Article

Bank-Specific and Macro-Economic Determinants of Profitability of Afghanistan Commercial Banks: A Panel Data Approach

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Abstract

This paper aims to investigate factors affecting the profitability of the banking sector in Afghanistan and its associated link with economic growth for 11 years, 2010-2020. The profitability of Afghanistan banks is measured through three key dependent variables that are Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM). Several bank-specific factors, namely assets quality, capital adequacy, management efficiency, liquidity ratio, credit risk and bank size, and macroeconomic factors such as GDP growth, exchange, interest and inflation rates and trade ratio are included as independent variables. This study employed panel data, and a dynamic model is used for estimation purposes, viz; fixed and random effects and Generalized Method of Moment (GMM) techniques to investigate factors affecting the profitability of commercial banks. It shows that banks size and capital adequacy are positively associated with ROA ratio through GMM regression analysis. Credit risk, liquidity, and management efficiency show negative relation with ROA ratio. Among macroeconomic factors, only the GDP growth rate shows a negative association with ROA ratio. This paper shows policymakers that which factors are significant to stabilize and improve the performance of banking sectors and guide bankers and investors to draft their policies accordingly.

JEL Classification: C22; D53; E51; E58

Keywords: Banks performance; macroeconomics; economic growth; Afghanistan

Introduction

Afghanistan is one of the South Asian countries with fragile financial system (Shukla, 2016; Sahar, 2018). Banking system in Afghanistan has not developed significantly and has been destroyed over the three decades of war and conflicts but still banking systems operations are based on universal banking approach and offer different types of banking products. Currently, 12 banks, including one foreign bank, are operating in the country. After the transformation of the political regime in 2001, the banking sector has developed considerably and witnessed a substantial growth as well. Over several years, the existence of international organizations has significantly expanded banking operations in the country, mainly in two areas; deposits and size, which highly affect the outcomes of market economy reforms.

Although the global financial sector has faced many significant challenges that significantly affected its performance over the last two decades (Rosen, 2018), Afghanistan is not an exception. The financial sector mobilizes domestic resources and savings, thus regarded as the "happiest engines that are ever invented to spur economic growth" (Tomasz, 2015). According to the relevant studies, in many emerging economies, commercial banks play a significant role in developing economies by the way the fund is challenged by them and mobilizes funds to the private sector. Moreover, the banking sector in the developed world contains a high liquidity ratio, large size, and high-performance ratio, contributing to the development of the economy and investment. On the other hand, a weak financial system lacks an efficient banking sector failing to attract existing financial resources to the most strategic areas for boosting economic growth and development. The contributing parts of the banking sector to economic expansion are subject to the banking sector's size and financial regulation framework in both developed and developing economies. Banking sector development engenders a positive impact on economic development. Similarly, in Afghanistan, growth and development in the financial sector has contributed to the economic growth accompanied by an increase in income and overall macroeconomic condition.

Addressing the arguments in Afghanistan's financial system, the economic risks and challenges require vast investment in different areas like improving high-tech quality, standards, and regulatory frameworks. In addition, the country's composite scores and governance indices are ranked relatively low, which makes the situation difficult for improving banking culture and security. As a result, the banking sector has been suffering from many severe crises in Afghanistan, like the 2010's Kabul Bank crisis. Kabul Bank was one of the critical private banking operators in the country, and the crisis led to a significant setback for the whole banking sector. The main reason that resulted in the crisis was stakeholder fraud. The fraud caused withdrawals of about half of the bank's deposits, and as a result, the government and civilians lost nearly one billion dollars. This crisis highlights weak governance and regulation of the banking system and the low quality of the central bank's financial regulatory standards. Against this backdrop, this paper investigates the associated links between economic growth and the performance of banks in Afghanistan for 11 years from 2010-2020. It also explores what macro-economic indicators affect the performance of banks in Afghanistan and what policies and reforms are needed to improve the banking sector situation in Afghanistan to develop an advanced financial system in Afghanistan. Further to justify the theoretical contribution of the study, the study has linked political and economic dimensions of

uncertainty, including change in economic growth, unemployment rate, inflation, the exchange rate with growth in the banking sector.

The organization of this research is consisting of four following chapters including literature review, methodology, discussion, and conclusion. The literature review chapter studies numbers of up to date literatures on topic of banking sectors performance and economic development thematically. This chapter provides an insight look over existing knowledge about interest topics of this paper and provide a road map for researcher on research methodology that will be employed, analysis and estimation methods applied and provision of a solid conceptual framework helping researchers to find answer to the main research questions imposed in this research. The next part will be about methodology, based on literature studied, this part provides researchers with concrete research methodology, collection of data, sampling of the data and estimation method that will be employed to find the objectives of this research. The next part will be about discussion, this part explains thoroughly the finding which is derived from analysis of data. All finding will be discussed to find the possible policy recommendations on main research questions listed earlier in this paper. The final part will be conclusion, this part provides a brief scope of the researches beginning from literature review to methodology and discussion parts.

2. Literature Review

The banking sector and economic dimensions thereof have been prominent areas of discussion and debate among scholars and policymakers. The existence of both theoretical and empirical research on banks' performance and its associated link are at the level of single country and at the level of countries' panels in different time. This study reviews many studies to investigate the relation between banks performance and economic trend. Reviewing previous research studies are very necessary for developing a conceptual and empirical model in order to gather all significant and relevant determinants concerned with banking sector development and economic growth. By reviewing previous research studies, this paper attempts to find various types of the estimation techniques that are utilized in analysing various factors affecting banking sector and through which it has impact on economic development. At the end, based on the reviewing of previous research studies, this paper explores what findings have been extracted from past studies for the development of hypotheses based on different factors that influence banking sector. Past studies that this paper has reviewed are conducted from 2014 to 2020, and the considered past studies will be reviewed based on different themes including but not limited to the financial development theoretical background, financial development

and economic growth empirical background, banking sector performance and development. Each of these themes will be studied in depth with relevant literature.

2.1 Theoretical Underpinnings

There are several studies regarding the financial development theoretical background including studies (Miyakawa, 2016; Roen, 2018, Gudici, 2015; Mullan, 2017; Tomasz, 2015). Each of these studies has been focused on different geographic regions, analysis of different financial sector and regulation, capital regulation, and using different methodology. Tomasz (2015) in a theoretical research for 25 commercial banks stated that bank regulation plays critical role in development of financial system. It also mentioned that the main reason beside the financial crisis of 2007-2008 was huge financing of risky mortgage loans. Most of the banks' bankruptcy was caused by losing huge loan default and banks capital in the US. Similarly, Gudici (2015) studied 783 Italian banks for years 2000-2011 and stated that bank default value regulation is important factor for analyzing different policies regarding the development of banking and financial system. It also mentioned that when bank default is estimated in term of probability of distress, only microeconomic indicators are significant for estimating the probability of default and bankruptcy.

