# Impact of Financial Development on Commercial Banks Profitability: Evidence from South Asian Countries.

*By*

**Ahmad Ali**

**PIDE2017FMPHILBE03**

**Supervisor**

**Dr. Nadeem Ahmad Khan**

**HOD, Business Studies**

**Department of Business Studies, Pakistan Institute of Development Economics (PIDE), Islamabad (2020)**

# Pakistan Institute of Development Economics

## CERTIFICATE

This is to certify that this thesis entitled: **"Impact of Financial Development on Commercial Banks Profitability: Evidence from South Asian Countries"** submitted by Mr. Ahmad Ali is accepted in its present form by the Department of Business Studies, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree of **Master of Philosophy in Business Economics**.

External Examiner:

Dr. Zaheer Abbas
Assistant Professor
IIU, Islamabad

Supervisor:

Dr. Nadeem Ahmed Khan
Head
Department of Business Studies
PIDE, Islamabad

Head, Department of Business Studies:

Dr. Nadeem Ahmed Khan
Head
Department of Business Studies
PIDE, Islamabad

# Author's Declaration

I, Ahmad Ali, hereby solemnly declare that my MPhil thesis bearing the title *"Impact of Financial Development on Commercial Banks Profitability: Evidence from South Asian Countries"*, is my own work, except where otherwise acknowledged, and that the project is my own composition. No part of the thesis has previously been presented / submitted for taking any other degree from this University, Pakistan Institute of Development Economics, Islamabad or anywhere else.

Date_____

*Ahmad Ali*

*Dedicated to my beloved parents, teachers and my siblings for all their love, support, and inspiration.*

# ACKNOWLEDGEMENTS

# Abstract

This study investigates the impact of financial development on profitability of commercial banks in South Asia. For this purpose, the study employs a sample of five South Asian countries (Pakistan, Bangladesh, India, Nepal, and Sri Lanka) during the period of thirty years spanning from (1990-2019). There are two empirical models in this study. In model one, Variables of CPI, GDP, Bank Credit, and Domestic Credit show negative impact on ROA whereas variables of Private Credit and Bank Deposit show positive impact on ROA. Similarly, in second model variables of CPI, GDP, Private Credit and Domestic credit show positive impact on ROE whereas variables of Bank credit and Bank Deposits show negative impact on ROE. Hausman specification test shows that random effect model is appropriate in both models. Panel ARDL model used to check the Long run and short relationships. The ARDL results show that long run relationship exists between variables. The ECM values show that convergence in both models.

**Key Words:**

Financial development; Commercial banks; Profitability; ARDL; ROA; ROE; South Asian countries

# Table of Contents

# *LIST OF FIGURES*

## LIST OF TABLES

# CHAPTER 1

# Introduction

## 1.1 Profitability

Profitability is central aim to the operations of commercial banks. As financial sector expanding allows financial intermediaries to carry out their role of mobilizing, and directing national savings into more industrious capital much effective way (Ndege, 2012).

As profitability is one of the main objectives of commercial companies, to obtain higher profit margins or high returns upon their investments permits firms to recommence their capitals, hire much more workers, execute innovations and develop processes, which allows them to augment and increase their value creation. Banking firms are not the exception; these institutions are also concerned about competitive strategies, efficiency plans and risk management, with the objective of triggering profit (Vera-Gilces P. et al., 2019). Financial development, financial depth and financial openness are considered to immune and significant for the profitability. Enlarged ease of access to the banking service employs this in developing the functioning of financial intermediary. Yet more credit would be inserted into the bank system to generate more profit (Bourgain et.al, 2012).

## 1.1.2 Financial development

Financial development becomes a priority for policymakers, legislators, and governing bodies and also for the development agencies internationally, as this has been defined as an enabler for seven of seventeen sustainable development goals (Demirgüç-Kunt et al., 2015).

The idea of promoting financial development was publically applied in 2009 when the Queen of Netherlands becomes *Special Advocate* of *United Nations Secretary-General* (UNSGSA, 2016).

Well-function financial sectors have numerous benefits and contributions toward inclusive growth of the economy. Such financial intermediations play their roles via transmitting and also allocating of scarce resources (Beck et al., 2000 and Ross L., 2005). Furthermore, developed financial institutions are the most significant component of the markets in developing economies by reason of its role in allocation of scarce resources (Ben et al., 2016).

Financial development points toward the all-inclusive adult member of a society who is allowed for access of varieties of appropriate financial services. Plans built on the requirements and delivered on reasonable prices. Recognized financial development began accompanied by deposits or transactions accounts, by a bank, or another financial services supplier, at the objectives of sending and receiving payment in addition to keep or save money (Demirguc-Kunt et al., 2017).

After an advanced phase, financial development furthermore involved in access to proper credit from informal to formal financial institutions, on top the usage of insurances product which allows the peoples to moderate financials risk for instance floods, fire, or crops impairment (Demirguc-Kunt et al., 2017). Those countries having well-functioning banking sectors covering loans and offering deposits to a large segment of the residents is likely to acquire stability-enhancing broad and sound effects (Khan, 2011; Cull et al., 2012). Furthermore guiding principles for financial development have also been based upon the reason that the higher financial development has a capacity to bring financial stability advantages (Hannig and Jansen, 2010). Consequently, when the banking sector with a high

level of financial depth may be more stable, the progression of becoming much financially inclusive raise the policy test of keeping credit development at sustainable level (Becker et al., 2016). In the line through which there are evidences that retail deposits were much stable than that of wholesale deposits throughout the global financial crisis (Gertler et al., 2016).

The increase of financial development may create a win-win situation through which countries gain growth and sustainability (Rahman 2014).

Moreover, access to the accounts by financial development, better savings amongst poorer and farmers, lead to the increase in agricultural yield and also household expenditures (Demirguc-Kunt et al., 2017). The savings are more encouraged by the financial development, which leads to improved productive investment and these savings further triggers domestic business (Babajide et al., 2015). Growing financial development also gives households the easy opportunities for more savings and borrows products because of smoothing consumptions (Mehrotra & Yetman, 2015). As the low-income groups of population have comparatively immune to absorbs fluctuation of economics cycles, counting and including them in financial sector would improve stability of deposits as well as the loans based in the financial system (Hannig et.al. 2010).

The incapacity of some segments of population to seek access to the financial systems which lead to lower level of investment because of lack of credit and then resulting need for individuals to turn to the informal sectors to get credit at much more high interest rates (Kim, 2016). Despite the fact that informal finance is not reliable and also more expensive, substituting informal with formal financial sector service is not unlikely to raise the income level and welfare of the poor peoples. It made inclusive finance an area where finance is realized as definitely useful (Zingales, 2015).The consequence of banking concentration support the concentration-stability hypothesis (Baselga-Pascual et al., 2015). Therefore

banking sector with a large loan-to deposit share is to be expected to show a much more credit growth (Richter et al., 2017). Financial development affects banking business efficiency and productivity by competition and in the long run more efficient resources allocation, which lead to increases the productivity of investment, and also mobilized savings into investment projects, which are normally passing through the banking sector (Nwangolo et.al, 2018).

**1.1.3 Financial development and diversified retail deposits funding**

The Banks are deliberately participating in diverse type of intermediation businesses and also choice assets and funding arrangements to attainment of business goals (Roengpitya et al., 2014). By selecting the sample of 222 banks internationally, they investigated three different business model of banking and for estimating the assets and funding plans they classified the findings retailed funds, wholesale funds, and market oriented capital. They further explained that retailed funded banks are those banks which depend on larger unwavering funding sources, containing deposits, and also having a large segment of borrowing upon balance sheet (Roengpitya et.al. 2014).

**1.1.4 Financial development, marginal costs, and market power**

Contemporary literatures elaborated that space among financial institution and customer reduces efficiency of financial service by strengthening the asymmetric statistics problem (Elyasian et.al, 2008). (Marquez et.al. 2006) also examined this that the financial institution obtains accurate indication about the customer advantage while the distance is reduced. Reducing the distances of financial institution will make a good connection and hereafter take on the benefit of well-informed customers. Because of the competitive advantages of best information banks can make well-judged loaning decisions and also fix the prices

consequently notwithstanding the fact that moderating moral hazards and un-favorable selection problems (Buch et al., 2012).

There is a fact that the social, technological, economic and political areas have become major causes that might have an impact upon financial development:

## 1.1.5 Socio demographic aspects

Social determinants of business eco-system might play the important role in stimulating financial development as social welfare defines how people act and perform their decision upon financial market (Ehrbeck et.al. 2014). Social welfare may have impact upon the depth of usages of financial services and Socio eco-system affects the demand side of the financial development as well as humps the development (Dev et.al. 2006).

## 1.1.6 Digital (Technological) factors.

Much more innovative corporations entered into the market and offered daily financial transactions at less expense and also better suitable for their customers. This makes an upswing to the digital financial platforms. This eco-system of the financial development is now shifting with new stakeholders entering in the digital world (GPFI, 2014). Advantages of triggering financial development in the developing world currently increased the use of technology – mobile banking, branchless banking, cashless banking, (De Koker et.al. 2013).

## 1.1.7 Economic factors.

Contemporary literature elaborated that the poverty and inequality have negative impact on access of formal financial facilities (Kpodar et.al, 2011). (Pal and Vaidya 2011) disclosed that financial development and economic growth have progressive relationship.

**1.1.8 Political factors.**

The political domain of influence has always been dominating in the field of financial market. It plays a vital role in boosting it, the lack of proper legislations, sustaining up development (DemirgucKunt et al., 2008) number of countries of the world takes initiatives in promoting financial development, including mobile banking solutions (Borowik, & Zerzan, 2008).

**1.2 Research gap**

As the lack of support by banks and financial institutions which are not conjoining with policy bodies, challenging to achieve financial development through banks. Banks normally conducted inner cost benefit analysis in advance to participating in national financial development programs. If the cost surpasses than profit, banks are unwilling to take part in the national financial development programs particularly when governments are unwilling to repay the expenses to banks. These countries' private sector and public sector banks are operating. Private sector banks unwilling to take part in financial development programs for instance the private sector banks wait till the government's usage its public sector banks to achieve its national financial development programs. Although the bank regulatory authorities forced banks to participate in state financial development programs, many private banks have a preference to usage public funds and permit the banking channel to attain goals.

The analytical impact of financial development on profitability is contribution in the identification of those challenges which commercial banks are facing to get the target. By exploring the major and specific factors affecting the large set of data on South Asian countries for a period of three decades.

**1.3 Objective of the study**

- To investigate the impact of financial development on commercial banks profitability.

**1.4 Significance of the study**

This study makes the following contributions to the extant literature it takes the analytical discourse beyond extension to strengthening of financial development by exploring how financial system can formalized the informal peoples and played a vital role to achieving seventh sustainable development goal and also the national financial development programs. One, this study contributes to the literature that examines the role of financial development for better development outcomes in developing countries. Secondly, this study contributes to the on-going debate led by the World Bank in support of financial development as an effective solution for poverty reduction in developing and poverty-stricken countries. Thirdly, for academics and researchers, the discussion in this study adds to the emerging financial development literature that attempt to proffer solutions to reduce the current level of financial exclusion in poor economies. The ideas in this study calls for more collaborative research to better understand the consequences of financial development and its impacts on commercial banks profitability. Finally, the discussion in this study contributes to the emerging studies that examine the role of financial innovation in promoting financial development. Insights from this study can improve our understanding of the role of financial technologies in increasing the level of financial development. Insights from this study can also help financial system regulators gain a better understanding of the link between technology and personal finance to help them determine whether regulation is needed or not.

