Impact of Financial System on the Economic Growth of BRICS Countries

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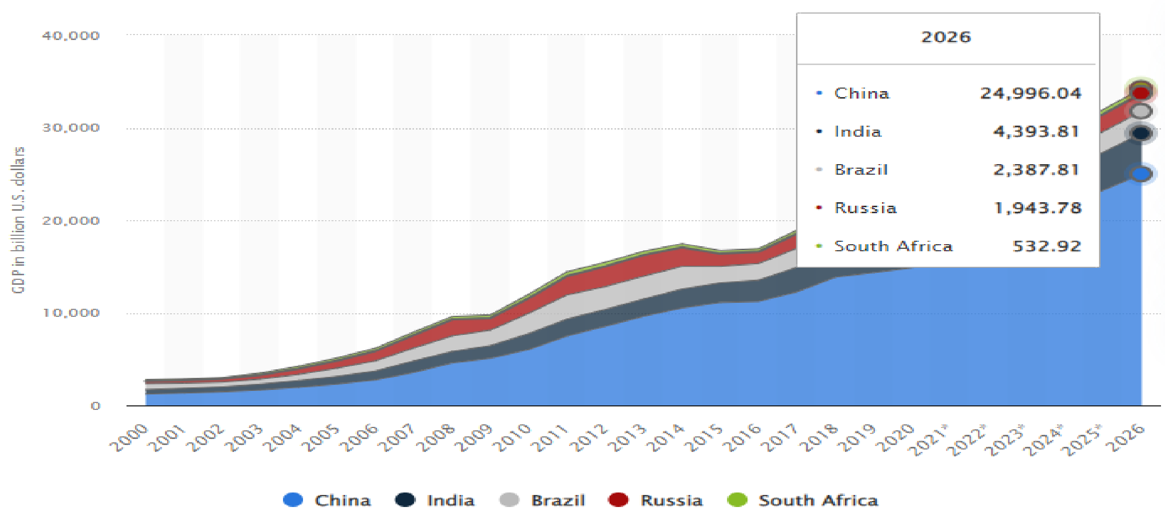
Introduction

Most economists believe that financial development will flourish societies which ultimately improve standard of living of common people. Economic development depends upon financial stability and its sustainability which is in the hand of financial institutions, and financial market. The close interrelation amongst the financial players brings the systematic way of mobilizing the funds towards capital formation. The proper allocation and management of these funds then fetches long term growth prospect for an economy. Financial stability is associated with many factors like exchange rate risk, lending rate, percentage of increase in non-performing assets, total value traded in national stock market and various other factors. For the developing country like India which falls under low middle income group as per World Bank where financial sector is one of the core areas because of its lending process, technical assistance, credit guarantee etc. It provides financial support to primary, secondary, and tertiary sectors and helps the government in augmenting financial inclusion. Boikos, Panagiotidis, & Voucharas, (2022) has found all the components relating to financial reform are important aspects of economic growth rather than financial development. Agnello, Mallick, & Sousa, (2012) has explained the financial reforms help in dwindling income inequality. More focus is required in capital market and to uphold high reserve to bring down the income inequality. Arcand, Berkes, & & Panizza, (2015) stated that countries with very large financial sectors shows negative correlation between financial depth and economic development and vice versa in case of countries with small financial sectors. Well developed bank, non bank, insurance and pension countries' stock markets are less volitale (Levine & Demirguc-Kunt, 1996).One of the development measure is debt equity ratio of large firms which is high in case of developing countries and low in case of developed countries (Demirgiiq-Kunt & Maksimovic, 1995). International trade taxes matter for developing countries whereas

income taxes matter for developed countries for its growth prospective. Beck, Levine, & & Loayza, (2000) demonstrated that economic growth is reverberation due to better concomitant of financial intermediators. (Barro, 1991) has investigated 98 countries found that growth in per capita and ratio of private investment to GDP gives negative impact on the ratio of government consumption expenditure.

BRICS (Brazil, Russia, India, China, and South Africa) countries are group of emerging economies which play a vital role in development and ultimate nourishment of global economy. Three relevant aspect which make it different from other economies are economic growth, political stability, and its outstanding size. The main reason behind the steady economic growth is huge amount of contribution from agricultural as well as industrial sector. Even though the BRICS countries possessing rapid growth of population, they have sufficient potential to dominate other countries.

