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Measuring A Nexus Between Financial Sector Development and Economic Growth in Case of Pakistan: An Empirical Approach Using Ardl Method

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Abstract: The primary objective of this research based on empirical investigation, is to identify the nexus between financial sector development and economic growth in case of Pakistan. Present Pakistan's government took many initiatives to develop more efficient financial sector in order to facilitate more suitable business and economic environment in the country. Due to these initiatives, Pakistan's GDP growth rate increases successfully even in the period of corona virus pendemic that affects many developing and developed countries negatively. for this purpose, times series data is utilized, time span from 1971 to 2020 by applying econometric techniques to measure the relationship among variables of interest. The result of the study establishes both long-run and short-run dynamics of variables. In the last section of the paper, conclusion with policy recommendations is also included.

Keywords: Financial development, economic growth, ARDL, Pakistan

JEL Classification: N1, O11, O43

1. Introduction

Financial sector may be define as a combination of different institution(s), market(s) instrument(s) and regulatory body that allows credit extending for the purpose of making different transactions. Principaly, development of financial sector results in reducing "costs" that incurred in the financial sector. Costs that incurred in the financial system by making financial contract, performing different functions by intermediaries and markets, is in the form of acquiring information, enforcing contracts, and making transactions. Similiarly, costs incurred by acquiring information, implementations, regulatory authority and taxation system emerged distinct financial contracts, markets, and intermediaries across countries and throughout history.

Functions of financial system

In view of above explanation, the following functions are performed by financial system i-e.

(i) creating information regarding future expected investments and allocating capital thereof.
(ii) observing existing investments and applying corporate governance after giving finance
(iii) facilitating the trading, diversification, and management of risk;
(iv) mobilizing and pooling savings;
(v) easing the exchange of goods and services.

Biseds, the existing literature related to financial sector development studies, also suggested and provide evidence that highlighted a strong nexus between financial sector development and economic growth by promoting accumulation of capital, increasing savings and its impact on technological development, relating demand for funds to supply of funds for future investment, providing platform for inflows of foreign capital and investment as well as optimizing the capital allocation.

The existing literature also suggested that economies with well-functiong financial system are more capable to sustained economic growth as compared with those economies that having less efficient financial system. So, it is a concreate conclusion that: financial sector development is not simply an outcome of economic growth; it contributes to this growth.

By developing more appropriate microeconomic models, specifically related to poverty alleviation and reducing inequality, it is also suggested that by giving more access to finacial system (for instance branchless banking) to the poor and socities' vulnerable segment, assistance in sharing risk resulted from different shocks such as corona virus pendimic as well as enhancing their productivity by different microeconomic policies such as vocational traingings result in generating more income in their pockets. Another important aspect of development of financial sector, is its assistance in the growth of (SMEs) by giving them more opportunites through access to finance. It is obsereved that SMEs are designed in such a way that their production are more labor intensive than large scale industries so financial sector development may increase their contribution in giving more job opportunites and reducing unemployment.

development of financial sector has multidimensional effecs ranges from macroeconomic to mircoeconims. It provides a sgrogh baseline for bussines environment and its impact on long term growth. It also links diversified sectors of the economy for the development fo economy as a whole. It is a lifeblood of the economy and help in managing smooth economic environmemtn.