**1.5 Research Hypothesis**

The hypothesis statement is:

Ho: Financial development has a positive impact on commercial banks profitability.

H1: Financial development has no impact on commercial banks profitability.

## 1.6 Organization of study

This study comprises the following sections. Chapter#1 the introduction, Chapter#2 discusses the theoretical, empirical literature, Chapter#3 Data and Methodology, Chapter #4 discussed Estimation and Discussion, Chapter#5 Conclusion and at end References and Appendixes are given .

# CHAPTER 2

## Literature Review

The literature review provides information given on the same topics in previous studies and their methodologies.

Kofi et al., (2020) examined the impact of financial regulation on financial development in Sub-Saharan Africa, considering the moderating role of financial stability. They analyzed the relationship amongst financial development and the more prominent macro sensible regulations term as capital adequacy. They finding concluded that the constricted regulations will be adversely affect the access finance, and so unable to get along with Sub-Saharan African economies financial development goals. Furthermore, the capital adequacy or macro-prudential regulations requirements extremely reduced banks capability to make available financial services, lead to sinking credits rationing and thus sinking financial development. The estimating does specify that, financial code of practices with financial stability absolutely affects financial development. As the ruling bodies augment financial development have to formulate those policies which will be targeting and sinking capital adequacy.

Le, Tu DQ et al., (2020) they examined the factors affecting bank profitability in twenty three (23) countries and used the data set from period (2002-2016) by using GMM system. The results indicated that IT base operations of services and products delivery, for example bank's cards, and ATMs cards, and as well as Point of sale channels might develop the bank profitability. For this reason, the retail banking is more profitable source. The empirical results also show that there was adverse relationship amongst the bank costs and profitability. Furthermore interesting results, which were demonstrating the negative affect of market

power upon banks profitability, which also signifying that the greater concentrated banking system improved banks profitability.

Liu et al., (2020) investigated the nexus between financial development (FD) and foreign direct investment (FDI) in the context of a heterogeneous panel of One Belt One Road partner countries, using a relatively new FD index proposed by the International Monetary Fund. The results show that FD has a significant and positive impact on attracting foreign investments. However, panel threshold regression find that countries with FD below a threshold of 0.1803 are less attractive to foreign investors. The finding implies that to maximize the benefits of FDI, economies in the region will have to deepen their financial sector above this threshold. Interestingly, the financial system of emerging markets and low income countries in the sample significantly and positively affects FDI, but this relation disappears among advanced markets. Overall, the findings were robust to alternative estimators, addressing endogeneity, cross-sectional dependence, heteroscedasticity, and serial correlation.

Khek et al., (2020) examined how information technology (IT) impacts financial inclusion and increased the profit of commercial banks in Cambodia applying two-stage value chain DEA method. This model also provided the efficiency scores and approaches the factors within financial inclusion and commercial banks profitability mechanism. The results suggested that financial inclusion was backed up by robust significant technology whereas profitability was secured at 76.5 % of total banks' profit. Moreover, by the use of IT-based transactions at 32% the banks and financial institution might enhance 28 % of profit, and also 78 % of ATMs had been used to endorse the access and financial usages. From the analysis, improved institutional IT base can increase the financial inclusion and achieved higher the profit efficiency.

Nasreen et al., (2020) examined the role of financial globalization, institutions and economic growth on the development of financial sector in European countries. They use panel data covering the period of 1989-2016. Using the composite index of financial development covers various dimensions of financial market, that is, depth, access and efficiency. The empirical results indicate that economic growth and institutional quality are positively associated with financial development. Contrarily, financial globalization holds back the process of financial sector development. The results were robust to using alternative proxies of economic growth, institutional indicators and capturing the period of financial crisis.

Hossain et al., (2020) examined the relationship between local financial development and firm growth. As bank's default credits risk and the cost of branch expansion define the optimum number of bank branches in a region. Due to high number of bank branches will minimize asymmetry of information about monitoring costs and borrowers, which leading toward lowering default risks. The study analyzed survey data of 1084 manufacturing small and medium enterprises from Bangladesh. The empirical results showed that there was a threshold level of bank branches which might make progress of small and medium enterprises performances at the sub-district level. Furthermore their findings highlight the significance of potential of returns to an optimum bank branching strategy at the sub-district level which will lead to financial development and growth within a country. The local financial development with an optimum banks branching strategy at the sub-district level will enhanced small and medium enterprises performance. Both IV regression estimates and propensity score matching (PSM) methods ratify robustness of the results. For the policy objectives, the results of this study highlight the requirement of the expansion of bank branches at the sub-district. Developing and applying the optimum banks branching strategy is very important as this will probably to increase banks' returns through decreasing default risk and borrowers monitoring expenditures. On the other hand, firm's performance will too

be improved through easy access to credit in the line of low default risk of bank. It will create a win-win situation for both small and medium enterprises and banks.

Tandra.et al., (2019) surveyed the impact of financial development towards commercial banks profitability in the Indonesia for the Year 2012 to 2017 as Indonesia was facing the low level financial development on index. The government was been trying to push the commercial banks to ripen the financial development for the society. Though this was the part of the banks' obligation to follow the governments' orders, there was no solid evidence whether this program was favorable for the commercial banks. Annual data of 10 commercial banks of Indonesia for a period 2012 to 2017 were collected and analyzed. For analyzing the data, the authors used multiple linear regression analysis. The regression result demonstrates that the ATMs and the number of credit cards issued had significant impact on the ROAs of commercial banks of Indonesia.

Taghizadeh-Hesary et al., (2019) examined the inclination of financial in-exclusion in Asia and the impact upon financial proficiency as well as financial sustain-ability. For the goal, they select the sample of 31 Asian countries over spanning time of (2004- 2016). Furthermore, the research study was analyzed by using Feasible Generalized Least Squares statistical tools. Estimated results point out the increasing financial inclusion was adversely affected financial proficiency whereas positively influenced financial sustain-ability.

Kangni et al., (2019) looked at financial intermediation was performed through banks or markets—for macroeconomic volatility, against the backdrop of increased policy attention on strengthening growth resilience. With low-income countries (LICs) being the most vulnerable to large and frequent terms of trade shocks, sample of 38 LICs over the period 1978-2012 and find that banking sector development acts as a shock-absorber in poor countries, dampening the transmission of terms of trade shocks to growth volatility. Expanding the sample to 121

developing countries confirms the result, although this role of shock-absorber fades away as economies grow richer. Stock market development, by contrast, appears neither to be a shock-absorber nor a shock-amplifier for most economies. These findings are consistent across a range of econometric estimators, including fixed effect, system GMM and local projection estimates.

Hassan et al. (2018) studies the connection among the financial development as well as economic growth, in Organization of Islamic Cooperation. They tested variables to measures the main factor of financial development, which are bank branches per 100,000 adult, automated teller machines per 100,000 adult, borrower from commercial bank per 1000 adult, deposit account with commercial bank per 1000 adult, and life insurance premium size to GDP. They apply dynamics panel estimation on the panel data of countries. The empirical results show financial development has a dominant part in augmenting economic growth. And there was mutual causality exit between the variables.

Shahbaz et al. (2018a) using time series data of 1971-2013 for the Indian economy, explored the long-run relationship between globalization, institutional quality, economic growth and financial development. They found that though economic growth promotes financial development in India, but globalization, and institutional quality are not conducive to the growth of banking sector as they have detrimental effects on financial development in the long-run.

Shahbaz et al. (2018b) made a comparative time series attempt of exploring the long-run relationship between trade openness, institutional quality and service sector growth for both the Chinese and Indian economies. They found that though institutional quality hinders financial development of both economies, but service sector growth also promotes financial

development. Interestingly, they also found that trade openness enhances Indian financial development but hold back Chinese financial development.

Donaldson et al. (2018) argues that banks are more active on both sides of the balance sheet because they own warehouse technologies to manage client deposits as well as to enforce borrowers to repay their loans. By increasing the lending rate within an economy from the same amount of client deposits, banks are more efficient in the sense of earning more interest income and paying lower capital costs at the same time with a greater chance of liquidity shortage.

Boamah et al., (2018) investigated the relationship among financial depth, gross fixed capital formation and economic growth of 18 Asian Countries. Using a panel data from 1990 to 2017, they document significant impact of gross fixed capital formation and financial depth on economic growth. While gross fixed capital formation was found to positively affect economic growth, financial depth was found to impede economic growth. They also find positive effect of net inflow of FDI on economic growth.

Kim et al. (2018) examines the linkage between financial development and economic growth for Organization of Islamic Cooperation (OIC) countries. Five variables were tested to measure the key factors of financial development, which are bank branches per 100,000 adults, automated teller machines per 100,000 adults, borrowers from commercial banks per 1000 adults, deposit accounts with commercial banks per 1000 adults, and life insurance premium volume to GDP. They apply dynamic panel estimations on a panel data for fifty five (55) Organization of Islamic Cooperation (OIC) countries, the empirical results show that financial development has a central role in enhancing economic growth and there were mutual causalities exits amongst the two variables. Furthermore this study shows some interesting results, and also there were several limitations as well. First, there are major

differences exist between the OIC countries which include the level of financial development. These disparities can be attributed due to the differences in the religions level, policies, illiteracy rate, gender inequality, rate of interest, and level of income. Therefore, it was indispensable to deliberate the factors that might impact the level of financial development in the Islamic countries in modelling. Second this in study; several factors of financial development were examined separately and different models were used as an alternative of a composite index for financial inclusion.

Ahmed et al. (2017) financial inclusion has become an important public policy priority following the recent global financial crisis. Yet, we know very little of how it impacts soundness of the providers of financial services. Using an international sample of 2,600 banks in 86 countries over the period 2004-12, we find that higher level of financial inclusion contributes to greater bank stability. The positive association is particularly pronounced with those banks that have higher customer deposit funding share and lower marginal costs of providing banking services; and also with those that operate in countries with stronger institutional quality. The results are robust to instrumental variables analysis, controlling for bank fixed effects, alternative measures of financial inclusion, among several other robustness tests. Our results highlight that the importance of ensuring inclusive financial system is not only a development goal but also an issue that should be prioritized by banks; as such a policy drive is good for their stability.

Hasan et al., (2017) specifically assess the finance-growth nexus in Indonesia and document an inverted U-shaped relationship between financial development and regional economic growth, although this relationship depends on type of bank credit: among investment credit, consumption credit, and working capital credit, only the latter has a positive and linear effect on regional economic growth.

Iqbal et al., (2017) examined the impact of financial in-exclusion upon the growth, Indian economy for the period 2007 to 2014. Secondary data were applied which have been analyses through multiple regression tools, as the core econometric tool. Empirical results, this study bring into being the progressive and also significant influence on number of banks branch and Credits to deposits ratios upon GDP. ATMs growth was insignificant.