On the other side, certain studies have focused on external factors affecting the development and performance of banking sector. Miyakawa (2016) explored the external impact of lending capacity of banks' in Japan. According to the researcher, lending capacity of banks played a crucial role in the way firms of investment got financial support amid disaster period in offshore parts of Japan. By studying numbers of banks in Japan for the period of 2003-2009, it was implied that external shocks and natural disasters effect on banks' capacity to give loans to investment firms in Japan. Aside of natural disasters impact on banking sectors, Rosen (2018) studied the impact of political and socio-economic factors on development of financial sector. This study focused on development of capital market in China. Higher debt ratio and high saving rate in China amid financial crisis in US implied that US-China relation and its political aspects certainly affects the financial sector and banking performance in China. The issue of performance and development of banking sector theoretically is linked with the issue of profitability and banking sector regulation. Financial regulation directly impacts banks' lending, issuance of bonds and emergence of new sources like venture fund. Mullan (2017) investigated the problem of profitability and stated that the main root that caused fall down of financial industries is not just external macroeconomic factors, but also

other internal crash drowns of the banking system had important role in this regard. It stated that higher credit ratio is accompanied with higher capital investment if certain financial regulation is applied to avoid any instability or variation in profitability of the banks. Some researchers (Mullan, 2017) investigated the problem of profitability. This study explains both theoretical and empirical background of profitability concept considering both investment firms and banks. The author explains that financial regulation directly impacts banks' lending, issuance of bonds and emergence of new sources like venture fund. It cohesively explains that the main root that caused fall down of financial industries is not just external macroeconomic factors, but also other internal crash drowns of the banking system had important role in this regard. The fall of the banks caused by tension between different levels of profit and the size of capital invested. This study assumes that the current capital investment will produce higher profit which may lead to higher credits. Thus, increasing the credit will restrict future profit and will result in instability and variation of the efficiency in banking sector.

Overall, the development of financial sector is linked with both internal and external forces theoretically. Internal forces which are behind the development of financial sectors are financial regulation, rules and restrictions based on the economy the financial system is installed on. And the external forces which are including political and socioeconomic conditions as well as geographic location and the probability of occurrence of natural disasters. Natural forces directly impact the development and instability of the financial sectors since government use financial tools to cure the drawbacks of the natural disasters.

2.2 Empirical Studies

Through empirical analysis, (Almaqtari, 2018; Ajayei, 2014; Shukla, 2014; Asutay, 2015; and Hassan, 2015) studied the financial development of a number of countries over different time periods. While Wafa (2014) conducted an empirical analysis based on one country, Almaqtari (2018) investigated the bank-related and external factors of profitability of commercial banks in India by employing the fixed, and random effect estimation methods, and Generalized Method of Moment (GMM) to control the bidirectional and causality impact of the independent variable on the dependent variable and vice-versa. The findings show that assets, management, and the bank's size and inflation rate are positively linked to the profitability ratios ROA and ROE, while leverage ratio, GDP growth rate, exchange rate, and interest rate are negatively associated. The study suggests other scholars comparatively analyse the profitability indicator among public and private banks.

Other studies (Ajayi, 2014) analysed macroeconomic determinants of banks' performance for sub-Saharan 25 countries for the years 1997–2014 and (Shukla, 2014) conducted a panel country analysis to study the performance of the banking sector and the impact of the financial crisis on banks. This paper studied the variation in return on assets as a proxy for the variation in banking sector performance in major economies (17 countries) for the years 2003–2010. Using multiple regression analysis, these studies found that banks' performance is directly linked with economic development. They showed that economic growth, institutional quality, population, trade openness, capital and financial regulation have a direct positive impact on the development of banks, while inflation has a disturbing effect on the stabilisation of liquidity and bank default loans. So, it can be derived that, based on panel country analysis, economic growth and development policies and intervention are directly associated with the development of the banking sector. It was derived from this research that liquidity management and technology improvement have an enhancing impact on banks' development and growth.

Financial regulation, the rule of law, and political systems are also among other important issues that directly or indirectly affect the financial stability of the banking sector and economic trends. (Asutay, 2015). In a study conducted by Hassan (2015), the linkage between financial stability and the risks of commercial banks was studied. The results stated that financial regulation is subject to the political context and that in countries where there is Islamic sharia law, banks face certain restrictions that affect both conventional and Islamic banks to the same extent. And the political context certainly affects banks' size, liquidity ratios, and reserve ratios, which overall affect the banks' stability and their contribution to economic growth.

According to the country's level analysis, the banking sector's contribution has been prominent in economic development and stability. Bank-related factors are directly linked with economic factors. In a country-level study conducted by Wafa (2014) through a comparative analysis of banks in Afghanistan, it was found that variations in deposits and bank size were due to political and economic uncertainty. In addition, loan and liquidity ratios have been, among other major factors, affected by political and economic uncertainty, and they have played a major part in the banking sector's development in Afghanistan. Overall, the banking sector in Afghanistan has been responsive to the economic and political situation. Since 2001, the banking sector's development has had a major effect on economic growth and the investment climate in Afghanistan.

2.3. Banking Sector Performance

There are number of research papers on performance of banks both in country level and in aggregated country level (panel data). The studies which are conducted for the performance of banks varies in geographic location ranging from Asia to Europe, middle east and US. A large of number of both bank specific and macroeconomic indicators have been analysed that have negative, positive and insignificant effects on performance of banks considering the country's financial regulation, rule of law and economic structure.

Liquidity ratios and capitalization ratios have been among the major factors which directly impact the performance of banks. Nadeem (2017), Alshatti (2016), and Che-Yahya (2019) conducted research on a country-level analysis of banking sector performance. Others like (Nadeem, 2017) stated that there was a negative relation between banks' and ratio of liability with performance of banks for 18 commercial banks in Pakistan using Development Estimation Analysis (DEA) bootstrap. While in a research conducted by (A. Alshatti) for 14 commercial banks from 2006-2014 in Jordon, used panel regression technique to find the effect of size of the bank, leverage and capital ratios, capital liquidity and adequacy on return on performance of banks. It was found that capital adequacy, capitalization, and leverage ratio have positive effect on ROA whilst asset were inversely associated with performance of banks. Liquidity risk is also an associated variable with liquidity ratio that has been significant factor impacting the performance of the banks. A study conducted by (Che-Yahya, 2019) for 8 commercial banks in Malaysia from 2012 to 2017 utilised random and fixed effect in regression method for the panel data. The result of this study showed that liquidity, credit risk, and management quality had significant mixed effect on performance of the banks.

The loan ratio has also been identified as one of the factors influencing bank performance.Taking into consideration a country-level analysis by Alshatti (2016) for the case of Pakistan and (A. Alshatti) for the case of Jordan, it can be implied that the loan ratio has had a positive impact on the performance of a bank at a country-level. Waqas (2016) studied 17 commercial banks from 2004 to 2010 in Pakistan and used random and fixed effect techniques. He found that loan-to-asset, bank size, and equity-to-capital had a positive association with the ROA ratio, which was taken as a proxy for the performance of the banks. While in the case of Jordan, which was conducted by Alshatti (2016), it was found that leverage ratio has a positive effect on the profitability of banks. Bank performance is also related to the bank's total size in terms of capitalization, number of branches, and network with other international

and national banks.Serwadda (2018) investigated factors influencing commercial bank profitability in Hungary.In both studies, it was found that capitalization, size of the banks, and quality of management were positively associated with the performance of banks. On the other hand, Xuan (2017) studied nine commercial banks in Vietnam covering the period from 2007–2013 and used a random and fixed effect estimation method. It was found that bank size and management expenses are negatively related to profitability, while GDP growth rate and capital investment are positively linked with the profitability of commercial banks, specifically the ROA ratio. So, it can be inferred that the impact of bank size has been mixed in past studies considering the types of banks and the financial regulation and rule of law that the countries are facing.

