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Macroeconomic Determinants of Banks' performance in Pakistan

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Abstract

Almost all business operations that are now taking place in the economy may be impacted by recent changes in the macroeconomic indicators of the nation. Thus, the study's objective was to assess the effect of particular macroeconomic factors on Pakistan's banking performance. For a period of 13 years (Pre-Covid era), the study tracked data from all active commercial banks in Pakistan (2006-2018). Results were obtained using multiple linear regression and correlation analyses on EViews. According to correlation findings, there was no connection between the exchange ratee and NIM or ROE. All other factors, however, were associated with one another. NP L, capital ratio, GDP, and capital ratio were all identified by the research as the primary factors influencing changes in bank profitability.

1. INTRODUCTION

1.1 Background of the study

Economic fluctuation and slowdown can take place in any country, leaving devastating effects on the country's financial system (Wulandari et al., 2017). Pakistan is facing financial crisis since many decades; its fiscal deficit has been increasing rapidly. It has rose up to 8.9% of GDP in 2018-19, which stands at Rs 3.445 trillion in amount (Pakistan Economic Surveys). Moreover, Pakistan has taken a bailout package of $6 billion from international monetary fund, which further enhanced the country's external debt reaching to 106.3 USD billion in June 2019(ceicdata.com). To recover the debt, government of Pakistan has increased the prices of goods, which has ultimately influenced people's savings.

Pakistan had faced a huge shift in its macroeconomic indicators in the year 2017-2018. For example, annual GDP in 2017 was 5.79% which decreased to 5.2% in 2018 (trading economics.com). Real interest rate increased from 5.75% in 2017 to 10% in 2018 and today it has reached to 13.25% (countryeconomy.com). Foreign exchange rate against dollar was 110.5561 PKR in December 2017, which raised to 139.8502 PKR in December 2018. However, currently it is 156.8802 PKR (exchange rates.org.uk). As a surprising figure, inflation rate had decreased from 4.15% in 2017 to 3.93% in 2018, but currently it has reached to 7.64%(statista.com). Since bank deals with money of people, so any shift in people's saving pattern may affect banks performance in term of profitability and liquidity. Gross domestic saving rate has also seen a decline from 6.812% in 2017 to 5.783% in 2018, whereas currently it is 5.230(ceicdata.com).

Keywords: *Banks Performance; Unemployment rate; inflation, Money supply; Pre Covid; Pakistan.*

JEL Classification: *G00, G01*

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Since, banking system works as a backbone for the development of economic growth of a country, therefore it must be stable and work well. With the rise of globalization, the role of banks has increased in almost every business. Banks contribute to the operations of businesses in various ways such as, it serves as a source of financing, assists in financial transactions between firms and provides facilities to importers and exporters (Ameer, 2015). The contribution of Pakistan banking system has increased due to transactions carried in money and capital market. Hence, any change in market may affect banks performance (Qazi Abdul Subhan,2010).

It has been repo Pakistan's Pakistan banking industry faced a terrible decline in its profit by 14.6% in 2018In local market, banking industry lost huge amount of 13.2 billion PKR, with the overall profit standing at 76.2 billion PKR. Additionally, most of the banks had seen no or very minimal growth in profits in 2018.In overseas market, the profit of local banks dropped down by 41% which is 2 billion PKR. The overall profit decreased from 4.8 billion PKR in 2017 to 2.8 billion PKR in 2018. Banks collect society's funds and give that fund as credit to society's people (Wulandari et al., 2017). Since, banks play a vital role in Pakistan's economy, it should be given attention – it is vulnerable to both internal and external risk. It is better to minimize any negative impact of financial crisis before it actually affects the system.

It is highlighted by Klynveld Peat Marwick Goerdeler (KPMG) banking survey report, that the banking system of Pakistan is developing and improving every year. Its performance remains remarkable every year with new records of profitability. But, in 2017, all banks faced a decline in their profits whereas, in 2018, the overall profitability of banks only raised with 1.97%. it seems that banks may tend to face many obstacles in reaching the goals which are set as benchmark. These factors can be both internal or external. There are several studies conducted in different countries to know the possible factors that may affect banks' performance. But, there still exists a vacuum to look deep into macroeconomic indicators of a country considering the current situation, which may have an effect on banks performance.

1.2 Problem statement

According to KPMG banking survey report, banks' performance has been affected in last 2 years. In 2017, banks did not report any growth in profits, however, in 2018, there is very minimum growth in profits. Additionally, many local banks such as Habib Bank Limited and Bank Al Habib have shut down their many branches in foreign countries, which ultimately affected their profitability(propakistani.pk). Moreover, bank's average deposit has also decreased by 0.58% from 45.72% in 2017 to 45.14% in 2018.Country's current economic condition is also vulnerable, therefore there is a rise in inflation, fiscal deficit and current account balance. The economic indicators such as GDP, GNP has been deteriorating. Most importantly, there is major fluctuation in monetary policy with wide change in interest rate and exchange rate. Since banks serve as backbone for country's economy. So, it is important to study the impact of macroeconomic indicators on banks' performance.

1.3 Research objectives

The purpose of the study is to analyze the impact of macroeconomic factors on the performance of listed commercial banks of Pakistan. The study attempts to quantify the change cause to banks performance by any fluctuations occurred in the the country's economic indicators. Specifically, the study has been done to achieve the following objectives:

1. To know the influence of deposits on banks' performance
2. To find the change caused by non-performing loans in banks performance

3. To explore the relationship which exist between capital ratio and banks performance
4. To identify the effects GDP has on banks performance.
5. To find out the changes if any in banks performance with the change in real interest rate.
6. To measure the extent and nature of the relationship between exchange rate and banks' performance.
7. To evaluate the impact of unemployment rate on banks performance.
8. To assess the effect of FDI on banks performance.
9. To know the nature of relationship between broad money supply and banks performance.