Mostak et al., (2017) investigated the effects of financial development and political connections on bank profitability during the financial crisis of 2008. Findings show that banks located in developed countries suffered more negative abnormal returns around the crisis period, and the size of a banking sector improves bank profitability and asset quality, which strengthen the role of banking sector development. Supporting the view of external capital dependence, financial liberalization was found to be negatively associated with bank profitability and asset quality. Banks with weakened political connections highlight the positive effect of financial development improvement. The negative effect of external capital dependence is minor for banks with consolidated political connections.

Allen et al. (2016) utilized the 2012 WDI Global Findex tested separately the country financial behavior and linked financial development at globally. They explored that more financial development was narrate, to lowering banking cost. A high nearness to financial intermediary, and best institution, for instance resilient legal rights, highly and stable political business eco-system. Moreover, being rich, well educated, metropolitan, working, married and un-married persons were revealed in the favor of financial development.

Sharma (2016) investigated the connection among of the financial development and economic growth Indian. Which is a big market and an emerging economy, panel data were used from the period 2004 to 2013. The researcher tested three main measurements of financial development, penetration, Usages and also access. Data showed positive relation

between economic growth and financial development. Granger causality examination was applied.

Nanziri (2016) investigate the state of financial inclusion in relation to gender gap in South Africa, and find that women mainly use formal transactional products and informal financial mechanisms while men use formal credit, insurance, and savings products in South Africa although there were no differences in the welfare of financially included men and women.

Babajide et al. (2015) applied the annual data series from the period of 1981 to 2012 to examine the impact of financial development upon economic growth in Nigeria. The commercial bank deposits (CMBD), which were stated as 'the number of deposits account holders in the commercial banks and the other residents and also banks functioning as commercial bank which are resident nonfinancial corporations as well as public and private sectors and households. They utilized World Development Indicators (WDI) and used as the proxy variables for financial development in their research study. The pragmatic outcomes indicated that the financial development was a key determinant of the total factors of production and also the capital per worker, therefore impacting the total amount of production in the economy.

Law et al., (2015) empirically examined the causal linkages between globalization, institutional reforms and financial development in East Asian economies covering the data from 1984 to 2008. Using panel cointegration test, they found the strong long-run relationship among globalization, institutional quality, financial development and economic development. In the long run, it suggested in their findings that globalization plays a greater role in directly promoting stock market development and indirectly influencing banking sector development via institutional reforms. In the short run, it is also found that there exists

Granger causality effect running from globalization to institutions and in turn institutions lead development of financial sector.

Kandil et al. (2015) examined the interaction between globalization and financial development in 32 developed and developing countries over the period of 1989-2012 and with help of using panel cointegration and Granger causal analysis, they found that economic growth leads financial development. Globalization impedes financial development. They also found that institutions do not impact financial development in these economies. From a policy scenario, their findings suggest that policies should aim at strengthening the development of financial sector through the institutional reforms and therefore it will help in the efficiency of resource allocation which is essential for long term economic growth of both developed and developing economies.

Corrado (2015) examine the determinants of financial inclusion across 18 Eastern European economies and 5 Western European countries using demographic and socio-economic information on 25,000 European households from the second round of the Life in Transition Survey undertaken during the 2007 to 2008 global financial crises. They find that households affected by unemployment or income shocks and without any asset to pledge were likely to be financially excluded, especially in Eastern Europe.

Fungacova and Weill (2015) investigated and used data from the World Bank Global Findex database for 2011 and study financial development in China, and parallel it with further BRICS countries. The study discovers that the probability of ought to a formal account as well as a formal credits in China was greater for much richer, highly educated and older men. By means of obstacles to financial development which are as follows, the lack of money was much more expected and concern to poor peoples, furthermore to the fact that one more member of the family had a financial account. For the meantime, the educated people more

care about transactions cost and also much trust in banking system. The probability of financial development for women was less because of lack of documentation and also another member of the family owned a bank account. In addition to the mature adults were shown to be extra concerned about lack of money due to distance and religious causes. In conclusion, this research study find that the income level and education influence, on the other hand not the gender, do influenced the use of alternate sources of borrowings, that was, the choice stuck between formal and informal credit. Yet, the education did not result in better access for formal credit in the China.

Aizenman et al., (2015) analyzed the finance-growth nexus in 41 economies, including 11 East Asian and 9 Latin American economies for a comparison between two regions which are at similar income levels. The coefficient estimate of lagged bank private credit services was positive, while the estimate of lagged bank private credit was negative in manufacturing and financial sectors. They documented large differences between the two regions in terms of the impact of financial depth on sectoral growth, and validate the negative impact of financial deepening on output growth in several sectors. Their results suggest that the impact of financial development on growth may be non-linear – i.e. it may promote growth only up to a point.

Triki and Faye (2013), financial development in Africa according to results of their study ,Africa is home of 50 million micro, small and medium businesses, 69% of which operate in the informal sector but contribute 58% of total employment and 33% of the continent's GDP, making them critical for socioeconomic growth. Using 1-year growth rates in employment as a measure of firm growth, the OECD (2009) reports that about 15% of small and medium enterprises in Africa are high-growth firms (i.e. with 1-year growth in employment greater than or equal to 20%). However, the source of financing for their growth is only 8% bank-financed compared with an average of 11% in other developing countries.

Dermiguc-Kunt and Klapper (2012a) show that half the world is unbanked, as only 50% of adults reported having an account at a formal financial institution e a bank, credit union, cooperative, post office or microfinance institution. Formal account use is reported to differ sharply between high-income and developing economies. In high-income economies, 89% of adults reported having an account at a formal financial institution, whereas it was only 41% in developing economies. Improving the economic wellbeing of low-income groups has always remained at the center stage of development policies of governments and donor agencies.

Dermiguc-Kunt and Klapper (2012b) In the World Bank global survey, the most frequently cited reason for not having a formal account in sub-Saharan Africa (SSA) is poverty, i.e. lack of money to use one. This reason was given by more than 80% of adults without a formal account. Cost (e.g. high minimum account balance and high administrative burdens and fees), distance and documentation were also cited by more than 30% of non-account holders in SSA. Young adults cited insufficient documentation, while distance from a bank is an important barrier for adults living in rural areas. In Eastern and Southern Africa, fixed fees and high costs of opening and maintaining accounts were cited as important barriers. It is reported that maintaining a checking account in Uganda can cost the equivalent of 25% of GDP per capita annually, and 54% of adult non-account holders cited cost as a reason for not having a formal account.

Becerra et al. (2012) argue that although financial development increases overall welfare in the long run, it also affects the distribution of rents in the short run. Incumbents may observe their profit margins shrink, countries may face a high probability of a negative shock, and governments may lose some of their revenue sources. The combination of interest groups attempting to safeguard their rents and governments vying for political survival may prove lethal for financial development. They conclude that low opposition to financial development

leads to an effective increase in credit market development only in countries with high government capabilities. Moreover, improvements in government capabilities significantly affect credit market development in countries with high credit dependency.

Kharroubi et al., (2012) studies how financial development affects growth at both the country and industry level. Based on a sample of developed and emerging economies, they find the level of financial development is good only up to a point, after which it becomes a drag on growth. For private sector credit extended by banks, the turning point is close to 90% of GDP. For advanced economies, they show that a fast growing financial sector can be detrimental to aggregate productivity growth. Looking at industry-level data, they find that financial sector growth disproportionately harms industries that are either financially dependent.

Allen at al. (2012) employed the cross-sectional data of 123 countries and 124,000 individuals and observed that the cost of financial services, documentation and distance from intermediaries are important determinants of financial inclusion. Using a financial inclusion index, regressed cross-sectional data of 49 countries and reported a significant positive relationship with factors such as income, human development, education and physical infrastructure for connectivity and information. They also reported significant negative relationships with factors such as non-performing loans, bank capital asset ratios, high share of foreign banks in total banking sector assets and the size of the rural population.

Sackey and Nkrumah (2012) examined the effects of financial sector development on economic growth in Ghana using Johansen Co-integration analysis. The study also examined empirically the causal link between financial sector development and economic growth in Ghana. The result of the study showed that, there is a statistically significant positive relationship between the financial sector development and economic growth in Ghana.

Johannes et al. (2011) using Johasen cointegration established positive relationships between financial development and economic growth in the long run and short run for Cameroon for the period 1970-2005 for Cameroon at 5% level of significance. The result agreed that financial sector development cause economic growth in the long run and the short run. Economic growth is as a result of financial sector development.

Demirguc-Kunt and Klapper (2012) build up and applied the Global Findex database which was based upon the survey and a conducting survey of 150,000 adults in 148 countries in 2011. This initiative delivers thought-provoking indicators of financial inclusion for a micro viewpoint, i.e. for adults and individuals were classified by income groups, genders and education levels of the respondents. These indicators entail of segment of adults population who have an account in a formal financial institution. Those adults who saved and borrowed money by using a formal account, those adults who were using informal methods to save and borrows and shares of adults population with credit/debit cards, with mortgages and also with health insurances. In the meantime, this database was published every three year in more or less than 140 economies. The current Global Findex database was published in 2019 demonstrations that financial inclusion was on a rising tendency at the globe. Unambiguously, 1.2 billion adults were reported took a financial account in the meantime 2011, together with 515 million from the time 2014. Between the period 2014 and 2017, the stake of adult's have an account in a financial institution or through a mobile banking services seems an increasing trend from 62% to 69% throughout the globe and in the developing world this trend was from 54% to 63%.

Adam (2011) examined how efficient the financial intermediation process has been in Nigeria's growth performance. The study employed the OLS approach. The empirical results showed that financial intermediation process is sub-optimal and caused by high lending rate high inflation rate, low per capita income, and poor branch networking.

Akinlo and Egbetunde (2010) examined the long-run and causal relationship between financial development and economic growth for ten countries in sub-Saharan Africa using the vector error correction model (VECM). The study revealed that financial development is co-integrated with economic growth in the selected ten countries in sub-Saharan African countries. It went in Central African Republic, Congo Republic, Gabon, and Nigerian while economic growth Granger causes financial development in Zambia and a bidirectional relationship between financial development and economic growth was found in Kenya, Chad, South Africa, Sierra Leone and Swaziland.

Muhammad et al., (2010) estimated the impact of trade openness and financial development on economic growth of Pakistan by using time series data from 1980-2009 by employing Bound Testing (ARDL) approach. The analysis demonstrates that in the long-run, trade openness and financial development both increases economic growth by almost 0.453% and 1.657% respectively. While in the short-run, the results indicate directional causality between trade openness (TOP) to Granger-caused economic growth (GDP) and M2 Granger-caused GDP.

Rojid et al., (2009) investigated the relationship between financial development and the economic performance for the case of 20 island economies over the period 1980-2002 using both static and dynamic panel data analysis. Using two indicators for financial development, results from the static analysis shows they have a positive and significant effect on the level of economic growth. The contribution of financial development is, however, observed to be on the lesser extent as compared to the other explanatory variables, with investment, openness and education being the most important elements. Financial development was also reported to impact positively on investment level as well. Using GMM dynamic panel estimates the above results are confirmed and moreover the presence of dynamic in the system has been detected. As such the short run coefficient from the GMM estimates were

23

reported to be lower and may mean that it takes time for the growth ingredients to reach their potential.