Aside from bank-specific factors impacting the performance of banks, macroeconomic factors also impact the level of profitability and stability of banks, among which we can name GDP growth rate and inflation rate. These two factors have been mentioned in analysis of past studies focusing on performance of banks and the impact of external factors. In a recent study (Almaqtari, 2018) investigated the bank-related and external factors of profitability of commercial banks for the case of India covering 69 commercial banks for 2008-2017 years and (Boateng, 2018) studied a comparative analysis of Kenya and Ghana's commercial banks for 10 banks of Kenya and Ghana for years 2010-2016. For the case of India, the findings show that GDP growth rate, inflation, exchange rate and interest rate are negatively associated with stability of banks. While for the case of Kenya and Ghana, the findings show that Credit risk, net interest margin, capital adequacy, and inflation have statistically significant effect on profitability of commercial banks in both countries. Nevertheless, GDP growth rate is insignificantly related to profitability ratio in both Ghana and Kenya. When we turn from country level analysis to the panel countries analysis or studies of a group of countries, there are other important factors as well that impact the performance of banks in an international level. A study by (Rochdi, 2016) conducted a research on accounting performance of commercial banks on developed world. The effect of derivatives on accounting performance in 120 banks located in developing countries for the period 2005-2012 was explored in this research. According to the result, banks' performance is negatively related to derivatives instruments. This is because bond and stock variation at the international level directly impacting the performance of banks through global network of financial cooperation. Similarly, the performance of multi-national banks was studied by (Cho, 2016). At this study, the operation of multinational banks across US and Singapore from 2002-2011 was studied by utilising

multi regression analysis technique. According to the findings of this research, the major factors affecting multinational banks' growth in the global market are the bank's size, effective lending rate and the host banking market's size.

Islamic Banks operate and compile according to the Sharia Law and embodied with the new banking services and facilities. The nature and types of services that they provide is different in nature with other types of conventional and commercial banks. Besides, the rule of law in a country and financial regulation are directly affecting the way Islamic banks are operating. In several studies by past authors about Islamic banking and its performance, we can mention here a study conducted by (Bashir A.-H. , 2015). It assessed and investigated the main factors of profitability of Islamic banks. He claimed that in his study since 1990, Islamic banks developed its network and expanded to more than 60 countries raising total capital value of around 166 billion of dollars. This study finds both bank specific and macroeconomic factors of profitability of Islamic banks covering 22 countries with a sample of 46 Islamic banks for years 1994-2001. The findings show that capital ratio and GDP growth are positively linked to the performance of Islamic banks. On the other hand, loan ratio and size of bank are negatively associated with performance ratio. Conduct study on both Islamic and conventional banks is highly recommended for future scholarly works. Similarly in a panel countries analysis, a research by (Kouki, 2015) studied efficiency and stock market performance of Islamic banks, case of GCC countries. He stated that Islamic banks have emerged in most of Middle East and South East Asia in 75 countries raising total asset value of around $1 trillion by 2012. It is stated that Islamic banks can be improved in terms of efficiency by reducing cost, enlarging the size and enhance the scale of operation. Nevertheless, the findings show insignificant link between scale efficiency and stock return and a positive relation between managerial efficiency and stock return. Thus, it can be concluded that market values are positively associated with stock return. Assessing the link between Islamic banks and stock performance in developing countries is recommend by the author. When we turn to the case of Islamic banks in oil rich countries, we face different scenario for performance of Islamic banks and the factors which are affecting it. Efficiency of banks in Gulf countries was investigated by Abdullah (Turkistan, 2015). The author cohesively mentioned Gulf countries as rich countries in oil reserve. In these countries financial sector played an important role in transfer of fund and regional financial cooperation. Studying and assessing banking industry in Gulf countries are interesting in this region because it is consisting of both conventional and Islamic banks. This paper quantitatively analyses the performance of 54

commercial, traditional, and conventional banks for the years 2006-2011 using estimation technique of Meta-frontier analysis. The findings of the study show that conventional banks are performing better than Islamic banks and have a stable Return on Asset ROA ratio. Nevertheless, in Islamic banks Return on Asset ratio shows an unstable trend and have been fluctuating over period of time. In addition, Islamic banks show a lower credit growth than conventional banks. Therefore, this study recommends other scholars to assess and investigate the effect of technology on efficiency of banks in Gulf countries.

Based on the reviewed relevant studies, it is observed that many research studies investigated the performance of banks through different factors. Moreover, it can be concluded that there are two categories of factors which impact the performance of banks, such as bank specific and macroeconomic determinants (Turkistan; A. Alshatti; Boateng; Cho; Roman). Bank specific determinants are those that are directly correlated with a bank's management and performance. The main bank specific determinants included in the previous studies are credit risk, liquidity ratio, capital adequacy ratio, and the bank's size. Macroeconomic determinants are identified as the main determinants that are directly correlated with a country's macroeconomic and monetary policies, such as inflation and Gross Domestic Product. According to the relevant studies, it can be concluded that the developed financial sector, specifically financial intermediaries, is the main tool for stimulating economic development. The banking sector has a significant role in channeling funds from creditors to lenders. It indicates the significance of the performance of the financial sector and highlights that financial development is highly correlated with economic development. Moreover, the stability and performance of the banking sector are estimated using different ratios and approaches. Therefore, it can be concluded that transparency and precise financial reporting are significant parts of the financial stability of banks.

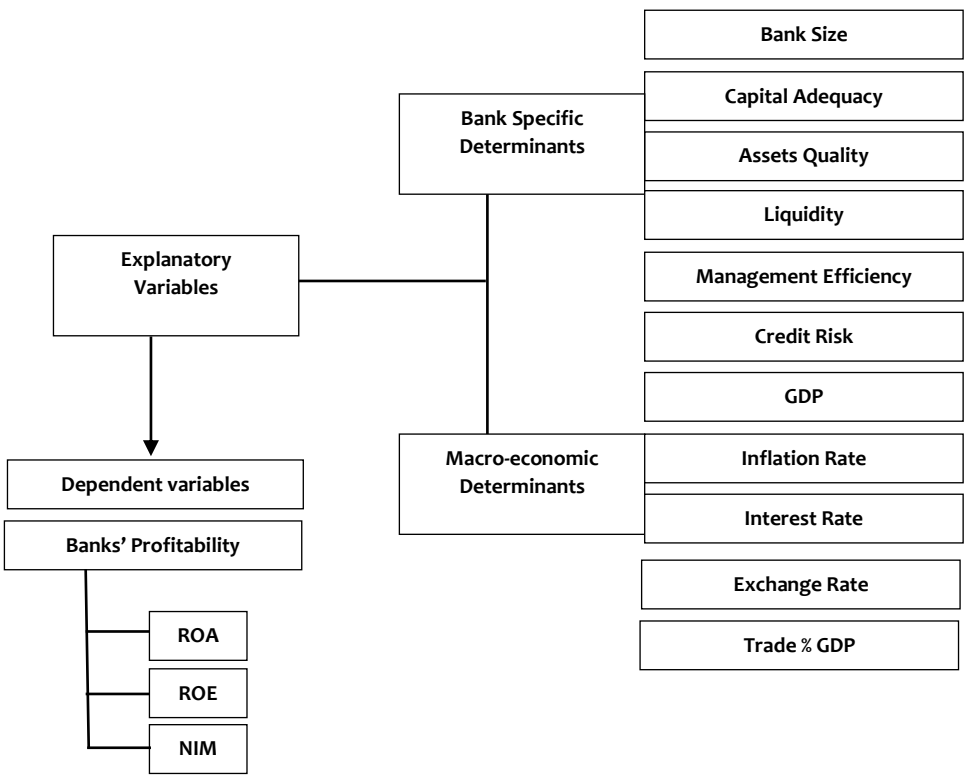
2.4. Literature Gap

Past studies indicate different types of findings both at a country-specific level (Xuan, 2017; Alshatti, 2016; Kamarudin, 2017; Serwadda, 2018; Che-Yahya, 2019) and at a cross- country level (Roman, 2018; Kouki, 2015; Rochdi, 2016; Cho, 2016). The relevant research studies covered many developed and developing countries, but not specifically Afghanistan. It is clear that there is no single conducted research study on the performance of the banking sector and its associated link with economic development in Afghanistan after the post transformation of the political regime in late 2001. Therefore, this study contributes to the previous findings of the studies by exploring factors influencing banking