Since the beginning of the 21st century, the BRICS countries have been considered as the five foremost developing economies in the world. China's GDP will overtake that of the U.S. is the largest economy in the world, while some also estimate that India will also overtake the U.S. around the middle of the century (Aaron O'Neill, 2021).



Gross domestic product (GDP) of the BRICS countries from 2000 to 2026*(in billion U.S. dollars)*

To validate the information, BRICS countries are compared with G7 advanced economies of the world. The data has been extracted from IMF where GDP at constant price of India is holding second position in comparison with Japan. Rate of inflation in India was almost 4 times of Japan in the year 2019.From the table-1 it is observed that the volume of import and export both are declined in comparison to India. It narrowed the trade deficit due to Covid 19 pandemic after imposed largest restriction on transport and implementation of social distancing measures (Report of wro.org 2020). Government revenue percentage to GDP is detected to be extraordinary in France and Italy. In primary lending and borrowing, the position of India and China are weaker amongst the BRICS countries, but it is seen to be better from Japan. Unemployment rate is extremely high in South Africa because of decline in the demand of unskilled labor as composition of employment increase in the pool of skilled labor (Abhijit Banerjee, 2007). The current account balance of Germany is

7.15% of GDP which indicates a sound financial position and free from external crisis. From the figures it is observed that current account deficit is high in India, Brazil, and South Africa on the other hand countries like UK, US, Canada and France condition are alike to developing countries.

Subject Descriptor	GDP at CP	Inflation	Vol Imp	Vol of exp	Unemploy	Govt rev	Cur acc bal
Brazil	1.137	3.733	4.062	-1.932	11.925	31.844	-2.769
Russia	1.342	4.47	3.025	-3	4.6	35.54	3.838
India	4.181	4.762	-6.015	-4.523		19.302	-24.55
China	6.11	2.903	0.184	0.239	3.62	27.66	141.335
South Africa	0.153	4.13	-0.143	-2.351	28.7	29.065	-3.017
G7							
Canada	1.656	1.949	0.66	0.907	5.667	40.816	-2.04
France	1.509	1.3	2.538	2.169	8.467	52.565	-0.667
Germany	0.555	1.346	2.473	0.577	3.133	46.696	7.074
Italy	0.301	0.634	-0.769	0.651	9.9	47.069	2.959
Japan	0.671	0.477	-0.702	-1.611	2.358	34.385	3.628
United Kingdom	1.463	1.791	2.055	4.978	3.825	36.403	-4.008
United States	2.161	1.812	0.483	-0.104	3.667	29.386	-2.241

https://www.imf.org/en/Publications/WEO/weo-database/2020/October

Table 1

Overall, from the above facts and figures it is observed that position of BRICS countries is in challenging place based on above factors in comparison with advanced economic countries.

However, the present study selected BRICS countries for several positive reasons:

i- they constitute approximately half of the world population.
ii- they are rich in natural and human resources; and
iii- they have developed educational systems that will provide a skilled labour force.
iv. they constitute one fourth of the world gross domestic product which make them economic power. This could give comparative advantages in many ways with European Union and the United States. Moreover, the world was baffled of the economic growth achieved by China and India during the financial crisis of 2008 when rest of the industrialized economies went to a deep recession.

Therefore, the objective of this study is to examine the factors contributing towards the economic growth in BRICS countries utilizing unit root test and error correction model. This paper is unique from previous empirical studies in several ways. Empirical studies that investigated the financial development constraints determining economic growth of BRICS economies are rare. In addition, this study includes some variables that have not been tested before such as the variable of broad money and the variable of domestic credit to the private sector. Moreover, data utilized in this paper are more recent and updated and it includes all member countries.

Literature review

(Wasiak, 2016) The association of explanatory variables like inflation rate, percentage of population growth rate, investment rate, fertility rate, life expectancy at birth, share of

population age (15-64), openness rate by calculating sum of export and import and then divided it by GDP, government consumption expenditure rate on GDP on the economic growth of the 28 EU state members and 34 OECD countries are analyzed with the help of Bayesian Model averaging method. The study covered 10 years of time from 1993 to 2013. From the study it was found that domestic credit was a significant variable for the economic growth of the EU countries. The share of non-performing assets to total loans has formed a negative impact on growth output of the countries. Market Capitalization showed a positive significant on the growth output of the EU and OECD countries. Rousseau & Kim, (2011) originated that stock market channel direct funds on the basis of market signal and information drives financial development then traditional finance like banks with lending technlogy. Langfield & Pagano, (2015) described the implementation of anti-trust policy in European Union countries to address bank's bias problem.