Hasan et al., (2009) studied the positive relation between financial development and economic growth seems to have weakened in recent years and when analyzing only developed countries. They suggest here that banks' relative ability to intermediate funds cost-efficiently was a quality-based measure of financial development that complements conventional quantity-based measures. They test this quality finance-growth nexus for a comprehensive sample of more than 100 countries during 1996–2005. We find an independent and economically significant effect of higher mean cost efficiency for economic growth, suggesting that the interaction between better banking and deeper capital markets was indeed most beneficial. However, conditional marginal effects imply that the positive effects of deepening capital markets were only significant beyond a certain efficiency threshold of approximately 70 percent.

Nzotta and Okereke (2009) stated that the relationship between financial development and economic growth can be expressed in three different ways: supply leading hypothesis, demand following hypothesis and bi-directional causality. According to them, supply leading hypothesis supports a positive impact of financial development on economic growth. It then implies that financial development impacts on level of development in every economy. They explained that demand following hypothesis states that finance actually responses to change that happen in the real sector. Put differently, variations in the stock of financial assets would be a function of growth in the real sector of the economy. Bi-directional causality hypothesis, according to them is somewhere between these two in that it claims mutual impact of finance and growth.

Ang (2008) studying the effect of financial sector policies on financial system development in Malaysia during the period 1959 to 2005 found that economic development, control of interest rates and liquid capital requirements positively affect the financial development. However greater trade openness, high reserve requirements and the presence of managed credit programs appear to be destabilizing for financial system development.

Mitton (2008) show that people outside the UK formal financial sector suffer financial disadvantages such as higher-interest loan, lack of insurance, no account into which income can be paid, and higher cost of utilities. Also, even those with bank accounts may barely use them, preferring to withdraw all their money each week and manage it as cash. Mitton also noted that the number of adults in the UK without a bank account fell from 2.8 million between 2002 to 2003 to 2 million 2005 to 2006. Mitton show that despite the progress made towards greater financial development in the UK, there will continue to be people who cannot take full advantage of bank accounts and other financial services, and the reasons for this depend on the different characteristics of vulnerable groups and their low income level.

Wu et al. (2007), who examine the effect of financial development (measured through monetarization (M2/GDP), financial interrelation ratio, and capitalization level on the operational performance of 14 commercial banks in China and conclude that a high monetarization level improves, bank performance, that is, return on assets (ROA). Sample of 521 banks from 42 countries, including both developed and developing countries. The different financial development levels in these countries enable to provide an overall view of the relationship between financial development and bank performance. They use two comprehensive proxies to determine financial development in each country. The first proxy measures the overall size of the banking sector, whereas the second proxy measures financial liberalization. Finally, this study considers the role of the government, that is, whether government involvement affects bank profitability under a given financial development level.

This study determines that banks from developed countries have a slightly lower ROA (0.15 % versus 0.69 %) and slightly lower non-performing loan (NPL) ratio (5.01 % versus 6.10 %) than banks from developing countries during the period of 2008 to 2009; however, the differences are insignificant. The size of the banking sector is positively, whereas financial liberalization is negatively, associated with bank asset quality.

Levine and Schmukler (2005) find evidence of a causal link between market size and financial depth when looking at domestic market liquidity in emerging economies; they find that when some firms decide to raise finance abroad, the remaining domestic firms' trading liquidity was adversely affected. They find that financial development was positive association between size and quality. The quality of a financial system –financial development was proxied by measures of market size such as ratios of private credit to GDP or stock market capitalization to GDP.

Wadud (2005) examined the long-run causal relationship between financial development and economic growth for 3 South Asian countries namely India, Pakistan and Bangladesh. The study employed a cointegrated vector autoregressive model to assess the long-run relationship between financial development and economic growth. The results indicated causality between financial development and economic growth.

Azege (2004) examined the empirical relationship between the level of development by financial intermediaries and growth. The study employed data on aggregate deposit money bank credit over time and gross domestic product to establish that a moderate positive relationship exist between financial deepening and economic growth. He concluded that the development of financial intermediary institutions in Nigeria is fundamental for overall economic growth.

Christopoulos et al., (2004) investigate the long run relationship between financial depth and economic growth, trying to utilize the data in the most efficient manner via panel unit root tests and panel cointegration analysis. They use cointegration tests, and dynamic panel data estimation for a panel-based vector error correction model. The long run relationship was estimated using fully modified OLS. For 10 developing countries, the empirical results provide clear support for the hypothesis that there was a single equilibrium relation between financial depth, growth and ancillary variables, and that the only cointegrating relation implies unidirectional causality from financial depth to growth.

Odihiambho (2004) investigated the role of financial development on economic growth in South Africa. The study used three proxies of financial development namely; the ratio of M2 to GDP, the ratio of currency to narrow money and the ratio of bank claims on the private sector GDP against economic growth proxied by real GDP per capita. He employed the Johansen cointegration approach and vector error correction model to empirically reveal overwhelming demand-following response between financial development and economic growth. The study totally rejected the supply leading hypothesis.

Waqabaca (2004) examined the causal relationship between financial development and growth in Fiji using low frequency data from 1970 to 2000. The study employed unit root test and cointegration technique within a bivariate VAR framework. Empirical results suggest a positive relationship between financial development and economic growth for Fiji with causality running from economic growth to financial development. He posited that this outcome is common with countries that have less sophisticated financial systems.

Hemachandra (2003) investigated the validity of financial deepening paradigms in the context of Sri Lanka and the effects of financial deepening on savings and investment that promotes growth. Results of the study showed that there are several factors other than interest

rates influencing financial deepening in Sri Lanka. The study also confirmed the neo-structuralisms hypothesis which claims that financial deepening has reduced provision of credit to the informal sector.

Demirguc-Kunt and Levine (2001) show that a country's financial development was strongly and robustly affected by the external finance need of its exports. The effect they find was economically significant. Their most conservative coefficient estimates imply that moving from the 25th to the 75th percentile in the distribution of external finance need of exports was associated with an increase in financial development of about 0.33 standard deviations, or a 12 percentage point increase in private credit to GDP.

Ellis and Biggs (2001) focused on rural development show that policy strands dominating the past half-century in most developing countries include: community development, the main emphasis being on small-farm growth (1950s and 1960s); integrated rural development, still with the emphasis being on small-farm growth (1970s); state-led rural development (1970s) to market liberalization (1980s); sustainable livelihoods (where microcredit was one component) (1990s); and poverty reduction development strategies (2000s). Addressing the need of the unbanked and thus focusing on financial inclusion as an instrument of poverty reduction in developing countries.

Beck et al. (2000) investigate not only the relationship between financial development and economic growth but also the relationship between financial development and the sources of growth in terms of private saving rates, physical capital accumulation, and total factor productivity. Once again, GMM and IV estimators were used to correct for possible simultaneity biases. They conclude that higher levels of financial development lead to higher rates of economic growth, and total factor productivity. For the remaining variables, they could not document any relationship with financial development.

Levine et al. (2000), using a sample of 74 developed and less developed countries over the period 1960– 1995, go beyond previous studies recognizing the potential biases induced by simultaneity, omitted variables and unobserved country-specific effect on the finance growth nexus. According to these authors, this issue is of paramount importance for settling the question of causality. To deal effectively with these problems, they suggest the use of estimators appropriate for dynamic panels like GMM as well as cross-sectional instrumental variable estimators where legal rights of creditors, the soundness of contract enforcement and the level of corporate accounting standards are used as instruments to extract the exogenous component of financial development. Both estimation techniques correct for biases associated with previous studies of the financial development-growth relation. At the same time, they offer more precise estimates. They found that the strong positive relationship between financial development and output growth can be partly explained by the impact of the exogenous components like finance development on economic growth.

Xu (2000) used a multivariate vector-autoregressive approach to examine the effects of financial development on domestic investment and output using a set of 41 countries between the period 1960 and 1993. The results rejected the hypothesis that financial development simply follows economic growth. Financial development is seen to be an important determinant of GDP growth and domestic investment was found to be an important channel through which financial development affects economic growth.

De Gregorio et al. (1995) examined the empirical relationship between long-run growth and financial development, proxied by the ratio between bank credit to the private sector and GDP. They find that this proxy variable was positively correlated with growth in a large cross-country sample, but its impact changes across countries, and was negative in a panel data for Latin America. Their findings also show that the main channel of transmission from financial development to growth is the efficiency, rather than the volume, of investment.

# Chapter 3

# Research Methodology

## 3.1 Introduction

The section has documented the research methodology and estimation techniques which are applied in collecting and applying on data in this research study.

## 3.2 Model Specification

In this pragmatic study, researcher is exploring the impact of financial development on profitability of commercial banks. Assuming that financial development affects profitability of commercial banks differently according to degree of financial depth i.e. penetration. We thus estimate econometric models of the following form.

*Model 1*

$$ROA = f \text{ (Financial Development + External Factors) } \ldots\ldots i$$

*Model 2*

$$ROE = f \text{ (Financial Development + External Factors)} \ldots\ldots\ldots ii$$

*Equation 1*

$$\text{ROA}_{it} = \beta_0 + \sum\beta_1 \text{Bank Credit}_{it} + \sum\beta_2 \text{Private Credit}_{it} + \sum\beta_3 \text{Bank Deposits}_{it}$$
$$+ \sum\beta_4 \text{Domestic Credit}_{it} + \sum\beta_5 \text{INF}_{it} + \sum\beta_6 \text{GDP}_{it} + \mu_{it} \ldots\ldots 1$$

Where the description of all above mention variables are given in table 3.1, and the subscript "it" shows a country 'I' in year 't' $\beta0$= intercept. , $\beta1$, $\beta2$, $\beta3$, $\beta4$, $\beta5$ and $\beta6$ = parameters. And $\mu$ = error term.

*Equation 2*

$$\text{ROE}_{it} = \beta_0 + \sum\beta_1\text{Bank Credit}_{it} + \sum\beta_2\text{Private Credit}_{it} + \sum\beta_3\text{Bank Deposits}_{it}$$

$$+ \sum\beta_4\text{Domestic Credit}_{it} + \sum\beta_5\text{INF}_{it} + \sum\beta_6\text{GDP}_{it} + \mu_{it} \dots \dots 2$$

Where the description of all above mention variables are given in table 3.1, and the subscript "it" shows a country 'I' in year 't' $\beta_0$= intercept. , $\beta_1$, $\beta_2$, $\beta_3$, $\beta_4$, $\beta_5$ and $\beta_6$ = parameters. And $\mu$ = error term.

**Table 3.1**

**Data sources and description of variables consider in study (1990-2019).**

| Sr. Number | Variable | Notation | Description | Data source |
|---|---|---|---|---|
| 1 | Findex | **Domestic Credit** | Domestic credit to private sector by banks (% of GDP) | WDI |
| 2 | Findex | **Bank Deposits** | Bank deposits to (% of GDP ) | WDI |
| 3 | Findex | **Private Credit** | Private credit by deposit money banks to (% of GDP ) | WDI |
| 4 | Findex | **Bank Credit** | Bank credit to bank deposits (% of GDP ) | WDI |
| 5 | Banks specifics | **ROA** | Returns on assets | WDI |
| 6 | Banks specifics | **ROE** | Returns on equity | WDI |
| 7 | CPI | **INF** | Inflation Percentage increase in the consumer price index (CPI) | WDI |
| 8 | Economic Growth | **GDP** | Annual real GDP growth rate (%), for each country. | WDI |

We base our analysis on the World Bank's Global Financial Development Database, which compiles data from financial institutions that is from the supply side of financial services.