performance in Afghanistan and its link with economic growth and enriches them in a way that covers the modern and updated financial and banking system period.

Financial researchers' primary research interests include the performance and profitability of banks, as well as the links between them. Since the financial and banking sectors play crucial roles in maintaining financial stability and channelling funds between the main sectors of the country and businesses, it significantly stimulates new private businesses, which finally leads to the economic development of the country. Based on relevant conducted studies, scholars are interested in assessing the performance of the banking system either at the country level or using pooled cross-country levels, while there is no specific research study regarding bank performance and economic development in Afghanistan. The literature shows two different sets of factors influencing the performance of the banking sector. External factors such as GDP growth rate, exchange rate, interest rate, trade ratio, and inflation, as well as bank specific factors such as capital adequacy ratio, bank size, and credit risk.

Figure 1: Theoretical Framework



Source: Adapted from Al-Homaidi, Tabash, Farhan and Almaqtari (2018)

3. Data and Methodology

This part explains the sampling and collection of data along with the research methodology selected for this study.

3.1 Data Collection and Sampling

This paper collects data for both bank-specific and macro-level data for the period 2010-2020 for ten operationalized banks out of twelve, comprising a total of 110 observations. The set of data analysed in this study is panel data, which covers both cross-section and time-series. Bank-specific variable data is collected from official websites of banks using their financial statements and income statement documents by applying certain formulas to obtain bank-specific ratios. Data for macroeconomic variables is derived from national statistics organisations in Afghanistan and the World Bank data set. The sampling criteria for this paper are designed with banks that have standardised audit and financial reports in mind.Besides, this paper studies those commercial and Islamic banks that are ranked as the most developed and operated banks, with a minimum of five active branches in different cities in Afghanistan. The other two omitted banks neither have complete standardised audit and financial statements nor operate in a minimum of five provinces in Afghanistan. Of the four state-owned banks, three of them are taken in the sample, all seven operationalized commercial and private banks are taken in the sample, and none of the foreign banks are included in the sample. Overall, out of 12 banks comprised of state-owned, private, and foreign banks, 10 of them are included in the sample, which shows that 83 per cent of all operationalized banks are taken into consideration in this study (see table 3).

Table 3: Lists of Banks and taken sample

Particular	State Owned Bank	Commercial Bank	Foreign Banks	Total
Total Banks	4	7	1	12
Sampled Banks	3	7	0	10
% of Sampled Banks	75%	100%	0%	83%

Source: Researcher's compilation

Consider that 83 per cent of the total banks in the country are of high importance. Moreover, this paper covers the most recent period in which no other research has been done on the case of Afghanistan.

3.2 Research Design

This paper investigates the factors that affect the performance of banks in Afghanistan and finds out the associated links between economic growth and the performance of the banking sector for a period

of 11 years from 2010-2020, for a total number of 11 operationalized banks in Afghanistan. It also investigates what macro-economic indicators are affecting the performance of banks in Afghanistan and what policies and reforms are needed to improve the banking sector's situation in Afghanistan to develop an advanced financial system in Afghanistan. This paper constructs a hypothesis based on different papers in the areas of the banking sector and economic development. For the empirical estimation, different statistical analysis methods will be estimated. Through different data sources and statistical techniques, this study will derive regression analysis for profitability ratio variables. Thus, it can be claimed that this study applies the positivism philosophy by finding the impact of each single variable using a quantitative approach.

The hypothesis of the paper was constructed based on the relevant previous studies and quantitative approaches. Through collecting data from decent sources which both directly and indirectly affect performance ratios of the banks and its association with economic development related factors, this paper applies deductive research approach to test the developed hypotheses using empirical estimation and analysis methods.

3.3 Model specification and econometric tools:

Past studies and papers on performance of banks and its relation to economic development have employed different economic models ranging from linear regression model to dynamic model to investigate the performance of banking sector and its associated link with economic development. According to (Menicucci and Paolucci, 2016) linear model is the proper form of analysis to examine banks' profitability. Considering the nature of data which is panel, consist of both time series and cross sectional, certain past studies (Almaqtari, 2018; Alshatti S. , 2016; Che-Yahya, 2019; Kamarudin, 2017) used dynamic model to track the changes of both time series and individual change for each taken dependent and independent variables. Considering the main goal of this paper which is to investigate the performance of banking sector and its associated link with economic development, this paper in refer to past studies and papers on this topic formulate a model to express that the banking sector performance is the function of both bank specific factors (internal) and

macroeconomic variables (external). As the result the fundamental root of formulating a model for this paper is:

Banking Sector performance= f (bank specific variables+ macroeconomic variables + Deviation/constant residual) The proxy for banking sector performance is taken as Return on Assets (ROA), Return on Equity (ROE) and Net Interest Margin (NIM) which are explained previously. Bank specific factors which are explained previously are including internal factors (bank size, asset quality, liquidity, management efficiency, capital adequacy and credit risk) and external factors (inflation, GDP growth rate, exchange rate, trade ratio and interest rate). Considering the developed model function and included both independent and dependent variables the following models can be developed as following for three main proxy of performance of banking sector.

$$ROA_{it} = \alpha_0 + a_1\,(Bank\ Size)_{it} + a_2\,(Liq)_{it} + a_3\,(Cap\_Ad)_{it} + a_4\,(Crt\_Ris)_{it} + a_5\,(Ass\_Qul)_{it} + a_6\,(Mg\_Eff)_{it} + a_7\,(GDP\ Growth)_{it} + a_8\,(Inf)_{it} + a_9\,(Exch)_{it} + a_{10}\,(Trade\%GDP)_{it} + a_{11}\,(Interest)_{it} + \varepsilon_{it}$$

$$ROE_{it} = \alpha_0 + a_1\,(Bank\ Size)_{it} + a_2\,(Liq)_{it} + a_3\,(Cap\_Ad)_{it} + a_4\,(Crt\_Ris)_{it} + a_5\,(Ass\_Qul)_{it} + a_6\,(Mg\_Eff)_{it} + a_7\,(GDP\ Growth)_{it} + a_8\,(Inf)_{it} + a_9\,(Exch)_{it} + a_{10}\,(Trade\%GDP)_{it} + a_{11}\,(Interest)_{it} + \varepsilon_{it}$$

$$NIM_{it} = \alpha_0 + a_1\,(Bank\ Size)_{it} + a_2\,(Liq)_{it} + a_3\,(Cap\_Ad)_{it} + a_4\,(Crt\_Ris)_{it} + a_5\,(Ass\_Qul)_{it} + a_6\,(Mg\_Eff)_{it} + a_7\,(GDP\ Growth)_{it} + a_8\,(Inf)_{it} + a_9\,(Exch)_{it} + a_{10}\,(Trade\%GDP)_{it} + a_{11}\,(Interest)_{it} + \varepsilon_{it}$$

Three models are developed for three dependent variables, and all independent variables, both internal and external, are included in the developed models. The subscription "i" refers to the number of banks and the subscription "t" refers to the year since the model will be analysed based on panel data consisting of both cross sectional "i" and time-variant "t", whereas α0 refers to the constant variables and α *(1-11)* refers to the coefficient of the variables, and "ε" is the error term controlling the deviation and constant residual of the variables.

