whereas, in SAARC countries, Ahmed and Ansari (1998); Caporale, et al. (2014) found positive effect whereas Rana and Barua (2015) found no significant effect of DC on GDP.

2. *Broad Money to GDP (BM)*

The precise notion of broad money varies among nations, but simply it is measurement of the amount of money or money supply in a domestic economy (Wikipedia). WB defines, broad money is the sum of all deposits (highly liquid and less liquid deposits), including demand deposits, fixed deposits, savings deposits, and foreign currency deposits made by residents in sectors that do not use the currency of the central government, also traveler's checks and other securities (eg: commercial paper and certificates of deposit). Liu and Woo (1994) and Hemming and Manson (1988), as cited in Outreville (1996) stated that in emerging economies, it is an adequate measure. Positive significant effect of broad money was evident by Sharma and Sharma (2018); Estrada, et al. (2010); Sikder, et al. (2016) whereas, Thorton (1994) and Rana and Barua (2015) found no significant effect.

Control variables

The macroeconomic variables are related to each other. All of these variables are taken as the ratio of GDP. There are many variables affecting GDP, therefore, other relevant and significant influencing variables should be controlled.

3. Inflation

Inflation is one of the measures of monetary discipline (Petkovski & Kjosevski, 2014). Inflation is the continuous rise in the prices of the commodities, and decrease in the value of money. Ahmed and Bashir (2019) argue that inflation growth negatively but insignificantly affects the growth. Inflation is seen to have long-run positive relationship with GDP growth of SAARC countries (Mallik & Chowdhury, 2001). However, another study found the same result in Malyasia but for the rest of the south Asian countries, no long run relationship between inflation and economic growth was evident by Behera (2014).

4. Gross Domestic Savings to GDP

It is the ratio between gross domestic savings and GDP. Gross Domestic Saving is GDP minus final consumption expenditure. Gross Domestic Savings (GDS) growth is found statistically significant (Rana & Barua, 2015; Getachew, 2015) in determining GDP. Gross Domestic Saving consists of savings of household sector, private corporate sector and public sector. The economic theories suggest that all savings should go into investment and regulate in the economy rather than hoarding, so, it is assumed that these savings go through the banking system that turns into investment thus stimulating growth. Similarly, Basnet (2013) found significant positive impact of savings on the South Asian economies.

5. Gross capital formation to GDP

Gross capital formation to GDP is the ratio of gross capital formation to GDP. Most study results suggest that capital accumulation, that is, investment, is the most relevant determinant of the growth process, i. e. higher the capital formation, faster the economy can grow its income because capital formation assist in smooth operations leading to increased economic activities, for instance: employment creation, resources acquisition, etc. (Investopedia, 2016; Ahmed & Bashir, 2019).When Kesar, et al. (2022) took gross capital formation as factor influencing GDP positive insignificant result was evident whereas, Sharma and Sharma (2018) found significant relation.
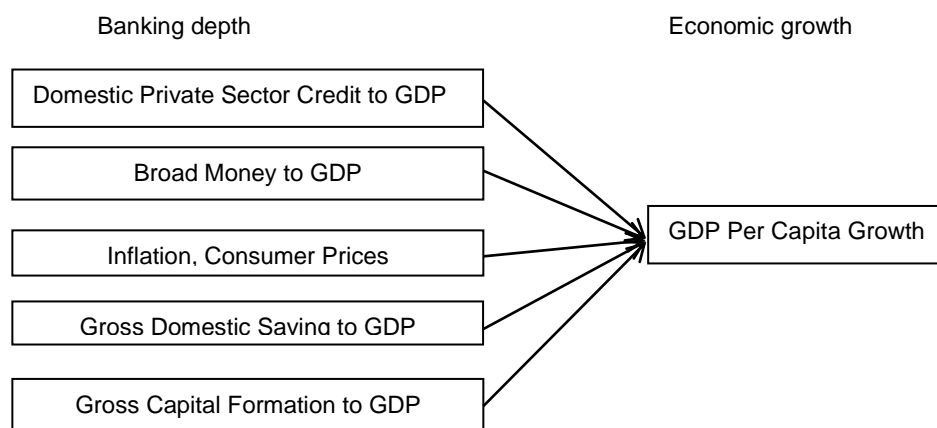
6. GDP growth