### 3.3 Variables and Rationale of Sample Selection

It is understood that countries in different regions have diverse financial and asset characteristics, varying level of economic development and different institutional set-up. Here the research study combined rich panel structure with focused and relating more homogenous group of countries in South Asian region from developing world. The political, cultural, and socio-economic conditions are more or less same in the selected panel of countries i.e. (Pakistan, India, Bangla Desh, Sri Lanka, and Nepal.).

### 3.3.1 Profitability Indicators

### 3.3.1 Returns on Assets

**ROA** is the ratio between the profit after taxation and total/average assets, which is widely used as profitability indicator that determines the efficient utilization and revenue generation proficiency of/from the assets of any enterprise. ROA has previously been studied by Bougatef (2017).

### 3.3.2 Returns on Equity

**ROE** is articulated as the ratio of profit after tax to total/average equity. This ratio is widely used as profitability indicator which determines the ability of a bank to utilize money invested by shareholders to generate profits. In the past, ROE was widely studied by Bougatef (2017).

### 3.3.3 Banking Sector Development (BSD)*:*

It is calculated as the total assets of the banking industry to GDP ratio. This variable is widely used in the literature (Lee et al. 2015). The more developed banking sector indicates the demand for banking product and services which attracts more competition, and banks can

increase their profitability with effective strategies (Tan and Floros 2012a). On the other hand, banks are expected to compromise on profit margin in a more competitive banking structure, as argued by Demirgüç-Kunt and Huizinga (1999).

### 3.3.4 Domestic credit to private sector in percent of GDP

It is the ratio of private sector credit to gross domestic product. It also measures the financial depth, but captures only the flow of credit to the private sector, i.e. it concentrates on credits issued by intermediaries other than the central bank. The logic is that the more private credit is available to an economy the more opportunities exist for continued growth Demirgüç-Kunt and Huizinga (1999).

### 3.3.5 Bank deposit in percent to GDP (BD/GDP)

It refers to the total deposit, which is made up of all checking, savings, time deposits of the banking system to economic activity. This measure serves as a proxy for the supply of funds to banks, and it provides an indication of the amount of funds that are available to the banking sector for its lending activities. This ratio captures the liability side of the banks" balance sheet. These ratios tend to higher for high-performing banks Demirguc-Kunt and Detragiache, (1999).

### 3.3.6 Bank Credit to private sector percent to GDP.

The value of credit given by the banking sector to the private sector divided by GDP provides a measure for financial intermediary development following Levine and Zervos (1998b), Rousseau and Wachhtel (2000) and Beck and Levine (2004). While the first measure does not indicate whether claims of banks are in the public or private sector, the second indicators concentrate on claims to the private sector. Levine (1997, p. 705) stated:

### 3.3.7 GDP Growth (GDPR)

This variable is the indication of economic growth. The banks are expected to deal with more operational activities including lending, borrowings, and non-interest bearing services during the economic growth. One can expect its positive relationship with the profitability of a bank, which is consistent with previous studies (Sinha and Sharma 2016; Athanasoglou et al. 2008; Dietrich and Wanzenried 2011; Trujillo-Ponce 2013). Therefore, we also expect a positive impact of economic growth over profitability.

### 3.3.8 Inflation (INF)

Annual change in the consumer price index is used as a proxy. We found mixed evidence in previous literature: Moualhi et al. (2016) found a negative relationship of inflation and profitability; Lee et al. (2015) found a positive relationship with ROE and negative with ROA; and Djalilov and Piesse (2016) found a negative relationship with profitability of early transition countries and positive relationship in late transition countries. In light of the mixed evidence, we do not expect any prior relationship between inflation and the profitability of commercial banks.

### 3.4 Unit Root Test

Find out stationarity of data is a popular more important step of pragmatic studies. So in this regard panel unit root test apply to find out the stationarity of variables. Data set comprises 150 observations over the period of (1990-2019). In this study ADF - Fisher Chi-square is applied to determine the integration of all the data series.

The hypothesis statement is as.

*H0: There is no stationarity (ρ=1).*

*H1: The variable is stationary (ρ<1) (one tailed test).*

Decision rules are defined as non-rejection of null if the *p* value is less than 0.5 otherwise reject null.

## 3.5 Hausman Specification Test

Wooldridge (2002) explained the two nature of effect which examined the "random effect" also the "fixed effect". The "random effect" explains no correlation among the concerning explanatory variables and undetected effect. Whereas the "fixed effect" explains there is a correlation, amongst the explanatory variables and undetected effect is not zero.

The hypothesis statement is as.

*H0: The Fixed Effects model is suitable*

*H1: Random Effects Model is suitable*

The decision criteria are interpreted as non-rejection of null if the p value is less than 0.05, and on the other reject null. Applying Hausman's test, the researcher will compared and chooses the appropriate model, either "fixed effect" or "random effect" depending upon results.

## 3.6 Co-integration Methods and Analysis

Over the past period of two and half decades, the cointegration methodology by (Engle et.al.1987) and (Johansen et.al. 1990) had been applied widely in pragmatic research for investigating the long-run relationship amongst econometric variable which are in bivariate or multivariate structure.

## 3.7 Panel ARDL

Autoregressive-Distributed lag (ARDL) bounds investigations approaches are used for cointegration analysis (Pesaran et al., 2001).These Methodologies are more popular in the empiric research because of such better econometric advantage. First of all these techniques might applied irrespective of the undergoing variable are stationary at integrated order-zero i.e. I (0), as well as the integrated order-one i.e. I (1) and even that the data series are fractionally integrated.

And also the long-run parameters and short-run parameters of the estimated model in the given equations are might be estimated simultaneously. Furthermore, small sample characteristics of the bounds estimating approaches are super to those of multivariate cointegration (Narayan, 2005).

# CHAPTER 4

## Results and Empirical Findings

### 4.1 Descriptive Analysis

**Table 4.1 Summary statistics**

| Variables | Obs. | Mean | Maxima | Minima | Std.Dev | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|
| ROA | 150 | 1.175 | 6.558 | -2.37 | 0.852 | 0.919 | 14.66 |
| ROE | 150 | 16.015 | 90.714 | -14.590 | 9.964 | 2.491 | 23.267 |
| GDP GROWTH | 150 | 5.207 | 9.144 | -1.545 | 1.874 | -0.422 | 3.548 |
| CPI | 150 | 78.207 | 180.430 | 14.487 | 45.815 | 0.553 | 1.964 |
| Bank Credit | 150 | 75.726 | 99.195 | 37.962 | 11.837 | -0.825 | 3.698 |
| PRIVATECREDIT | 150 | 30.326 | 73.734 | 6.987 | 15.919 | 1.126 | 3.394 |
| BANK DEPOSITS | 150 | 39.444 | 84.235 | 16.236 | 18.125 | 0.979 | 2.897 |
| DOMESTIC_CREDIT | 150 | 33.873 | 80.633 | 8.798 | 16.992 | 1.111 | 3.550 |

Table 4.1 included the summary statistics that is the mean, standard deviation, skewness and kurtosis of all dependent and independent variables of both models. Whereas the elaborated value of mean for return on assets is 1.17% and standard deviation is 0.852% over the period of 30 years. Furthermore the mean value returns on equity is16.015 % and standard deviation is 9.964% over the period of twenty nine years. The values of skewness and kurtosis in table 4.1 explained that all the variables are almost asymmetric and normality of data.

**4.2 Panel Unit Root**

To diagnose the stationarity of data is very important and basic stage of research study. Researcher applies a panel, unit-root Augmented- Dickey Fuller (ADF) technique, to determine the integration between all the series data set which comprises over the period of 1990 to 2019. Table 4.1 described the findings of applied unit-root test, which set forward that the many variable of consideration are stationary at 1(0) level where as the table 4.2 elaborates that there are some variables stationary at 1(1).

**Table4.2 Series are Stationary at Level**

| Variables | T- Statistics | Critical Value (5%) | Probability Value |
|-----------|---------------|---------------------|-------------------|
| GDP | -8.44 | -3.44 | 0.000 |
| Bank Credit | -6.67 | -3.44 | 0.000 |

**Table 4.3 Series are stationary at 1$^{st}$ Difference**

| Variables | T- Statistics | Critical- Value (5%) | Probability Value |
|-----------|---------------|----------------------|-------------------|
| **ROA** | -9.28 | -3.44 | 0.000 |
| **ROE** | -9.11 | -3.44 | 0.000 |
| **CPI** | -11.30 | -3.44 | 0.000 |
| **Private credit** | -11.301 | -3.44 | 0.000 |
| **Domestic Credit** | -10.87 | -3.44 | 0.000 |
| **Bank Deposits** | -11.74 | -3.44 | 0.000 |

**4.3 Random Effect Test (ROA)**

Below the Table 4.3 Includes the results of panel Hausman Specification tests, shows the impact of financial development on profitability of commercial banks. Whereas panel data consist of the both cross section data and time series data, due this better finds the cross

section random effect and the period fixed effects. To the identification of fixed effect and random effect we apply Panel Hausman test and the results are given in the below table.

**4.4 Correlated Random Effects- Hausman Test**

**Table 4.4 (ROA)**

| Chi- Sq. Statistics | Chi-Sq d.f. | Prob. Value |
|---------------------|-------------|-------------|
| 16.3477 | 6 | 0.0120 |

$H_0$: Fixed effect model is appropriate.

$H_1$: Random effect model is appropriate.

As random effect test's P-value is less than 0.05 so the null hypothesis is rejected, and in our model, the random effect is significant and appropriate.



Figure 4.1

Figure 4.1 is graphical presentation of Hausman test Random Effect of ROA.

39

**4.5 Random Effect Test (ROE)**

Table 4.5 Includes the results of panel Hausman Specification tests, to find the impact of financial development on commercial banks profitability. Whereas panel data includes the together cross-section data and time series data, due this it better to investigates the cross section random effect and the period fixed effects. To the identification of fixed effect and random effect we apply Panel Hausman test and the results are given in the below table.

**4.6 Correlated Random Effect Hausman Test**

**Table 4.5**

| Chi-Sq Statistics | Chi- d.f. | Prob. Value |
|---|---|---|
| 14.163 | 6 | 0.0278 |

$H_0$: Fixed effect model is appropriate.

$H_1$: Random effect model is appropriate.