For the empirical estimation, different statistical analysis methods will be estimated. Through different data sources and

statistical techniques, this study will derive regression analysis for profitability ratio variables. Thus, it can be claimed that this study applies the positivism philosophy by finding the impact of each single variable using a quantitative approach. This paper applies a deductive research approach to test the developed hypotheses using empirical estimation and analysis methods.

Table 4: Definitions and Measurements of Variables

Variable	Acronyms	Measure	Expected Effect	Evidence Prior Studies
Dependent variables: Banks' Profitability				
	RoA	$ROA = \frac{Net\ profit}{Total\ assets}$		(Chowdhury & Rasid, 2017; Garcia & Guerreiro, 2016; Karam Pal Narwal Shweta Pathneja, 2016; Menicucci & Paolucci, 2016; Naeem et al., 2017; (Almaqtari et al., 2018)
	ROE	$ROE = \frac{Net\ profit}{Total\ equity}$		
	NIM	$NIM = \frac{Net\ interest\ income}{Total\ assets}$		
Independent variables: Bank-specific factors				
Assets size	LnAS	Natural logarithm of total assets	Mixed	(Petria et al., 2015; Narwal & Pathneja, 2016; A. Singh & Sharma, 2016; Bougatef, 2017; Chowdhury & Rasid, 2017)
Capital adequacy	CAD	Equity/Total assets	Mixed	Petria et al., 2015; Bougatef, 2017; Rjoub et al., 2017; Salike & Ao, 2017)
Asset quality	AQ	$AQi_t = \frac{loan}{Total\ assets}$	Positive	Naeem et al., 2017; Rjoub et al., 2017)
Liquidity	LIQ	$LIQi_t = \frac{Liquid\ assets}{Total\ assets}$	Negative	Rani & Zergaw, 2017; Rjoub et al., 2017)
Management efficacy	ME	$MEi_t = \frac{Total\ operating\ exp}{Total\ assets}$	Negative	(Yahya et al., 2017)
Credit risk	CR	$CRi_t = \frac{Total\ credit\ loss}{Total\ credit\ issued}$	Negative	(Cho, 2016; Xuan, 2017)
Independent variables: Macroeconomics determinants				
Economic activity	GDP	Annual Real GDP growth rate	Mixed	(Zampara et al., 2017)
Inflation	IF	Annual inflation rate	Positive	(Petria et al., 2015; Saona, 2016)
Exchange rate	EXCH	Average exchange rate in a year	Positive	(Rani & Zergaw, 2017) ; (Rjoub et al., 2017)
Interest rate	INTRT	Lending interest	Positive	Rjoub et al., 2017; Almaqtari et al., 2018)

4. Data Analysis and Results

4.1 Statistics on data description

Table 4 illustrates the summary of data statistics. The summary of statistics shows the mean, maximum, minimum, and standard

deviation values for all dependent and independent variables. The mean of the ROA for the taken samples of banks is negative 0.02 while the ROE and NIM ratios are positive 0.2 and 0.02, respectively. Besides, the mean average value of bank size is 18, which implies greater asset availability. The liquidity ratio has a mean value of more than one, at 1.75, which states that banks have been liquid, meaning that banks can meet their level of payments to depositors for the past five years. The credit risk has a mean value of close to one, 0.933, which means that all credit issued for the last four years has been risky. Bank management efficiency has been greater than three, implying that operating expenses have been three times greater than net income after interest payments on average. Regarding the macroeconomic variable, Afghanistan has experienced average GDP growth of 4% during 2010-2020 with average inflation of 2.65 (see table 5).

Table 5: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
Dependent Variables				
ROA	-0.0270517	0.3120817	-3.262558	0.0929065
ROE	0.2186997	1.593966	-0.8168608	16.62988
NIM	0.0298137	0.0251227	-0.0231967	0.1065346
Bank Specific Independent Variables				
B_size	18.82431	3.284331	15.19956	24.66906
Liq	1.755613	9.207973	0.0875469	97.44337
Cap_Ad	0.0741953	0.4509743	-4.386061	1.306611
Ast_qlt	1.755613	9.207973	0.0875469	97.44337
Crt_risk	0.9337342	0.0948559	0.5088845	0.9969835
Mg_eff	3.333318	6.274262	0.0042435	46.15802
Macroeconomic Independent Variables				
GDP growth	4.419229	4.549808	0.4263548	14.36244
Inflation	2.675711	5.422521	-2.197526	16.59335
Interest rate	10.6037	4.518596	-1.241506	17.58394
Exchange rate	61.832	10.90295	46.45246	77.73795
Trade GDP	64.63348	17.30766	41.35698	88.77966

4.2 Correlation

At the second stage, this paper performs a correlation matrix for all dependent and independent variables. In regard to table 3, bank size has a negative relationship with ROA, ROE, and NIM. Liquidity, asset quality, and management efficiency show a negative correlation with ROA and NIM and a positive correlation with ROE. Moreover, capital adequacy shows a positive relationship with ROA and NIM and a negative relationship with

ROE. Credit risk shows a positive correlation with ROA and ROE and a negative correlation with the NIM ratio.

Regarding the macroeconomic variables, GDP growth rate, inflation, and trade ratio show negative relations with ROA, and a negative correlation with ROE and NIM ratio. In addition, interest rates show a negative correlation with all three ratios of profitability (ROA, ROE, and NIM).