GDP growth is an indicator of economic growth, which represents for the growth in the economic activities. There are different indicators to measure GDP and GDP growth, Nagshshpour and Sergi (2019) through principal components method proves GDP per capita growth to be better than GDP growth rate to measure the actual economic growth. There are different proxies for measuring GDP growth such as: GDP growth rate, GDP per capita, GNI, GDP constant at LCU, etc. Eryilmaz, et al. (2015); Kerimov (2021); Ahmed and Ansari (1999) have used GDP per capita growth as dependent variable. So, based on these, GDP per capita growth is taken as suitable proxy of economic growth measurement.

Research Framework
Figure 1
Research framework

Note. Rana and Barua (2015); Majid and Mahrizal (2007)

Hypotheses

Based on the reviews and above research framework, following hypotheses are formulated for the study:

H1: There is significant effect of private sector domestic credit on GDP growth rate.

H2: There is significant effect of broad money on GDP growth rate.

H3: Inflation significantly affects GDP growth rate.

H4: There is significant effect of gross domestic saving on GDP growth rate.

H5: There is significant effect of gross capital formation on GDP growth rate.

III. Research Methodology

Research Design

The research design for this study is deductive (trying to add empirical evidence on already developed finance-growth hypothesis) and descriptive. This is also an analytical study. It collects the quantitative figures and analyzes using various statistical tools, so, it produces fact-based conclusions. In this basis, it can also be called quantitative and positivistic research design.

Nature and Sources of Data

For developing countries, lack of long series of data for the developing countries, makes using the panel data approach to analyze the issue of financial-led growth (Habibullah & Eng, 2006).The population is total 8 SAARC countries: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. Since Afghanistan was taken over by the Taliban during 1990s, the required data are unavailable till the period of Taliban takeover as well as data unavailability of Maldives, so, these are excluded. The data for Bhutan from 1983 was available, so, this study takes 6 observations with time period from 1983 to 2020 i. e. 38 years' data. This makes total 228 total observations. The required data are retrieved from the official World Bank database and IMF database.

Methods of Data Analysis

For regression analysis of panel data, pooled OLS or GLS (generalized least square) technique: Fixed effect and random effect model are used. In order to test which method to use between pooled OLS and fixed/random effect, Breusch-Pagan test should be conducted (Katchova, 2013).P-value of BP test less than 0.05 means, GLS is appropriate. Further, to select random or fixed effect model, Hausman test is conducted (TJ Academy), where p-value>0.05 states random effect model to be appropriate. The model for this study:

$$GDPg_{it} = \alpha + b_1 \cdot DC_{it} + b_2 \cdot BM_{it} - b_3 INF g_{it} + b_3 GDS_{it} + b_4 \cdot GCF_{it}\ldots\ldots\ldots(i)$$

Where,   i = no of countries

α = coefficient of parameters

GDP g = GDP per capita growth

t = time period

DC= Domestic credit to private sector, % of GDP

BM= Broad Money, % of GDP

INF g = Inflation, consumer prices, annual growth %

GDS= Gross domestic saving

GCF= Gross capital formation

Analysis includes descriptive statistics: mean, standard deviation, minimum and maximum values as done by Nguyen et al. (2021); Ahmed and Bashir (2019). Similarly, correlation matrix was prepared before conducting study to identify the existence of multicollinearity among banking depth variables as suggested by World Bank and hence only two less correlated variables were selected. Later, Pearson correlation matrix is used to depict the association and variance inflation factor (VIF) is used to measure the multicollinearity. Excel and E-views are used for the analysis of the data.