Piabuo, (2017) aimed to analyze the economic growth of Cameroon by capturing two aspects of financial system: financial depth and financial efficiency. The study found that broad money enlarges the financial depth and percentage of deposit credit to private sector broadens financial efficiency. The effect of these two independent factors with support of control variables i.e., government expenditure and private expenditure, using Auto regressive distributive lag model covering the time of 34 years found that credit to private sector was insignificant to economic growth in the short run but it was significant in the long run. M2 was showing significant relation with economic growth in the long as well as in the short run.

Deltuvaite & Sineviþiene.L., (2014) in their study divided 23 countries based on bank based, market based and mixed based financial system, shows lowest GDP per capita ratio to bank based financial system countries and highest GDP to market based and mixed based financial system countries.

Chakraborty, (2010) examined the separate role of banking sector and stock exchange in financial development and its impact on the economic growth of India. The factors taken to examine were rate of inflation, external debt burden, net inflow of capital to GDP, market capitalization real effective exchange rate, rate of growth of human capital, rate of growth of labor by using Johansen co integration test on growth rate of GDP. External debt burden, exchange rate, rate of growth of human capital has negative effects on economic growth. On the other hand, market capitalization of the exchange has not played significant role in enlarging the economic growth of India. Paun.C.V., Musetescu, Topan, & Danuletiu, (2019) demonstrated that banking institution is less effective than capital market in bring sustainable development in the economy. He has highlighted that during crisis period monetory policies generate inflation in the economy which result to decline in GDP. Ayadi, Arbak, Ben-Naceur, & De Groen, (2013) found that contribution of stock market is positive on the economic growth of the countries consisting of low quality firms. The paper also examined that absent of proper financial regulation and policies hamper the economic growth of the southern and northern Mediterranean countries. Yucel, (2009) measured the integrity between the GDP with the liquid liabilities and trade openness. By using Granger co integration test, the study found the existence of bidirectional causality relation between GDP with financial development and trade openness.

Barua, (2015) undertaken research on South Asian Countries with five major variables i.e., domestic credit by financial sector, total debt service, gross domestic savings, broad money,

trade balance on GDP growth rate for the period 1974 to 2012. By applying pooled panel regression model fixed effect, found that domestic credit to financial sector and broad money were insignificant to growth of GDP. Total debt services and gross domestic savings were significant to economic growth. Therefore, the prior literatures confirmed that financial intermediaries and financial market both simultaneously brings financial reforms and financial development in the economy. The financial development is the source of economic progress in the countries. It is also explained in the literature that liquidity, size, and efficiency of the stock market increases with support of financial institutions is also a basis of economic progress. Therefore, to run the economy in smooth manner financial intermediaries and capital market work hand to hand to support the entire financial system.

Data and Research Methodology

The paper is investigating two important aspects of financial system i.e., capital market and financial intermediaries (banks) role in economic growth of the countries. Capital market is such a sector which integrates international capital because of its size, volatility, efficiency, and liquidity. Levin.R. & Zervos, (1996) has explored long run association of stock market development with economic growth. Levine & Demirguc-Kunt, (1996) mentioned that development in stock market is only possible if parallel development happen in banks, non- banks, insurance companies and private pension funds. The aim of this study is to find the nexus between stock market, financial institutions with the economic growth of BRICS countries. The data were obtained from the website of the World Bank (www.worldbank.org). The independent variables used in the study are broad money, domestic credit to private sector, stock traded total value to GDP and with one controlled variable i.e., export of goods and service percentage to GDP. The real growth rate of GDP is considered as the representative of the economic growth of BRIC countries and dependent variable for this study. The time span designated for the study is 19 years, from 2000 to 2019.

Research Objective

The research objective of the paper is

Ho- There is no influence of financial institutions and financial market on the GDP of BRICS countries.

H1- There is influence of financial institutions and financial market on the GDP of BRICS countries.