Table 6: Correlation Matrix

	ROA	ROE	NIM	B_Size	Liq	Cap_Ad	Ast_qlt	Crt_risk	Mg_eff	GDP growth	Inflation	Interest rate	Exchange rate	Trade GDP
ROA	1.0000													
ROE	-0.0748	1.0000												
NIM	0.2173	-0.1068	1.0000											
B_Size	-0.0210	-0.0308	-0.0309	1.0000										
Liq	-0.9977	0.0333	-0.2029	0.0350	1.0000									
Cap_Ad	0.9547	-0.0604	0.3111	-0.0212	-0.9527	1.0000								
Ast_qlt	-0.9977	0.0333	-0.2029	0.0350	1.0000	-0.9527	1.0000							
Crt_risk	0.0264	0.0177	-0.7394	0.0725	-0.0350	-0.0662	-0.0350	1.0000						
Mg_eff	-0.2186	0.0998	-0.2964	0.1674	0.2035	-0.2620	0.2035	0.0775	1.0000					
GDP growth	-0.2192	0.1917	0.0460	-0.0255	0.2108	-0.1396	0.2108	-0.0706	-0.0817	1.0000				
Inflation	-0.0361	0.0955	0.0598	0.0239	0.0189	-0.0053	0.0189	-0.0685	0.0288	0.1430	1.0000			
Interest rate	-0.0017	-0.0889	-0.0141	-0.0556	0.0184	-0.0297	0.0184	0.0559	-0.0258	-0.0337	-0.8923	1.0000		
Exchange rate	0.1497	-0.1104	-0.1253	0.0381	-0.1365	0.1063	-0.1365	0.0610	-0.0008	-0.5414	-0.7278	0.4826	1.0000	
Trade GDP	-0.1065	0.1118	0.0509	0.0029	0.0920	-0.0647	0.092	-0.9630	-0.0414	0.4023	0.8188	-0.6166	-6728	1.0000

4.3 Multicollinearity Diagnostics

To check the multicollinearity, variance inflation factor (VIF) test is applied to check the multicollinearity among the variable. As it is shown in the table below, interest rate, liquidity, capital adequacy and inflation have high VIF value (greater than 10) while other remaining variables has low VIF value (less than 10). According to the rule of the VIF test, higher VIF value (greater than 10) shows that there is high correlation among the variables, while the low VIF value shows low correlation among the variables. However, considering the mean VIF value of the total variables, it shows low value of 8.98 which is smaller than 10 implying low correlation among variables as whole Table 7.

Table 4.3: Multicollinearity Test

Variable	VIF	1/VIF
Inflation	36.87	0.02712
Cap_Ad	14.21	0.070366
Liq	13.99	0.071496
interestrate	11.58	0.086322
Exchangerate	7.32	0.136621
TradeGDP	6.82	0.146597
GDPgrowth	3.36	0.297878
Ast_qlt	1.21	0.826658
Mg_eff	1.2	0.836808
Crt_risk	1.15	0.872344
B_size	1.08	0.927512
Mean VIF	8.98	

4.4 Empirical estimation

a) Fixed and random effect estimation method

As previously explained in literature review and methodology section of this paper, certain studies in the past (Contreras, 2018; Boateng, 2018; Roman, 2018; Serwadda, 2018; Almaqtari, 2018) used fixed and random effect estimation method to find the factors contributing to performance of banking sector and its relation with economic development. Table 7 shows the fixed effect estimation result of regression for three dependent variables namely, (ROA, ROE, NIM).

Considering the fixed effect regression for all three dependent variables, the regression which ROA is the dependent variable has the highest R-square ratio which is 0.997 implying that it explains 99% of relation between dependent variable (ROA) and independent variables. According to this regression, bank size has positive relation with ROA ratio at 99% confidence interval. One unit increase in bank size value increases the ROA ratio by 0.3 percent. Liquidity has negative relation with ROA ratio and the coefficient is significant at 99% level of confidence. One percent increase in liquidity increase the ROA ratio by 3%. Management efficiency has also significant impact at 95% level of confidence with ROA ratio, but the impact is very low. Among macroeconomic variables, only GDP growth rate has been significant at 90% level of confidence. One percent increase in GDP growth rate increases the ROE ratio by 0.13 unit and decrease the ROA ratio by 0.1 unit.

Table 7: Fixed-Effect Regression

Variables	ROA	ROE	NIM
B_size	0.00384***	-0.174*	-0.00150***
	-0.00112	-0.093	-0.000507
Liq	-0.0326***	-0.0742	0.000417
	-0.00076	-0.0632	-0.000344
Cap_Ad	0.022	-1.455	0.0181**
	-0.0161	-1.339	-0.00729
Ast_qlt	0.000234	1.982	0.0213**
	-0.0196	-1.626	-0.00886
Crt_risk	-0.0776	1.681	-0.0283
	-0.0501	-4.163	-0.0227
Mg_eff	-0.000807**	0.0418	-0.000299*
	-0.000358	-0.0298	-0.000162
GDP growth	-0.00122*	0.137**	-0.000328
	-0.000728	-0.0605	-0.00033
Inflation	-0.000998	0.128	-0.000157
	-0.00201	-0.167	-0.00091
Interest rate	0.000673	0.00893	0.000116
	-0.00135	-0.113	-0.000613
Exchange rate	-0.00033	0.0468	-0.000453**
	-0.000448	-0.0373	-0.000203
Trade GDP	8.24E-06	-0.0122	-2.51E-05
	-0.000272	-0.0226	-0.000123
Constant	0.0519	-2.871	0.0950***

	-0.0642	-5.339	-0.0291
Observations	110	110	110
R-squared	0.997	0.146	0.408
Number of Bank_id	10	10	10

Standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*
Source: Data output from Eviews 8.0

b) Random effect estimation

As shown in Table 8, regarding the random effect regression for all three dependent variables, regression that dependent variables are ROA and NIM have R-value of 0.99 and 0.71 respectively implying that they have explained 99% and 71% of relations among dependent and independent variables. While regression by taking ROE as dependent variable has low R-value of about 0.84 which indicates that it is not significant regression.

In regression where ROA has been taken as dependent variable, Bank size has shown significant factor contributing to the increase of profitability of banks. One unit increase in ROA leads to 0.2% increase in bank size considering the 99% level of confidence interval. Liquidity ratio shows negative relation with ROA ratio indicating that one unit increase in ratio of liquidity leads to 0.032 unit decrease in ratio of ROA. Management efficiency also shows negative relation with ROA, but the impact is negligible. Moreover, credit risks and asset quality show negative relation with NIM ratio and they significant at 99% level and 95% respectively.

Table 8: Random Effect Regression

Variables	(1) ROA	(2) ROE	(3) NIM
B_size	0.00246***	-0.0749	-0.00154***
	(0.000808)	(0.0625)	(0.000497)
Liq	-0.0325***	-0.0688	0.000595
	(0.000736)	(0.0609)	(0.000380)
Cap_Ad	0.0239	-1.386	0.0227***
	(0.0153)	(1.267)	(0.00800)
Ast_qlt	-0.00181	1.717	0.0216**
	(0.0180)	(1.464)	(0.00960)
Crt_risk	-0.0358	0.109	-0.0887***
	(0.0309)	(2.340)	(0.0205)
Mg_eff	-0.000844**	0.0322	-0.000360**
	(0.000336)	(0.0276)	(0.000177)
GDP growth	-0.00114	0.130**	-0.000427
	(0.000717)	(0.0596)	(0.000367)
Inflation	-0.000960	0.127	-0.000158
	(0.00199)	(0.165)	(0.00101)
Interest rate	0.000599	0.0177	0.000146
	(0.00134)	(0.111)	(0.000683)
Exchange rate	-0.000281	0.0419	-0.000480**
	(0.000442)	(0.0367)	(0.000226)
Trade GDP	2.17e-05	-0.0131	-5.49e-05
	(0.000268)	(0.0223)	(0.000137)

Constant	0.0370 (0.0516)	-2.709 (4.153)	0.155*** (0.0294)
Observations	110	110	110
R-squared	0.9964	0.0841	0.7158
Number of Bank_id	10	10	10

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: Data output from Eviews 8.0

c) GMM regression

Table 9 shows the GMM regression result for three dependent variables separately. For the regression taking ROA as dependent variable, the result shows that liquidity, credit risk, management efficiency are negatively related to the ROA ratio at 95%, 99%, and 95% level of confidence. One unit increase in ratio of liquidity leads to 0.04 unit decrease in ROA ratio. Credit risk is also negatively related implying that one unit increase in credit risk ratio leads to 0.05 decrease in ROA ratio. Management efficiency shows negative and significant relation with ROA but the impact is so low. On the other hand, bank size and capital adequacy are positively related with ROA ratio at 99% level of confidence. One unit increase in bank size leads to 0.02% increase in ROA ratio. Capital adequacy also increase ROA by 0.04 if it increases by one unit. Among macroeconomic factors, only GDP growth rate is significantly related to ROA ratio implying that one percent increase in GDP growth rate leads to 0.001 unit decrease in ROA ratio. Over identification test and Sargan test for GMM regression is applied which shows that this regression is not suffering from overidentification problem with chi value of over 66 and 120 for both overidentification and Sargan test.