IV. Results and Conclusion

Table 1

Descriptive statistics

	GDP growth	DC	BM	INF_GROW	GDS	GCF
Mean	3.445506	28.46988	48.29934	-0.091746	18.79457	28.38045
Median	3.377745	25.44859	45.33788	-0.151935	17.71943	26.19038
Maximum	24.97367	88.44004	117.7495	23.42014	44.59265	69.48450
Minimum	-11.06903	2.615762	17.50571	-19.67478	3.642859	14.12063
Std. Dev.	3.279193	15.71378	18.13000	3.867526	7.956581	11.00921
Observations	228	228	228	228	228	228

Note. Output from collected data analysis using E-views 8 of LBC library

Total 228 observations are made. When combined together, the average growth rate of selected 6 countries is 3.4455%, with maximum growth rate 24.97367 and minimum growth being -11.06903%. Similarly the average domestic credit to private sector ratio with respect to GDP is 28.46988%, where maximum credit flow is 88.44004% of GDP and minimum is 2.615762%. In the same way, the money supply represented by broad money has maximum contribution to GDP at 117.7495%, whereas minimum BM to GDP is 17.50571. The average broad money to GDP lies at 48.29934%. Likewise, with the maximum value of 23.42014and minimum value of negative 19.67478, the average annual inflation growth rate is -0.091746%. Another variable (gross domestic saving) has average18.79457% of GDP with maximum value 44.59265% and minimum 3.642859%. GCF has similar average ratio with GDP as of DC i.e. 28.38045% with maximum 69.48450% and minimum 28.38645%. Greater variation in minimum and maximum values is due to long time period included with Asian crisis of 1997 and global financial crisis of 2007, however; these crises don't significantly affect data form (Ekanayake & Thaver, 2021).

Table 2

Pearson correlation matrix

	GDPg	DC	BM	INF g	GDS	GCF
GDPg	1.000000					
DC	-0.085480	1.000000				
BM	0.074500	0.868071	1.000000			
INF g	-0.037469	0.033726	0.043194	1.000000		
GDS	0.340878*	0.083073	0.303684	-0.039508	1.000000	
GCF	0.227783*	0.281798	0.389265	0.000542	0.494650	1.000000

Note. Output from collected data analysis using E-views 8 of LBC library (*significant at 0.05 level of significance)

Here, negative association can be seen between credit flow (domestic credit to private sector) and GDP growth rate and inflation growth rate and GDP growth rate. Whereas, positive relationship exists between broad money supply, gross domestic saving as well as gross capital formation. Similarly, domestic credit to private sector and broad money has correlation coefficient of 0.868071, which might indicate the warning signal of the presence of multicollinearity.

Table 3

Multicollinearity test

	DC	BM
R-square	0.753379	0.820841
VIF	4.054805	5.581634

Note. Output from collected data analysis using excel and e-views 8 of LBC library

According to Gujarati (2003), VIF<10 means no presence of multicollinearity. Here the VIF of both variables DC and BM are less than 10, so, it concludes that no problem of multicollinearity.

Lagrange Multiplier test (Breusch-Pagan test) gives p-values of cross-section (0.5620) and time section (0.000), thus, it suggests that pooled OLS method is not appropriate. Similarly, Hausman test, to select between fixed effect and random effect models, give p-value 0.0658, which means random effect model is appropriate.

Table 4

Analysis of output

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DC	-0.088508	0.027661	-3.199753	0.0016*
BM	0.060608	0.025182	2.406758	0.0169*
INF_GROWTH	-0.024604	0.051635	-0.476504	0.6342
GDS	0.090536	0.031314	2.891231	0.0042*
GCF	0.032233	0.021762	1.481198	0.1400
C	0.419356	0.693704	0.604518	0.5461
Weighted Statistics				
R-squared	0.161838 .	Mean dependent var		3.445506
F-statistic	8.573057	Durbin-Watson stat		1.598181
Prob.(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.161838	Mean dependent var.		3.445506
Sum squared resid.	2045.916	Durbin-Watson stat.		1.598181