Measurement of financial development

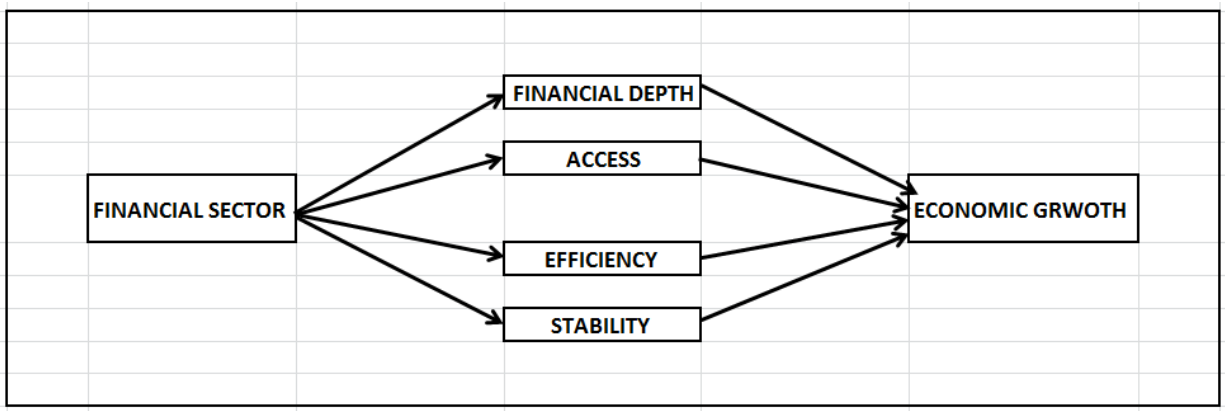
There is a need to develop a better measure of financial sector development as in order to masure its impact on overall economic development and its understanding. A better meaure also helps to identigy potential benefits and problems that are necessary to overcome. practically it is not an easy task to measure because of its multidimensional nature.
The WB's FDD constructed an easy and concrete database for the purpose of measuring the development in financial sector around the world. According to this conceptual framework, different variables used as proxies to develop the system such as financial depth, access,

efficiency, and stability. These variables are related to measure the development in terms of financial institutions and financial markets.

Conceptual framework and organization of the paper

In order to meaure the impact of financial sector development on economic growth, World Bank financial data base conceptual frame work for financial sector development is applied and decomposes into four proxy variables such as financial depth, access, efficiency and stability.

Section 1 of the paper comprises of introduction with concept, functions, measeuremt and conceptual framework of the study. Section 2 comprises of Reviw of existing literature. Section 3 includes Methodoly of the paper. Sectoin 4 includes estimation, results and discussion. Similarly, Section 5 of the paper comprises of conclusion and policy recommendations.



Souce: proposed by author using WB conceptual framework

2. Review of Literature

Levine (1993) investigated by using panel data for eighty countries and concluded that there is a direct relatioinship between financial development and economic growth. The paper also suggested that if financial sector is efficient, it will create more investment opportunities and can help to incrase more capital accumulation that leads to long term economic growth.

Guidotti (1995) this research uses panel data for ninty eight countries time span from 1960 to 1985 concluded similar result as above and suggested strong positive correlation between economic growth of a country with the development of financial system through the cahnnel of investment and more capital accumulation by increasing saving. Whereas, in case of Latim America it was found that this correlation was found insignificant by using panel data for the period of 1950-1985.

Apergis et al. (2007) examined panel data for fifteen OECD countries and fifty countries not included in OECDs time span from 1975-2000. The paper concluded that if financial sector is

efficient, it will create more investment opportunities and can help to incrase more capital accumulation that leads to long term economic growth.

Akinov et al. (2009) also supported that there exist a positive relationship between financial development and economic growth. The paper also highlighted that if the financial system is efficient, it will create efficient allocation of recounces among economic agents and reducing technical and allocative efficiency on the basis of demand and supply process.

Akinboade (2000) concluded that in the period of reforms in financial system of Tanzania exhibits a strong positive correlation between fiancal sector development and economic growth.

Arcand et al. (2012) utilized panel data for the study for hundred countries time span from 1960 to 2010 and found that the ratio of private sector credit to gross domestic product is less than 100 percent, the effect of financial sector development on economic growth is favorable. Whereas if this ratio is greater than 100 percent, the effect on economic growth is not favorable and will not tends to stimulate growth.