Taking ROE in GMM regression as dependent variable, shows that bank size and capital adequacy are negatively related to ROE and management efficiency and GDP growth rate are positively related to ROE ratio. One percent increase in GDP growth rate leads to 0.25 unit increase in ROE ratio.

Taking NIM in GMM regression as dependent variable, it expresses that liquidity and capital adequacy are positively related to NIM ratio that on unit increase in Liquidity and capital adequacy ratio leads to 0.02 unit and 0.1 increase in NIM ratio respectively. On the other hand, bank size, management efficiency and credit risks are negatively related to NIM ratio.

Table 9: GMM Estimation Results Summary

VARIABLES	(1) ROA	(2) ROE	(3) NIM
L.ROA	-0.000752 (0.00725)		

Liq	-0.0402**	1.634	0.0235***
	(0.0187)	(1.616)	(0.00722)
B_size	0.00278***	-0.185**	-0.000861**
	(0.000884)	(0.0786)	(0.000338)
Cap_Ad	0.0479***	-3.825***	0.0178***
	(0.0162)	(1.379)	(0.00615)
Crt_risk	-0.0554**	2.533	-0.0575***
	(0.0251)	(2.137)	(0.0122)
Mg_eff	-0.000968**	0.0535*	-0.000323**
	(0.000386)	(0.0300)	(0.000137)
GDP growth	-0.00193***	0.253***	-0.000250
	(0.000683)	(0.0577)	(0.000258)
Inflation	-0.00107	0.0567	-0.000585
	(0.00191)	(0.161)	(0.000707)
Interest rate	0.000661	-0.0119	-0.000472
	(0.00125)	(0.105)	(0.000466)
Exchange rate	-0.000448	0.0285	-0.000317*
	(0.000431)	(0.0368)	(0.000164)
Trade GDP	-1.04e-05	-0.00162	7.98e-06
	(0.000250)	(0.0212)	(9.43e-05)
L.ROE		-0.136*	
		(0.0759)	
L.NIM			0.588***
			(0.0572)
Constant	0.0671	-2.394	0.0872***
	(0.0465)	(3.998)	(0.0216)
Over Identification test	Wald chi2(11) = 66.17	Wald chi2(11) =52.64	Wald chi2(11) =548.86
	Prob > chi2 = 0.0000	Prob > chi2 = 0.0000	Prob > chi2 = 0.0000
Sargan test	chi2(104) =120.3227	chi2(105) = 129.3421	chi2(105) = 128.5061
	Prob > chi2 = 0.1307	Prob > chi2 = 0.0537	Prob > chi2 = 0.0594
Number of Bank_ ID	10	10	10

*Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*
Source: Data output from Eviews 8.0

4.5 Discussions

This paper seeks to identify factors affecting banks performance for the total of 10 commercial banks in Afghanistan for the period of 2010-2020. The empirical analysis performed in the previous section determined the effect of each significant factors both bank internal factors and macroeconomic factors on profitability of banks according to the three-performance proxy measurement namely as ROA, ROE and NIM.

Three empirical analysis method were employed to analyse the impact of factors affecting banks profitability ratios. Fixed or and random effect regression methods and Generalized Method of Moments (GMM) were employed in the regression analysis for all three-profitability measurement of ROA, ROE and NIM.

In all three-estimation regression, bank size showed positive and significant relation with ROA ratio while liquidity ratio and management

efficiency showed negative relation with ROA ratio. Credit risk shown negative relation with ROA and capital adequacy positive relation with ROA ratio only in GMM regression. Among macroeconomic factors, only GDP growth rate showed significant and negative relation with ROA ratio in all three regressions. Result which derived from regression taking ROE and NIM ratios as dependent value possessed low explanatory ratios (R SQUARE VALUE) and mixed result for each independent variable with low level of significancy and negligible coefficient.

Considering the result of the empirical analysis and derived knowledge of what variables are linked with banking sector performance, this paper is a vital roadmap for directing policy action for the improvement of the banking sector in Afghanistan. The finding of this research is vital to the central bank's policy makers, investors, banking regulation authorities, economists, and researchers in the field of banking sector.

5. Conclusion, Recommendations and Policy Implication

For the investors, this study helps to determine if it is profitable to invest in the banking sector. Moreover, the empirical analysis and study of this paper helps bankers ranging from CEOs and founders to the officials who are in charge of operation of the bank to determine the operational efficiency and profitability performance of the banks considering the performance of the significant factors affecting performance and profitability of the banks in Afghanistan. The governance board of each bank can find efficient and effective ways on how to allocate resource and manage both credit and debit to maximize the performance of their banks. Identifying key major factors that affect the performance of the banking sector in this paper, it helps both investors and bankers to design certain policy in major areas of bank size, credit, liquidity, management efficiency and capital adequacy.

Banker should draft certain policies and take steps to increase the bank size and total assets. Increasing bank size directly increase the profitability of the banks. Putting more attention on capital adequacy can also help bankers to achieve higher target of profitability. Credit issuance is also among major factors affecting banks profitability. Hence bankers should take certain steps to regulate more efficiently the credit issuance to mitigate the risk associated with the credit issuance. And finally, bankers should devise their policies regarding the management efficiency. A week and inefficient operational management certainly decrease the profitability of the banking sector. All these policies should be considered taking the current monetary and macroeconomic situation of Afghanistan since external factor GDP growth rate also impacted the performance of the banking sector.

Banking sector has been playing major role in promoting economic activities ranging from small business to large multinational corporations. Banking sectors stimulate economic growth by providing financial resources for businesses and providing major services which can directly affect economic growth. Moreover, it plays an intermediary role in matching depositors to lenders or matching the extra fund or financial resources to investment or running businesses. Banking sector in Afghanistan has emerged since the collapse of Taliban regime and certain market reforms applied for development and expansion of banks in Afghanistan. It has also experienced shocks for the past years. Kabul Bank crisis was a major shock for the banking sector of Afghanistan. Considering the development of banking sector and the experienced shock, this paper aimed to study the performance of banks and its relationship with economic development. There have been numerous past studies in topic of banking sector performance and economic growth for different counties but there has not been any in context of Afghanistan. This paper takes sample of ten operating banks into analysis to find factors affecting the performance of banks by taking ROA, ROE and NIM ratios as proxies for performance of banks. Total of six bank specific variables and five macroeconomic variables are taken into analysis. Data were collected from banks official websites for bank specific factors and for macroeconomic factors data were collected from world bank database. Three main estimation methods namely fixed effect, random effect and GMM were taken into consideration to find what factors are affecting banking sector performance and what is the impact of macroeconomic factors on performance of banks. The empirical analysis showed that bank size, capital adequacy, management efficiency, liquidity, credit risk and GDP growth rate are among potential significant factors affecting performance of the banking sector in Afghanistan during the analysed period of years.