Note. Output from collected data analysis using E-views 8 of LBC (*significant at 5% level of significance)

For 228 total observation, 6 countries and time 1983-2020, domestic credit seems to have negative influence on growth rate. 1% increase in domestic credit reduces the GDP growth rate by 8.85%. Similarly, p-value of this variable (DCPS) (0.0016) is less than 0.05 (level of significance for this study), which rejects the null hypothesis. Thus, domestic credit is significant but negative contributor to the economic growth. On the other hand, broad money has positive significant influence on the economic growth, where, 1% increase in broad money increases the GDP growth by 6.061%.For the real sector variables, gross domestic saving is found to be significant positive contributor to GDP growth. Gross capital formation, on the other hand, is positive but insignificant. In contrast, annual inflation growth %affects negatively but insignificantly to GDP. It means growth in inflation and GCF doesn't contribute significantly to the GDP growth. The R^2 value is 0.161838 which means that the variables understudy have 16.1838% explanation power.

Discussion

This study's result found significant but negative influence of DC on growth. This result is consistent with the findings of Guru and Yadav (2019); Rana and Barua (2015); Hoi, et al. (2019); Hassan, et al. (2011). The negative association between DC and growth also

signifies the need to check if the credit has been utilized in investment process or not. Similarly, inverted U-shaped relation found by Matei (2020) & Samargandi et al. (2015) and also explained that the South Asian countries are at the declining influence phase after reaching optimum post the adoption of liberalization. Similarly, significant positive impact of broad money on GDP is consistent with previous studies (Sharma & Sharma, 2020; Estrada, Park, & Ramayandi, 2010; Sikder, Wadud & Hasan, 2016), which indicates that the money supply is the significant contributor to GDP growth. Chhetri (2022) pointed out that in long-run, increase in money supply, lowers borrowing price and increases consumption, this all lead to economic growth.

This study finds that inflation had negative but insignificant influence on growth; in line with Ahmed and Bashir (2019). This implies that as inflation increases, GDP growth decreases but insignificantly. Further, GDS is positive significant contributor to GDP growth; consistent with the conclusion of Rana and Barua (2015); Eryilmaz, et al. (2015); Basnet (2013). It signifies that savings lead to the economic growth. This also satisfies the relation as stated in the Solow growth model. Hence, this is proved in this study. In contrast to the explanation to Joshi, Pradhan and Bist (2019), such positive significant result depicts the strength of economy in mobilizing savings into productive sectors. On the other hand, the result for gross capital formation of this study is contrasting to most of the previous studies, however it is consistent to the finding of (Kesar, et al., 2022), which indicates that capital formation has positive influence but doesn't significantly encourages GDP growth. This also points out that the gross capital is not being used in the productive sectors.

Conclusion and Implications

This study concludes that banking depth has significant influence in the economic growth of the selected South Asian countries represented by GDP per capita growth. However, the direction of relationship is mixed as the credit flow to the private sector negative significantly affects growth rate, meaning growth in credit flow reduces the economic growth, so, it gives need to look for use of credit; but the broad money causes positive significant impact on economic growth so, it can be considered as one of the prime tools for macro-economic stability. Gross domestic savings are significant in growth showing the productive use of savings. Similarly, inflation is not significant indicator of growth. Gross capital formation is insignificant contributor to economic growth which shows the weakness of the economy in utilizing the credit and capital in the productive sectors of the economy.

This research adds value to the existing literatures advocating the significant contribution of banking development (depth) on the economic growth. The policy makers should focus on formulating policies to check the flow of credit to different sectors as credit to unproductive sector wouldn't lead to the economic growth and to focus on increasing the financial institutions' depth. Other researcher can include other countries and add other dimensions of the financial development (efficiency, access and or stability); and financial sectors (non-depository institutions, financial market) beyond banking sector.

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