Econometric

The study includes four high middle income group countries, and fifth country is low middle-income group. As per the prior literature impact of financial system is measured with help of different variables. But in this study selected countries are different in many respects like size of government, financial structure, culture, currency, region etc., financial constraints chosen for the research are broad money, stock traded total value to GDP, Domestic credit to private sector and export of goods and services on real growth rate of GDP. Datasets contain cross-sectional and time heterogeneity. The equation model of the study is

$$GDPit = \beta 0 + \beta 1\ M3it + \beta 2\ DC_to_PS\ it + \beta 3\ ST\ it + \beta 4\ export\ it + \varepsilon i\ it \ldots$$

Where

GDPit = *Real growth rate of GDP*
M3it = *Broad money*
STit = *Stock traded total value to GDP*
DC_to_PS = *Domestic credit to private sector*

EXPORTit = Export of goods and services
εi = Error terms
i= country name and t= time period

GDP- In a specific time, monetary value of all final goods and services produced within the country is known as gross domestic product. It is important indicator to measure the economic health of a country. Aghion, Howitt, & Foulkes, (2005) examined that financial development is the most powerful force which converge to economic growth of the country.

M3- Broad money is defined as the sum of currency in the form of time deposit and narrow money (M1). Narrow money supply includes the sum of currency in bank as demand deposits other than with central bank, the foreign currency, and other securities like certificate of deposit and commercial paper. Stuart Berry, (2007) has taken broad money to measure the financial depth of the economy

DC_to_PS- Domestic credit to private sector percentage to GDP means the total credit available for the private sectors to meet up their required demand.

ST- Stock traded to total value means the percentage of the market capitalization of the listed companies in the leading stock exchange of the BRICS countries to GDP. Ali, Ramakrishnan, & Faisal, (2022) has stated that presence of stock market is blessing as it is one of the important constraint to engender positive nexus with natural resources revenue.

Export of goods and services- It includes all the domestic goods like merchandise with services like royalty, insurance, transport, freight exported to other countries.

Unit Root

Before applying panel regression, data must consider stationarity. To test the stationarity, there are various test available but Augmented Dickey fuller is supreme in providing critical value.

ADF - Fisher Chi-square			
	Statistics	**P- Value**	**Test of Unit root**
GDP	22.3927	0.0132	First difference
Export	32.2400	0.0004	First Difference
DC_to_PS	25.8545	0.0039	First Difference
M3	30.5227	.0007	First Difference
ST	33.6308	.0002	First difference

Table-2

The data of GDP, export, domestic credit to private sector, stock market traded to total value , M3, export of goods and services and growth rate of GDP found to be significant at 1% after applying augmented Dickey full test.

Test of Multicollinearity amongst the independent variable

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.041689	1.109323	NA
DDC_TO_PS	0.00039	1.36485	1.351043
DM3	0.001334	1.335928	1.212409
DST	1.09E-05	1.063014	1.060935
DEXPORT	0.003749	1.11815	1.112214

Table 3

The above table demonstrations that no existence of multicollinearity among the selected variable. The variance inflation factor amongst the independent variable is less than 5.

It is also observed that time span taken for the study is more that cross sectional variable. The selected time is 19 years whereas the cross-sectional independent variable is five. So, in this case cross section SUR (seemingly unrelated regression) is applied to find the significant relationship between the variable. The result of the test is as follows: -

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.032992	0.204179	0.161586	0.872
DDC_TO_PS	0.013803	0.019754	0.698733	0.4865
DM3	-0.115212	0.036525	-3.154312	0.0022
DST	0.004719	0.003303	1.428553	0.1566
DEXPORT	0.138801	0.06123	2.266878	0.0258

Table 4

The above resultant of the applied test states that broad money and export are considerable at 5% significance level and domestic credit to private sector and stock market total value to GDP are insignificant. As per the test broad money has negative impact on GDP, 1% rise in broad money elevates to .115% decrease in GDP. The supply of money enhances the circulation of money within the economy and which further outpouring the price of consumer goods. Increase in export of goods and services by 1% paramount to .139% shoot up in GDP. Stock market capitalization of BRIC countries could not raise the higher prospects of economic growth. High financial credit to private sector has no influence on the growth rate of GDP.

To verify the test acceptability residual cross section dependence is applied. The objective to find whether the residual contains cross section dependence or not.

The result of the test is as follows

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	5.108985	10	0.8838
Pesaran scaled LM	-2.2117		0.027
Pesaran CD	0.947023		0.3436

Table 5

There is various test available to measure the correlation between the residuals but for this regression model Pesaran CD test is found to be appropriate. Therefore, from the above figure p value found insignificant at 5% level. Henceforth, it is proofed that residual contains no cross-sectional dependence.