This paper paves the path for future researchers in aeras of development of banking sector to further enrich this topic considering certain drawbacks and shortcoming identified during the conduct of this paper. It is highly recommended for future researchers to include certain other variables such as tax rate to identify how taxation policies and regulation affect the performance of the banking sector profitability. Moreover, all included variables in this paper are quantitative. The inclusion of some qualitative variables such as dummy variables for products and services as well as dummy variables for its partnership with state-owned corporation should be taken into consideration when analysing banking sector performance. Lastly, this paper suggests future researchers in areas of banking sector performance to conduct a comparative analysis of banking sector in Afghanistan between state-

owned banks and private commercial banks to compare how private sector banking performs compare with the state-owned banks.

Overall, this paper enriches previous papers in areas of banking sector performance in a way that it studies banking sector in Afghanistan for the last years and provide a road map for policy makings in areas of development of banking sector. It shows that which factors are significant to stabilize and improve performance of banking sectors and guid bankers and investors to draft their policies accordingly.

5.2 Policy implication of the research

For the investors, this study helps to determine if it is profitable to invest in the banking sector. Moreover, the empirical analysis and study of this paper helps bankers ranging from CEOs and founders to the officials who are in charge of operation of the bank to determine the operational efficiency and profitability performance of the banks considering the performance of the significant factors affecting performance and profitability of the banks in Afghanistan. The governance board of each bank can find efficient and effective ways on how to allocate resource and manage both credit and debit to maximize the performance of their banks. Identifying key major factors that affect the performance of the banking sector in this paper, it helps both investors and bankers to design certain policy in major areas of bank size, credit, liquidity, management efficiency and capital adequacy.

Banker should draft certain policies and take steps to increase the bank size and total assets. Increasing bank size directly increase the profitability of the banks. Putting more attention on capital adequacy can also help bankers to achieve higher target of profitability. Credit issuance is also among major factors affecting banks profitability. Hence bankers should take certain steps to regulate more efficiently the credit issuance to mitigate the risk associated with the credit issuance. And finally, bankers should devise their policies regarding the management efficiency. A week and inefficient operational management certainly decrease the profitability of the banking sector. All these policies should be considered taking the current monetary and macroeconomic situation of Afghanistan since external factor GDP growth rate also impacted the performance of the banking sector.

References

Ajayi, Adebaayo. (2014). Determinants of banking sector development in Africa. *Department of Finance, University of Nigeria*.

Al-Adwani, Tahani S. (2015) Service Quality in Islamic and Conventional Banks in Kuwait: Analysis of Customers' Perceptions. *Gerlach Press*: Vol 3.

Almaqtari, Faozi. (2018). Bank-specific and macro-economic determinants of profitability, case of India. *Cogent Economics & Finance*.

Alshatti, Sulieman. (2016) Determinants of banks' profitability – the case of Jordan. *International Managment and Financial Innovation*: 84-91.

Asutay, Mehmet. (2015) Bank Supervision and Efficiency, case of GCC countries. *Gerlach Press*: Vol 3.

Bashir, Abdel-Hameed. (2015) Determinants of Islamic Banking Profitability. *Edinburgh University Press*.

Bashir, Farid. (2015) Stability of Islamic and Conventional Banks, case of Saudi Arabia. *Gerlach Press*: Vol 2.

Boateng, Kwadwo. (2018) Determinants of Bank Profitability: A Comparative Study of Indian and Ghanaian Banks. *Journal of Emerging Technologies and Innovative Research*: Volume 5, Issue 5 .

Che-Yahya, Norliza. (2019) Determinants of Commercial Banks' Profitability , case of Malaysia. *Journal of Entrepreneurship and Business*: Vol. 7, Issue 1, pp. 27-39.

Cho, Rae. (2016) Determinants of Multinational Banks. *Management International Review*: Vol. 26, No. 1, pp. 10-23.

Contreras, Kohlscheen. (2018) Profitability of commerical banks in emerging markets. *Banks for International Settlement*.

DAB. Banks. (2019). *Da Afghanistan Bank .* <http://dab.gov.af/en/page/about-the-bank>.

Fitrat, Abdul Qadir. (2018) *Tragedy of Kabul Bank*. Virginia USA: Page Publishing Inc,.

Giudici, Paolo. (2015) Estimating bank default. *Operational Research Society*: pp. 1783-1792.

Hassan, Kabir. (2015) Financial stability of Commercial Banks. *Gerlach Press*: Vol 2.

Kamarudin, Fakarudin. (2017) Bank-Specific and Macroeconomic Determinants of Profitability of commereical banks, case of Bangladesh. *The Bangladesh Development Studies*: Vol. 35, No. 4 pp. 1-28.

Kouki, Imen. (2015) Efficiency and Stock Market Performance of Islamic Banks, case of GCC countries. *Gerlach Press*.

Manuel Areliano, Olympia Boverb. (1995) Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*: 68 , 29-51.

Miyakawa, Daisuke. (2016) Natural disasters, damage to firm investment. *International Economic Review*: Vol. 57, No. 4, pp. 1335-1370.

Mohmand, Ali Muhammad.(2015) Evaluating Monetary Performance of Banking Sector: A Case Study of Afghanistan Banks. *University of Haripur Journal of Management*: 76-78.

Mullan, Phil. (2017) The problem of profitability. *Bristol University Press*.

Nadeem, Muhammad. (2017) Banks performance, A case of pakistan. *Pakistan Economic and Social Review*: VOl 53, page 331-350.

Rochdi, Mohamed. (2016) Accountign Performance and Derivatives peformance, case of emerging countries. *Centre for Socio-economic Dynamics and Cooperation of the University of Bergamo*: Vol 40, page 75-101.

Roman, Angela. (2018) The Determinants of Commercial Bank Profitability , case of CEE countries. *Romanian Statistical Review*.

Rosen, Daniel. (2018) China's Economy and the Importance of the Financial System. *Center for Strategic and International Studies (CSIS)*.

Serwadda, Isah. (2018) Determinants of profitability of commercial banks. case of Hungary. *Faculty of Business and Economics, Mendel University, Zemědělská*.

Shukla, Smita. (2014) Analysis of Banking System Performance Of Select Global economies. *Procedia Economics and Finance*.

StataCorp, LPAll. (2013) *Stata Longitudinal -Data/Panel-Data Reference Manual 13*. Texas: Stata Press,.

Tomasz, Wieladek. (2015) Bank Capital Regulation. *International Monetary Fund*: 955-983.

Turkistan, Abdullah. (2015) Determining the Efficiency of Islamic and Conventional banks, case of GCC. *Gerlach Press*.

Usman, Muhammad. (2015) Determinants of Commercial Banks Profitability, case of Pakistan .*International Journal of Accounting and Financial Reporting*.

Wafa, Ahmad Javed. (2014) Economic Trends and Their Impact on Banking Sector in Afghanistan. *Afghanistan Banks Association*.

Xuan, Pham. (2017) Determinants of Bank Profitability: Case of Vietnam. *Journal of Business Sciences*: 1-12.

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