Law and Singh (2014) the study investigated eighty seven countries by using panel data and provided the conclusion that the threshold value is eighty eight percent when private sector credit (PSC) to gross domestic product (GDP) is used as proxy for financial system development, whereas when the ratio of illiquidity liability (IL) to gross domestic product (GDP) is used as proxy variable for financial development, the threshold value is ninty one percent. The conclusion suggested that the effect is statistically insignificantl when PSC to GDP is more than 88% and when IL to GDP is more than 91%.

Adusei (2013) applied empirical investigation techniques by using timeseries data on economy of Ghana and concluded with negative relationship between FD and EG. The paper further identify the reasons for this negative relationship and explains that lack of supervision on financial sector, banks and other institutions are less informed about future and safe investment, unable to identify bad and good customers, lack of skilled proffessionals are important to overcome the problem of this negative relationship.

Zhang et al. (2012) found a strong positive connection of financial development and economic growth by using data for city level of 286 cities time span from 2001 to 2006. China has join World Trade Organization (WTO) in 2001, due to this, domestic banks in China have imporved their efficiency for better services and able to compete with other foreign banks. As a result, these induced changes in financial sector resulted in stimulate economic growth in China.

3. Research Methodology

Data collection:

In this paper Secondary time series data is used to mesure the econometric model time span from 1970 to 2020 with respect to Pakistan. The data for variables are collected from national and international organization such World Bank, State Bank of Pakistan and various national and international isssues publilshed in different years.

Econometric Model

The paper utilizes an (ARDL) approach to examine the direction of dependency among variables of interest. This approach has one of the advantages is that, this technique does not involve the step of checking variables are integrated at I(0), I(1) or a grouping of both.

in order to collect robust results, an ARDL method is used to obtain long run and short run dynamics of the variables as the technique provide the existing of convergence among parameters without losing information relating to long run behavior. The following econometric model is to be calculated:

$$RGDP_t = \beta_0 + \beta_1 BA_t + \beta_2 DMA_t + \beta_3 BIM_t + \beta_4 BCD_t + u_t \quad (1)$$

Where,

RGDP: Real GDP
BA: Bank accounts per 1,000 adults
DMA: Deposit money banks' assets to GDP (%)
BIM: Bank net interest margin (%)
BCD: Bank credit to bank deposits (%)
"u" represents error term

The ARDL illustration of above mathematical equation can be written as:

$$\Delta RGDP = \alpha_0 + \sum_{i=1}^{n} \alpha_{1i} \Delta RGDP_{t-i} + \sum_{i=0}^{n} \alpha_{2i} \Delta BA_{t-i} + \sum_{i=0}^{n} \alpha_{3i} \Delta DMA_{t-i} + \sum_{i=0}^{n} \alpha_{4i} \Delta BIM_{t-i} + \sum_{i=0}^{n} \alpha_{5i} \Delta BCD_{t-i} \; \beta_1 RGDP_{t-1} + \beta_2 BA_{t-1} + \beta_3 DMA_{t-1} + \beta_4 BIM_{t-1} + \beta_5 BCD_{t-1} + e_t \quad (2)$$

In this equation,

Δ is the first difference operator
α_0 is the drift component
e_t is usual white noise residual

The mathematical representation of an ARDL method explained in eq. no.2 also gives the measure of short run and long run coefficients. In this equation coefficients shown as (α_0 to α_5) highlighted the shortrun explanations of variables. Whereas, expression highlighted as (β_1 to β_5) explain the longrun behavior of variables.