As random effect test's P-value is less than 0.05 so the null hypothesis is rejected, and in our model, the random effect is significant and appropriate.
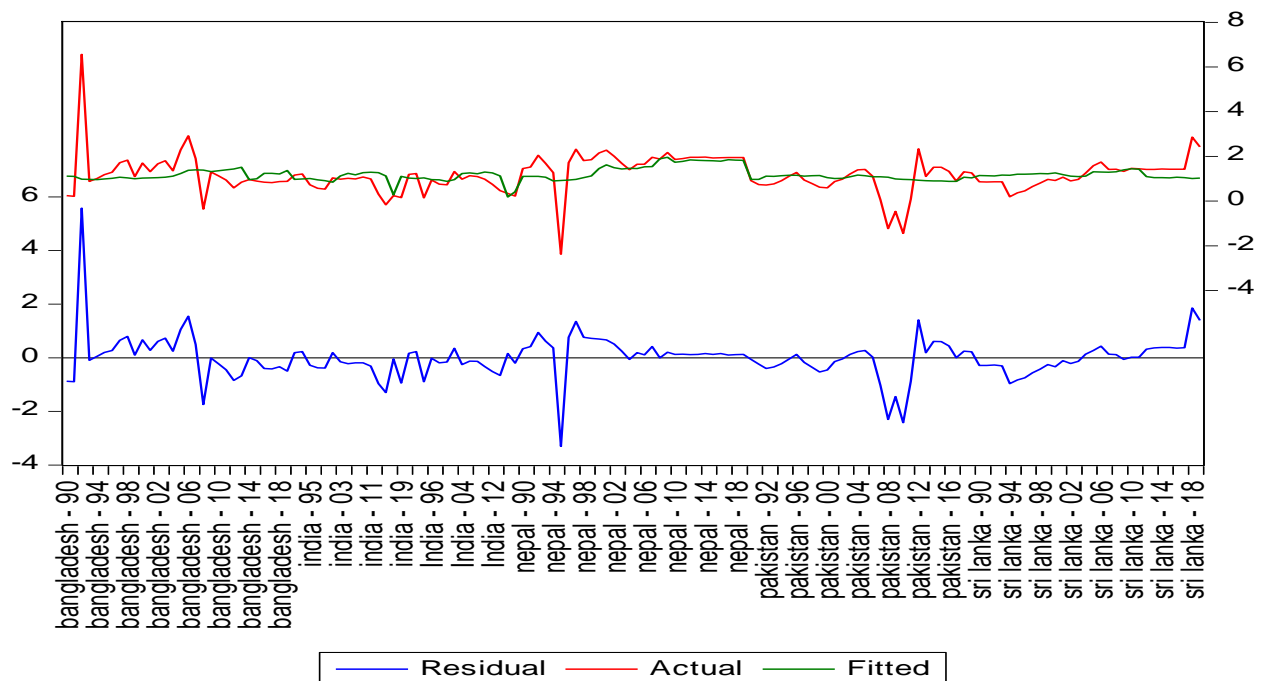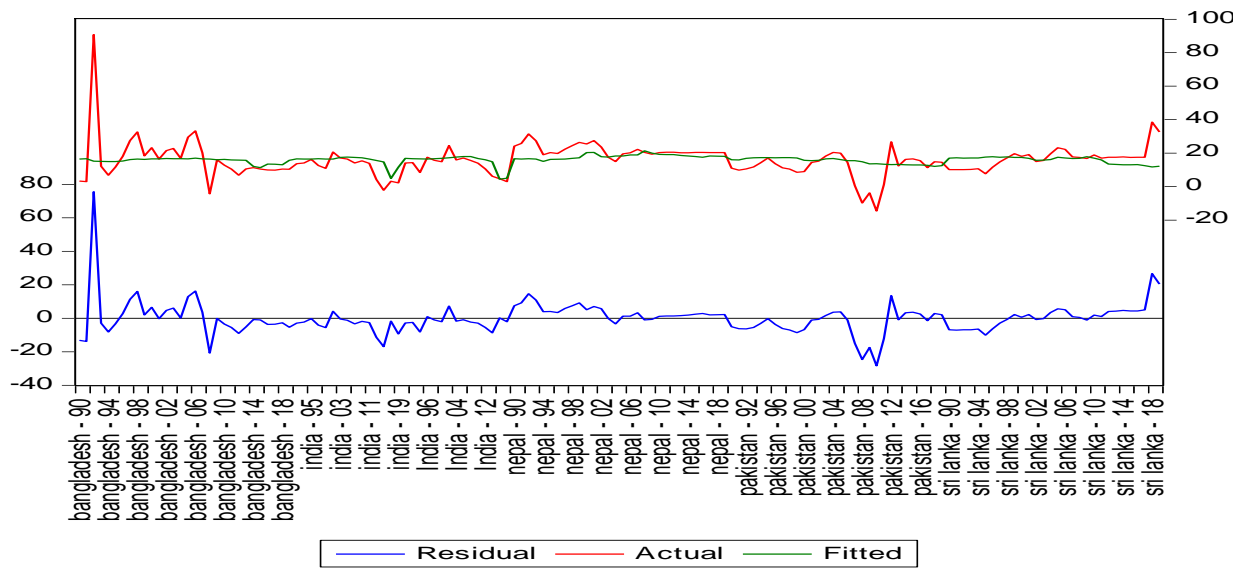
Figure 4.2

Figure 4.2 is graphical presentation of Hausman test Random Effect of ROE.

## 4.7 Co-Integration Analysis

## 4.8 Panel ARDL Results (ROA)

**Table 4.6 Long Run ARDL Results of Model 1 (ROA)**

| Variables | Coefficients | T- Statistics | Prob. Value |
|-----------|--------------|---------------|-------------|
| CPI | -0.011835 | -12.90510 | 0.0000 |
| GDP | -0.097235 | -14.20717 | 0.0000 |
| Private Credit | 0.044108 | 4.609507 | 0.0000 |
| Bank Deposits | 0.021745 | 14.06845 | 0.0492 |
| Bank Credit | -0.010246 | -1.998992 | 0.0000 |
| Domestic Credit | -0.007535 | -1.540749 | 0.1276 |

41

*Equation 3*

$$ROA = -(0.0118)CPI_{it} - (0.0972)GDP_{it} + (0.0441)Pvt.Crdt_{it} + (0.0217)Bnk.Dpst_{it} - (0.0102)Bnk.Crdt_{it} - (0.007535)Domestic\ Credit_{it}$$

**Explanation:**

The Table 4.6 shows that the results of long Run ARDL. According to the results the coefficients value of CPI and GDP show that negative impact on dependent variable RAO, and the probability value is less than 5% also show that the long-run relationship between CPI and ROA. Similarly, the coefficient values of ,Bank Deposits and Private Credit show positive impact on ROA and both variables have less than 5% probability values so long-run relationship occurs between above explained two variables and ROA. Bank Credit has negative impact on ROA but the probability values show significant results, there is long-run relationship between the two variables with ROA. Only Domestic Credit shows negative and insignificant impact on ROA

**Table 4.7 Short Run ARDL Results of Model 1 (ROA)**

| Variables | Coefficients | T –Statistics | Prob. Value |
|---|---|---|---|
| ECM | -0.989191 | -1.602687 | 0.1132 |
| D(ROA(-1)) | 0.154553 | 0.614291 | 0.5409 |
| D(CPI) | -0.065918 | -1.522518 | 0.1321 |
| D(CPI(-1)) | 0.089550 | 2.108370 | 0.0383 |
| D(GDP) | 0.250053 | 1.988469 | 0.0504 |
| D(GDP(-1)) | -0.141044 | -0.864147 | 0.3903 |
| D(PVT_CRDT) | 0.234011 | 1.018592 | 0.3117 |
| D(PVT_CRDT(-1)) | -0.100687 | -0.413580 | 0.6804 |
| D(BNK_CRDT) | -0.001431 | -0.023525 | 0.9813 |
| D(BNK_CRDT(-1)) | -0.012228 | -0.132710 | 0.8948 |
| D(BNK_DPST) | -0.139932 | -0.778565 | 0.4387 |
| D(BNK_DPST(-1)) | 0.050905 | 0.270830 | 0.7873 |
| D(DMSTC_CRDT) | -0.071454 | -1.228369 | 0.2231 |
| D(DMSTC_CRDT(-1)) | 0.048776 | 1.345936 | 0.1824 |

*Equation 4*

$$ROA_{it} = 0.0895 \triangle (CPI_{it-1}) - 0.9891 ECM_{it} + (0.2500) \triangle GDP_{it}$$

**Explanation:**

Table 4.7 framed with the short-run results of ARDL and the value of the coefficient of D (CPI (-1)) shows that the positive impact on ROA in the short run. And probability value also less than 5% so short run relationship exists between CPI and ROA. Similarly, coefficient value of D (GDP) has a positive impact on ROA in the short-run and the probability value is less than 5% so there is co-integration between GDP and ROA in the short-run. Besides it, D (Pvt. Credit), D (Bank Deposit (-1)) and D (Domestic Credit (-1)) has a positive impact on ROA but there is no cointegration exists in the short run because probability values greater than 5% of these variables. And variables D (CPI), D (GDP (-1)), D (Bank Credit), D (Bank

Credit (-1)), D (Bank Deposits) and D (Domestic Credit (-1)) has negative impact on ROA and there is no short-run relationship exists because the probability values greater than 5%. ECM value (-0.98) shows convergence and 98% adjustment of error within a year.

## 4.9 Panel ARDL Results (ROE)

**Table 4.8 Long Run Results of Model 2 (ROE)**

| Variables | Coefficients | T- Statistics | Prob. Value |
|---|---|---|---|
| CPI | 0.134831 | 2.668832 | 0.0090 |
| GDP | 0.873063 | 2.269116 | 0.0255 |
| Private Credit | 1.392445 | 1.745344 | 0.0442 |
| Bank Credit | -0.638789 | -2.696175 | 0.0083 |
| Bank Deposits | -1.303001 | -2.333289 | 0.0217 |
| Domestic Credit | 0.356499 | 1.267080 | 0.2082 |

*Equation 5*

$$ROE_{it} = (0.1348)CPI_{it} + (0.8730)GDP_{it} + (1.3924)Pvt.Crdt_{it}$$
$$- (1.3030)Bnk.Dpst_{it} - (0.6387)Bnk.Crdt_{it}$$
$$+ (0.356499)Domestic\ Credit_{it}$$

**Explanation**

Table 4.8 shows that the Long run results of ARDL. In this table the coefficient values of CPI, GDP and Private Credit has a positive impact on ROE, and the probability values of these variables are less than 5% so, there is long-run relationship between ROE and these variables. As the coefficients values of Bank Credit and Domestic Credit has a negative impact on ROE and the probability values are less than 5% so there is cointegration in the

long run between ROE and these variables. Only the variable Only Domestic Credit has negative and insignificant result because the probability value is Greater than 5%.

**Table 4.9 Short Run Results of Model 2 (ROE)**

| Variables | Coefficients | T- Statistics | Prob. Value |
|---|---|---|---|
| **ECM** | -0.586758 | -1.796497 | 0.0756 |
| **D(ROE(-1))** | -0.053757 | -0.231646 | 0.8173 |
| **D(CPI)** | -0.547880 | -2.648441 | 0.0095 |
| D(GDP) | 1.307963 | 0.961399 | 0.3388 |
| D(PVT_CRDT) | 0.788608 | 0.566555 | 0.5724 |
| D(BNK_CRDT) | 0.265751 | 0.736238 | 0.4634 |
| D(BNK_DPST) | 0.177751 | 0.144580 | 0.8853 |
| D(DMSTC_CRDT) | -0.795538 | -1.537507 | 0.1275 |

*Equation 6*

$$ROE_{it} = (0.0118) \triangle CPI_{it} - (0.5867)ECM_{it}$$

**Explanation**

Table 4.9 shows that the short-run results of ARDL. Value of the coefficient D (CPI) has a negative impact on ROE and the probability is less than 5%, which is shows that there is a short run relationship exists between ROE and CPI. And the coefficient value of D (Domestic Credit) has a negative impact on ROE and the probability value show the insignificant result because the value is greater than 5%. And the coefficient values of D (GDP), D (Private Credit), D (Bank Credit) and D (Bank Deposits) has a positive impact on ROE but the probability values of these variables are greater than 5% so there is no co-integration in the

short run between these variables and ROE. ECM values shows that convergence and 58% chances of error adjustment within a year.