Finding of the study

The study focuses that broad money and export is directly nexus with financial development and stability of an economy as it is found to be significant at 5% level. Broad money throws negative impact on GDP which led to increase in the rate of inflation. This additional cost due to inflation effect consumer consumption and industrial production pattern. Feldstein & Stock, (1993) has explained in his study that M2 not only reduce rate of inflation but also the variance of GDP growth rate. As each sector is interlinked with the financial system, it will directly or indirectly be challenging for our economic growth. Export of goods and service is extremely imperative amongst the independent variable as it throws a positive effect on GDP at 5% significant level. Trade openness enhances the export of goods and services between the countries. Henceforth, it states that export of goods and services help in augmenting good trade relationship between the countries and help to build our foreign reserves. But the stock traded total value at capital market and domestic credit to private sector of the BRICS countries found to be non-significant towards the progressiveness of economic growth.

Discussion

Financial development is a very vast concept and holds many dimensions. Rousseau & Sylla, (2003) has explained components of good financial system. Presence of stable monetary provisions, public finance and debt management, stable central bank, international finance support and well structure financial market frame the complete set of good financial system. As per the study has covered broad money, domestic credit to private sector, stock market total value which are insufficient measuring aspects to capture the concept of financial development of a country. The analysis shows domestic credit to private sector is not statistically significant but positive impact on the GDP of the BRICS countries. Therefore, it implicates that government must inject more funds to increase the efficiency of the private's sector. Exports of goods and services has positive influence on promoting the economic growth of the BRICS countries. Exports of goods and services with member's countries or with advanced economic countries always aimed in reducing the autonomous debt and enhance the international reserves of the respective countries. Domestic industries must take the advantage of trade relationship amongst the members' countries, and which further ensure macroeconomic stability.

Implementation

From the prior literature undertaken upon various countries mentioned that financial development pillars are financial institutions and financial markets. They are the medium through which integration of money from individuals, institutions are possible. Savings and investment are the tools of capital formation which is possible with the help of financial intermediaries.

Capital market is a sector which is accumulating funds from various types of investors. And this accumulated fund meets the financial needs of the firms. The domestic companies raising of capital for better operation of their business through the stock market.

Financial institutions need to be more focus more towards the credit system. Medium,

small, and micro enterprises are needed to be supported financially, so ease norms to avail the credit benefits is required to sustain in the competitive markets.

Industries are more motivated for exporting the goods and services to bring more foreign reserves. Therefore, it is important to ease the trade relations between the nations and allows the domestic players to gain more from the international trade.

Tightening the monetary policies should take care of proper supply of money within the economy which control the inflation rate. As inflation rate reduces the purchasing power of consumer as well as reduce the industrial productivity.

Conclusion

The main aim of the research is to find relationship between economic growth rate with broad money, stock traded total value to GDP, domestic credit to private sector with one controlled factor export percentage to GDP. The result for the study found that broad money and export percentage to GDP are significant, and stock traded total value at capital market and domestic credit to private sector is insignificant by applying Panel EGLS, cross section SUR.

Although in Brazil economic crisis occurred in the year (2015-2016) where it was a downturn but the major reason behind the contraction of GDP was manipulation of government account and corruption. Brazil economy again started recovering from recession and showed the sign of growth over the years. In the same way China's economy got slow due to decrease in FDI by 34% in the year 2015 which further reduce to 44% in the year 2019.It is seemed that Foreign direct investment plays a major role towards the economic growth of China. In India GDP growth rate got deteriorate in year 2019, found that inflation rate is unexpectedly high and rose to 45%, created negative consequences on economic development. In Russia recession came in the year 2009, GDP contracted to 45% along with capital market stock traded total value declined whereas broad money percentage to GDP rose. Global Recession hit to South Africa in the year 2009 because of increase in rate of unemployment due to growth in vulnerable population. Henceforth, the main reason behind the economic crisis is the money supply which is effect by increase in the broad money which led to rise in inflation rate. The major reform to be implemented for improving the financial efficiency by bringing the equilibrium position of demand and supply of the money in the economy. BRICS countries are emerging economies who have taken major financial reforms to deal with recession period. As per the study broad money and in export of goods and services are the constraints where government needs to take major reform, along with proper measure to control inflation must be emphasized.

The study is confined to broad money, domestic credit to private sector, stock traded total value as main barometer for the measure of financial development. The area under the financial system is very vast and study has covered only negligible portion and sidelined the others in the present study. The paper is based on annual data which neglected the quarterly effect of independent factors on the economic growth.

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