4. Estimated results and explanation

Tab. No. 1

ARDLE

ARDL 1,0,0,1,0 based on (SBC)

Variables to be estimated	Estimated Coeff.	Std. error	t-statistics
RGDP	0.7290	0.02345	5.4535 (0.000)*
BA	0.6365	0.31853	3.5641 (0.039)**
DMA	0.1228	0.08732	4.6532 (0.005)*
BIM	0.6784	0.04352	2.8654 (0.005)*
BCD	0.8794	0.65433	2.0034 (0.005)*
C	3.0023	1.28952	1.8309 (0.078)***
R-Squared 0.82230	**R-Bar-Squared 0.73210**	**F-statistic (prob.) 25.0884 (0.00)**	**DW- 1.9660**
Serial Corr. 0.6321 (0.820)	**Fun. Form 1.2836 (0.222)**	**Hetr. 0.01243 (0.932)**	

Source: author's tabulation and summarization: sig. at *1%, **5%, and ***10% level

The above table's explaination based on Schwarz Bayesian Criterion highlighted selection of maximum lag that are included in autoregressive distributed lag estimates, best for estimation. Tab. No. 1 also explains the results that make the model acceptale in view of the presence of no serial correlationa as the result fail to reject the null hypothesis (probab. 0.820) more than 1%, 5% and 10%. In addition to this, the above tanble also explains to accept the null hypothesis of correct functional form as well as the assumption of homoscedasticity. In case of the acceptance of overall model , it is also highlighted that the probability of F-statistic is 0.000 indicated that overall the model is significant. The question of how much the part of selected regression explains the dependent variable? Is also answered by above tanble as the value of R^2 is 0.822 and adjusted R^2 is 0.732.

Tab. no. 2

Estimated co-efficients (Long Run) by ARDL method

Var.	Co-efficient	Std.Error	t statistics (Prob.)
BA	1.2876	0.46343	2.4433 (0.043)**
DMA	1.7654	0.65321	2.7654 (0.032)**
BIM	0.6543	0.78543	4.2654 (0.055)**
BCD	0.5633	0.98762	3.6754 (0.045)**
C	5.8734	1.56321	3.7681 (0.002)*

Source: author's tabulation and summarization: sig. at *1%, **5%, and ***10% level

Tab. no. 2 explains the the behavior of variables in long run. it is highlithed that the variables are showing positive relation with economic growth i-e with dependent variable and are significant at

5% level. The above long run estimates establishes a strong nexus and support the theorital framework that is proposed in this paper that if the county is undergo to develop its financial system, it will lead to stimulate economic growth by various channels. It is also explained by proxy variables of the model that if country make policies to increase access, enhance finacail

depth, increases efficiency and increases stability, the effect of these policies are favorable that make the economy more strong.

Tab. no. 3
ECM Model

Var.	Co-efficient	Std. Error	t-stats.	Probab.
D(BA)	0.44876	0.3012	2.1553	0.038**
D(DMA)	0.12228	0.0376	3.0543	0.005*
D(BIM)	0.6432	0.3241	2.4109	0.045**
D(BCD)	0.7623	0.5432	2.9966	0.044**
D(CONST.)	3.0123	1.3287	1.8954	0.077***
ECM(-1)	-0.2954	0.1007	-2.2011	0.002*
R-Squared 0.5534	**R-Bar-Squared 0.40443**	**DW- Statistic 2.0054**	**F-Statistic (8.8120)**	**0.001**

Source: author's tabulation and summarization: sig. at *1%, **5%, and ***10% level

Tab. no. 3 summerised the details regarding the behavior of variabes in the short run calculated by ECM. In this short run explanation, all the selected variables are significant and the short run dynamics of said variables are accepted.

5. Conclusion & Policy recommendations

The paper is an endeavor to measure the effect of policies related to financial sector development on economic growth. Pakistan's government made various laws and policies in collaboration with FATF and World Bank for the development of financial sector related to access, financial depth, efficiency and stability. The paper also support and concluded the strong nexus established between financial sector development and economic growth by measuring longrun and shortrun dynamics using ARDL approach. The following recommendations are suggested in this regard: there is a need to be more simplify the process of access to financial sector by making people more informative. By making healthy relationship among banks and customers. In addition to this , by making regularity authority more authoritative that makes the decisions independently. Similarly, stability of financial sector must be considered without any internal and external influence.

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