# CHAPTER 5

## 5.1 Conclusion

This study made contribution to pragmatic literature by providing empirical support that financial market depth increases the financial development. Financial development makes win-win circumstances for banks and increase banks profitability. The empiric work examined the impact of financial development on profitability of commercial banks in South Asian Countries (Pakistan, Bangladesh, India, Nepal and Sri Lanka) over the time period of 29 years, as well as the pragmatic study finds the short-run and long-run relationships between the explanatory variables and dependent variables. This study based on two empirical models. In first model we check the impact of independent variables (Inflation, GDP growth rate, Domestic credit, Bank deposits, Private credit, and Bank credit) on Return on Assets (ROA). And in the second model we also check the impact of independent variables (as above explained in model one) on Return on Equity (ROE). Panel Unit root test used to check the stationarity of the variables. Some variables are stationary on level I (0) and some variables are stationary on first order I (1). To check the Random Effects in the model, Hausman test used for both models. The Results of Hausman test shows that random Effects model is appropriate. The sense of the stationarity of the variables shows that ARDL model would be used. We check the Long-run and Short-run relationship between variables by using the Panel ARDL Model. The results show that Long-run relationship exists between independent variables and dependent variables (ROA, REO). And the ECM values of both models show convergence with 98% for model one and 58% for model two.

The findings of present study highlight the CPI, GDP and Bank credit has a positive and significant impact on commercial banks profitability. Private credit by deposit money to banks and Bank deposits has significant and negative impact on commercial banks

profitability i.e. ROA. Domestic credit to private sector by banks has positive and insignificant impact in long-run as Domestic credit to private sector by banks is the flow of credit to the private sector, i.e. it concentrates on credits issued by intermediaries other than the central bank. In second model the CPI, GDP and Private Credit have a negative impact on commercial banks profitability i.e. ROE. And Bank Credit and Domestic Credit have a positive and insignificant impact on commercial and the probability. Moreover, data find an insignificant positive relationship between domestic credits provided by the financial sector for all two models of all five countries.

Macroeconomic Variables (MVs). Overall, the study found a significant positive impact of GDP growth on profitability indicators. The positive impact of GDP growth indicates the economic growth in the country which is the reason to increase profitability due to the higher demand for loans. Previously, Athanasoglou et al. (2008) suggested a positive association between profitability and economic boom which increases the demand for credit transaction and also improves the creditworthiness of a bank's customer. Further, Bouzgarrou et al. (2018) found a significant positive relationship between GDP growth and bank's profitability when measured by ROA. On the other hand, Alhassan et al. (2016) also found a positive significant relationship between GDP growth and profitability when measured by ROA. Previously, Demirgüç-Kunt and Huizinga (1999) found that banking sector development has a significant negative impact on bank margin and profitability. They suggested that higher assets to GDP ratio indicate the more intense interbank competition, which adversely affects the profitability of banks. Similarly, Lee et al. (2015) also found a negative relationship with bank profitability when measured by ROE. GDP growth is positively and significantly associated with bank profitability, suggesting that economic growth fosters profitability as generally perceived. This is in line with the well-documented literature on the association between economic growth and financial sector performance. Accordingly, economic growth

may increase demand for financial products and services offered by banks during cyclical upswings, thus improving bank profitability (Demirgüç-Kunt and Huizinga, 1999).

Furthermore, bank profitability influenced by inflation (INF) since it has a decisive role in the structure of the interest rate. A higher inflation rate will result in greater interest rates on loans, thus greater bank profitability. The increased interest rates, however, may raise the risk of loan repayment because a higher inflation rate has an impact on the borrowers' budgets, which ultimately threatens their liquidity and reduces their ability to service debts (Pervan et al., 2015). The coefficient values of inflation (INF) are found to be significantly positively related to profitability indicators and significant impact. Previously, Perry (1992) suggested that careful anticipation of inflation enables banks management to adjust the interest rate accordingly, if the inflation is not anticipated, then the cost grows faster than the revenues which reduces the profitability. However, our findings are consistent with Lee et al. (2015) and Moualhi et al. (2016) found a significant negative association between inflation (INF) and ROE.

Previously, Demirgüç-Kunt and Huizinga (1999) found that banking sector development has a significant negative impact on bank margin and profitability. They suggested that higher assets to GDP ratio indicate the more intense interbank competition, which adversely affects the profitability of banks. Similarly, Lee et al. (2015) also found a negative relationship between ROE and private credit. The ratio of private credit by depository money banks to GDP, measuring banking sector development in term of activities. An increase in this indicator represents the banking activities provided to customers in terms of lending services. Therefore, the higher this indicator, the greater the ability to issue bank loans and the more opportunity for banks to obtain external funding sources. Thus, lowering this will affect monetary policy on bank loans Levine et al, (2000). It is evident from results of Laeven et al. (2015) the relevant variable have positive impact on banks profitability ROA.

## 5.2 Practical implications

The practical implication of the study is useful for policymakers, regulatory authorities, academic researchers, and managers of banking sector. As empirically tested in this work, the ratio of credit to private sector exerts significant impact on banks profitability, therefore it create a win-win situation for both banks and policymakers as to inject more credit to enhance economic growth. Also financial development should not only be pursued as a policy objective but it could also be outcome variables of financial sector development and vice versa. This implies that South Asian economies and governments in their effort to enhance financial development, financial sector development can serve as a policy tool. This means that policies aimed at promoting financial development will not impede financial sector development because the two are complementary. This suggests that we can achieve financial development without sacrificing financial sector development and vice versa.

In order to promote economic growth, attention must be paid to policies that promote banking sector development. This, in turn, calls for an efficient allocation of financial resources combined with sound regulation of the banking system. A sound banking system instills confidence among the savers so that resources can be effectively mobilized to increase productivity in the economy. The banking system should be simplified and banking fees should be reduced for qualifying clients, so that the barriers to entry of the banking sector is lowered, making banking activities more accessible to that part of a country's population that are currently excluded from engaging in banking and financial transactions. In addition, the products of the banking system should be diversified in such a way that non-banking financial companies and non-financial institutions can enter the banking sector.

**5.3 The limitations**

Study is limited only to the impact of financial development on commercial banks profitability we did not remove the crisis time (2007–2010) from the time series in order to find if the results are significantly influenced by this issue.

**5.4 Future Research**

Moreover, the issues identified the literature that I find to be particularly significant, which are mainly the political economy of financial development and its impact on commercial banks profitability, the optimal level of financial development and its impact on commercial banks profitability .

# REFERENCES

Agoba, A. M., Abor, J. Y., Osei, K. A., & Sa-Aadu, J. (2020). The Independence of Central Banks, Political Institutional Quality and Financial Sector Development in Africa. *Journal of Emerging Market Finance*, 0972652719877474.

Ahamed, M.Mostak, Mallick, Sushanta K., Is financial inclusion good for bank stability? International evidence.Journal of Economic Behavior and Organization http://dx.doi.org/10.1016/j.jebo.2017.07.027

Aizenman, J., Jinjarak, Y., & Park, D. (2015). *Financial development and output growth in developing Asia and Latin America: A comparative sectoral analysis* (No. w20917). National Bureau of Economic Research.

Akinlo, A. E. & Egbatunde, T. (2010). Financial development and economic growth: the experience of 10 sub-Saharan African countries revisited. *The Review of Finance and Banking. 2*(1), Pp.17- 28.

Anarfo, E. B., & Abor, J. Y. (2020). Financial regulation and financial inclusion in Sub-Saharan Africa: Does financial stability play a moderating role?. *Research in International Business and Finance*, *51*, 101070.

Ang, J. B., (2008), "Are Financial Sector Policies Effective in Deepening the Malaysian Financial System", *Applied Economics*.

Atif, R. M., Jadoon, A., Zaman, K., Ismail, A., & Seemab, R. (2010). Trade liberalization, financial development and economic growth: Evidence from Pakistan (1980–2009). *Journal of International Academic Research*, *10*(2), 30-37.

Ayyagari, M., & Beck, T. (2015). Financial inclusion in Asia: An overview (Asian Development Bank Economics Working Paper Series, No. 449), pp. 1–21. Phillipines: Asian Development Bank.

Babajide, A. A., Adegboye, F. B., & Omankhanlen, A. E. (2015). Financial inclusion and economic growth in Nigeria. International Journal of Economics and Financial Issues, 5(3), 629e637.

Baselga-Pascual, L., Trujillo-Ponce, A., & Cardone-Riportella, C. (2015). Factors influencing bank risk in Europe: Evidence from the financial crisis. *The North American Journal of Economics and Finance*, *34*, 138-166.

Becerra O, Cavallo E, Scartascini C D2012] The Politics of Financial Development: The Role of Interest Groups and Government Capabilities. Journal of Bank

Beck, T., Demirguc-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. Journal of Economic Growth, 12, 27e49.

Beck, T., Demirgüç-Kunt, A., Laeven, L., & Levine, R. (2005). *Finance, firm size, and growth*. The World Bank.

Beck, T., Levine, R., & Loayza, N. (2000). Finance and the source of growth. Journal of Financial Economics, 58, 261e300.

Beck, T., Levine, R., Loyaza, N., 2000. Finance and the sources of growth. Journal of Financial Economics 58, 261 – 300.

Bernal, O., Gnabo, J. Y., & Guilmin, G. (2014). Assessing the contribution of banks, insurance and other financial services to systemic risk. *Journal of Banking & Finance*, *47*, 270-287.

Bhardwaj, M., Hedrick-Wong, Y., & Howard, T. (2018). Financial inclusion for Asia's unbanked. The World Bank blogs. Published on April 30, 2018. Retrieved on September 13, 2018.

Boamah, J., Adongo, F. A., Essieku, R., & Lewis Jr, J. A. (2018). Financial Depth, Gross Fixed Capital Formation and Economic Growth: Empirical Analysis of 18 Asian Economies. *International Journal of Scientific and Education Research*, *2*(04).

Cecchetti, S. G., & Kharroubi, E. (2012). Reassessing the impact of finance on growth.

Cecchetti, S. G., & Kharroubi, E. (2012). Reassessing the impact of finance on growth.

Cerutti, E., Dagher, J., & Dell'Ariccia, G. (2017). Housing finance and real-estate booms: a cross-country perspective. *Journal of Housing Economics*, *38*, 1-13.

Christopoulos, D. K., & Tsionas, E. G. (2004). *Financial development and economic growth: evidence from panel unit root and cointegration tests. Journal of Development Economics, 73(1), 55–74.*

Collins, D., Morduch, J., Rutherford, S., & Ruthven, O. (2009). *Portfolios of the poor: how the world's poor live on $2 a day*. Princeton University Press.

Corrado, G., & Corrado, L. (2015). The geography of financial inclusion across Europe during

Dabla-Norris, E., Ji, Y., Townsend, R. M., & Unsal, D. F. (2020). Distinguishing constraints on financial inclusion and their impact on GDP, TFP, and the distribution of income. *Journal of Monetary Economics*.

De Gregorio, J., & Guidotti, P. E. (1995). Financial development and economic growth. *World development*, *23*(3), 433-448.

Demirgüç-Kunt, A., & Detragiache, E. (1999). *Financial liberalization and financial fragility*. The World Bank.

Demirguc-Kunt, A., & Klapper, L. (2012a). Measuring financial inclusion: The global Findex database. Policy research working paper 6025. Washington, DC: World Bank.

Demirguc-Kunt, A., & Klapper, L. (2012b). Financial inclusion in Africa: An overview. Policy research working paper No. 6088. Washington DC: World Bank.

Demirguc-Kunt, A., Klapper, L., & Singer, D. (2017). *Financial inclusion and inclusive growth: A review of recent empirical evidence*. The World Bank.

Demirguc-Kunt, Asli, and Ross Levine (2001) "Financial Structure and Economic Growth: A Cross-Country Comparison of Bank, Markets, and Development," Cambridge, MA: MIT Press.

Dev, S. M. (2006). Financial inclusion: Issues and challenges. *Economic and political weekly*, 4310-4313.

Donaldson, J. R., Piacentino, G., & Thakor, A. (2018). Warehouse banking. *Journal of Financial Economics*, *129*(2), 250–267.

*Donaldson, J. R., Piacentino, G., & Thakor, A. (2018). Warehouse banking. Journal of Financial Economics, 129(2), 250-267.*

Ellis, F., & Biggs, S. (2001). Evolving themes in rural development 1950se2000s. Development Policy Review, 19(4), 437-448.

Ellis, K., & Lemma, A. (2010). Financial inclusion, household investment and growth in Kenya and Tanzania.

en, F., Demirguc-Kunt, A., Klapper, L., & Peria, M. S. M. (2012). *The foundations of financial inclusion: Understanding ownership and use of formal accounts*. The World Bank.

Fungacova, Z., & Weill, L. (2015). Understanding financial inclusion in China. China Economic Review, 34, 196e206.

Gregory, A. W., & Hansen, B. E. (1996). Practitioners corner: tests for cointegration in models with regime and trend shifts. *Oxford bulletin of Economics and Statistics*, *58*(3), 555-560.

Han, R., & Melecky, M. (2013). *Financial inclusion for financial stability: access to bank deposits and the growth of deposits in the global financial crisis*. The World Bank.

Hannig, A., & Jansen, S. (2010). Financial inclusion and financial stability: Current policy issues.

Hasan, I., Koetter, M., Lensink, R., & Meesters, A. (2009). Bank efficiency, financial depth, and economic growth. *Financial Depth, and Economic Growth (September 18, 2009)*.

Hassan, M. K., Sanchez, B., & Yu, J. S. (2011). Financial development and economic growth: New evidence from panel data. *The Quarterly Review of economics and finance*, *51*(1), 88-104.

Hossain, M., Yoshino, N., & Taghizadeh-Hesary, F. (2020). Optimal branching strategy, local financial development, and SMEs' performance. *Economic Modelling*. in Argentina. In Pesos or plastic? (pp. 33–58). Cham: Palgrave Pivot. ing and Finance 36:626–643

Iqbal, B. A., & Sami, S. (2017). Role of banks in financial inclusion in India. *Contaduría y administración*, *62*(2), 644-656.

Johannes. A. T. Njong, A. M. & Cletus, N. (2011). Financial development and economic growth in Cameroon (1970-2005). *Journal of Economics and International Finance. 3(*6), Pp. 367-375.

Jordà, Ò., Richter, B., Schularick, M., & Taylor, A. M. (2017). *Bank capital redux: solvency, liquidity, and crisis* (No. w23287).

National Bureau of Economic Research. Joseph Rowntree Foundation. Journal of African Development, 18, 109–134.

Kandil, M., Shahbaz, M. and Nasreen, S. (2015). The interaction between globalization and financial development: new evidence from panel cointegration and causality analysis. Empirical Economics, 49, 1317-1339.

Kanjilal, K., & Ghosh, S. (2013). Environmental Kuznet's curve for India: Evidence from tests for cointegration with unknown structural breaks. *Energy Policy*, *56*, 509-515.

Khan, H. R. (2011). Financial inclusion and financial stability: are they two sides of the same coin. *Address by Shri HR Khan, Deputy Governor of the Reserve Bank of India, at BANCON*.

Khek, S., Sophat, P., & Meng, V. (2020). Financial Inclusion: Assessing Innovative Technology's impact on Financial Inclusion and Profitability of Financial Institutions in Cambodia.

Kim, D. W., Yu, J. S., & Hassan, M. K. (2018). Financial inclusion and economic growth in OIC countries. *Research in International Business and Finance*, *43*, 1-14. Kim, D. W., Yu, J. S., & Hassan, M. K. (2018). Financial inclusion and economic growth in OIC countries. *Research in International Business and Finance*, *43*, 1-14.

Kim, J. H. (2016). A study on the effect of financial inclusion on the relationship between income inequality and economic growth. *Emerging Markets Finance and Trade*, *52*(2), 498-512.

Kpodar, K., Le Goff, M., & Singh, R. J. (2018). Financial deepening, terms of trade shocks, and growth volatility in low-income countries. *Revue d'économie du développement*, *26*(4), 27-68.

Law, S.H., Tan, H.B., and Azman-Saini, W.N.W. (2015). Globalization, Institutional Reforms
and Financial Development in East Asian Economies. The World Economy, 38, 379-398.

Le, T. D., & Ngo, T. (2020). The determinants of bank profitability: A cross-country analysis. *Central Bank Review*.

Le, T. H., Chuc, A. T., & Taghizadeh-Hesary, F. (2019). Financial inclusion and its impact on financial efficiency and sustainability: Empirical evidence from Asia. *Borsa Istanbul Review*, *19*(4), 310-322.

Le, T. T., Dang, N. D. L., Nguyen, T. D. T., Vu, T. S., & Tran, M. D. (2019). Determinants of Financial Inclusion: Comparative Study of Asian Countries. *Asian Economic and Financial Review*, *9*(10), 1107.

Levine, R., Loyaza, N., Beck, T., 2000. Financial intermediation and growth: causality and causes. Journal of Monetary Economics 46, 31 – 71.

Levine, Ross and Sergio Schmukler (2005) "Internationalization and Stock Market Liquidity,"NBER Working Paper 11894.

Liu, H., Islam, M. A., Khan, M. A., Hossain, M. I., & Pervaiz, K. (2020). Does financial deepening attract foreign direct investment? Fresh evidence from panel threshold analysis. *Research in International Business and Finance*, *53*, 101198.

López, T., & Winkler, A. (2019). Does financial inclusion mitigate credit boom-bust cycles?. *Journal of Financial Stability*, *43*, 116-129.

Mehrotra, A. N., & Yetman, J. (2015). Financial inclusion-issues for central banks. *BIS Quarterly Review March*.

Mitchell, K., & Scott, R. H. (2019). Public revenue, financial inclusion and value-added tax

Mitton, L. (2008). Financial inclusion in the UK: Review of policy and practice. York:

Nanziri, E. L. (2016). Financial inclusion and welfare in South Africa: Is there a gender gap?

Narayan, P.K., 2005. The saving and investment nexus for China: evidence from cointegration tests. Appl. Econ. 37, 1979–1990.

Nasreen S, Mahalik MK, Shahbaz M, Abbas Q, How Do Financial Globalization, Institutions and Economic Growth Impact Financial Sector Development in European Countries?, *Research in International Business and Finance* (2020).

Nzotta, S. M. & Okereke, J. E. (2009). Financial deepening and economic growth: An empirical investigation. *Africa Journal & Accounting Economic, Finance & Banking Research. 5(5)*, Pp.52-75.

Odhiambo, N. M. (2004). Is financial development still a spur to economic growth? A causal evidence from South Africa. *Savings and Development*, 47-62.

Ogechi, B. (2018). Financial Deepening and Deposit Mobilization of Commercial Banks in Nigeria: A Time Variant Model. *Indian Journal of Finance and Banking*, *2*(2), 1-14.

Owen, A. L., & Pereira, J. M. (2018). Bank concentration, competition, and financial inclusion. Review of Development Finance, 8, 1–17.

Park, K., and G. Pennacchi. 2009. "Harming Depositors and Helping Borrowers: The Disparate Impact of Bank Consolidation." *Review of Financial Studies* 22 (1): 1–40.

Patterson, K., 2011. Unit Root Tests in Time Series, vol. 1, Key Concepts and Problems. Palgrave Macmillan.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, *16*(3), 289-326.

Prasad, E. S. (2010). *Financial sector regulation and reforms in emerging markets: An overview* (No. w16428). National Bureau of Economic Research.

Prima, R., & Tandra, K. N. (2019). The Impact of Financial Inclusion towards Commercial Banks' Profitability in Indonesia Listed in the IDX for the Year 2012-2017. *iBuss Management*, *7*(3).

Richter, L. M., Daelmans, B., Lombardi, J., Heymann, J., Boo, F. L., Behrman, J. R., ... & Bhutta, Z. A. (2017). Investing in the foundation of sustainable development: pathways to scale up for early childhood development. *The lancet*, *389*(10064), 103-118.

Roengpitya, R., Tarashev, N. A., & Tsatsaronis, K. (2014). Bank business models. *BIS quarterly review December*.

Sackey, F.G. & Nkrumah, E.M. (2012). Financial sector deepening and economic growth in Ghana. *Journal of Economics and Sustainable Development.3* (8),p. 122-140.

Seetanah, B., Ramessur, S. T., & Rojid, S. (2009). Financial development and economic growth. *Journal of Economic Studies*.

Shahbaz, M., Bhattacharya, M. and Mahalik, M. K. (2018b). Financial development, industrialization, the role of institutions and government: a comparative analysis between India and China. Applied Economics, 50, 1952-1977

Shahbaz, M., Mallick, H., Mahalik, M. K. and Hammoudeh, S. (2018a). Is globalization detrimental to financial development? Further evidence from a very large emerging economy with significant orientation towards policies. Applied Economics, 50, 574-595.

Sharma, D. (2016). Nexus between financial inclusion and economic growth. *Journal of financial economic policy*.

Soedarmono, W., Hasan, I., & Arsyad, N. (2017). Non-linearity in the finance-growth nexus: Evidence from Indonesia. *International Economics*, *150*, 19-35.

the global crisis. Journal of Economic Geography, 15, 1055–1083.

Triki, T., & Faye, I. (Eds.). (2013). Financial inclusion in Africa. Tunis: African Development Bank.

Wadud, M. A. (2005). Financial development and economic growth. A Cointegration and ECM approach for South Asian countries. Paper Presented at International Conference of the Asian Law and Economics Association at Seoul National University, South Korea on 24-25 June.

Waqabaca, C. (2004). Financial development and economic growth in Fiji. *Working Paper* 2004/03. Economics Department, Reserve Bank of Fiji.

Wu H-L, Chen C-H, Shiu F-Y D2007] The impact of financial Development and Bank characteristics on the operational performance of commercial banks in the Chinese Transitional Economy. J Econ Stud 34:401– 414.

Xu, Z. (2000). Financial development, investment, and economic growth. *Economic inquiry*, *38*(2), 331-344.

Yangdol, R., & Sarma, M. (2019). Demand-side factors for financial inclusion: A cross-country empirical analysis. International Studies, 56, 163–185.