1.4 Research question

1. How deposits affect banks performance?
2. Does non-performing loan bring any change in banks performance?
3. Does any relationship exist between capital ratio and banks performance?
4. How GDP affect banks performance?
5. Does a change in real interest rate bring any change in banks performance?
6. Does any relationship exist between exchange rate and banks performance?
7. Does the unemployment rate have any impact on banks performance?
8. How Foreign direct investment affect banks performance?
9. Does broad Money supply have any impact on banks performance?

1.5 Research hypotheses

H1: Deposits do not have any impact on banks performance.
H2: Non-performing loans do not have any impact on banks performance
H3: Capital ratio does not have any impact on banks performance.
H4: Real interest rate does not have any impact on banks performance.
H5: Exchange rate does not have any impact on banks performance.
H6: Unemployment rate does not have any impact on banks performance.
H7: Foreign direct investment does not have any impact on banks performance.
H8: Oil prices do not have any impact on banks performance.
H9: Money supply do not have any impact on banks performance.

1.6 Contribution of the study

The study adds more knowledge through its resto in the existing store of literature related to the topic. The results of the study help banks in taking early prevention measures against any future economic shocks in the country. Additionally, the study is also using FDI as a determinant of Pakistan's bank performance, which has been studied in only 2 papers (Ameer,2015; Caro,2017) in last 15 years.

2. LITERATURE REVIEW

The determining factors of banks performance has been studied by many scholars. Some of them were country specific and few of them selected number of countries for evaluating the determinants of profitability and liquidity of banks. Many of these studies have looked into both internal and external factors, but there are some studies that have focused only on external factors (Ifuero et al., 2014; Pratama,2015; Caro, 2017; Saeed & Akhter, 2012; Kiganda, 2014). Similarly, this study tends to review only external factors as determinants of banks performance.

Hasanov et al. (2018), investigated the impact of both internal and external factors on banks profitability in Azerbaijan. It sampled 22 banks for the quarterly period of 2012- 2017. By

applying panel generalized methods of moments, they concluded that increase in bank size, capital, loans lead to increase in profitability. Decrease in economic cycle, inflation expectation, and oil prices leads to decrease in profitability. Increase in deposits, liquidity risk, and exchange rate devaluation decreases profitability. Similarly, Ali et al. (2011), explored the impact of both factors on 22 banks of Pakistan for the period of 2006-2009 by running regression. They found that increase in efficient asset management, operational efficiency and economic growth cause an increase in banks profitability. However, increase in capitalization and credit risk leads to decrease in banks profitability.Egbunike and Okerekeoti(2018), examined the impact of interest rate, inflation rate, exchange rate and GDP growth rate along with internal factors on financial performance of manufacturing firms of Nigeria for the period of 2011-2017. Regression results reveal that change in GDP and inflation rate affect Nigerian firms' performance. Gaber (2018) investigated the impact of economic growth & inflation along with internal factors on the performance of Palestinian banks for the period of 1995-2015. OLS method results show that Palestinian bank are not affected by change in inflation and economic growth. Bhattarai (2018), contributed to the field by studying the impact of GDP, exchange rate & inflation along with control factors on the performance of 17 Nepalese banks for the period of 2011-2016. Regression results reveal that performance of Nepalese banks is not affected by change in external factors. Same results are found out by Malahimm and Khatib (2018), who checked the impact of gross domestic product growth rate, inflation rate, and unemployment rate along with internal factors on the performance of 16 banks of Jordan for the period of 2012-2016. Mahmood et al. (2019), evaluated the impact of GDP, inflation, policy rate and unemployment with internal factors on the liquidity of Pakistani bank for the period of 2000-2017.

By the results obtained by FMOLS approach, it is evident that increase in GDP and unemployment negatively affect banks liquidity. However, increase in policy rate positively affect banks' liquidity, whereas the latter is not affected by any change in inflation. 59 Indian banks were sampled by Singh and Sharma (2016) for examining the impact of GDP, inflation and unemployment along with internal factors on banks liquidity for the period of 2000-2013. Results derived by fixed and random effect show that Indian banks' liquidity is affected by change in GDP and inflation. However, inflation rate doesn't affect banks' liquidity similar to (Mahmood et al., 2019). Wulandari et al. (2017), set themselves as forerunner by examining the effect of both factors on banking distress instead of performance. By selecting 28 Indonesian banks for the period of 2010-2014, they concluded that Indonesian banks are affected by both types of factors. Riaz & Mehar attempted to examine the impact of interest rate along with internal factors on profitability of 32 Pakistani banks for the period of 2006-2010. Regression results highlight that any change in interest rate along with selected internal factors cause a change in banks' profitability.

Aviliani et al. (2015), examined the impact of external factors on the performance of banks of Indonesia. They collected the data for the period of 2006-2013. The selected variables were inflation rate, bank rate, exchange rate and crude oil price. Among them, only bank rate has large influence on Indonesian banks. Issah and Antwi (2017), also studied external factors impact on 116 listed companies of UK for the period of 2002-2014 by using multiple regression to reach conclusion. That is, there exists an association between banks performance and external factors. Similarly, Akani et al. (2016), checked the impact of inflation rate, real GDP, exchange rate, real interest rate, unemployment rate and money supply on performance of banks in Nigeria for the period of 1980-2014. By applying the test of co-integration, unit root and causality, they concluded a positive substantial association between Nigerian banks performance and external factors. Kanwal & Nadeem (2013), inducted into this topic by taking 18 commercial banks of Pakistan for the period of 2002-2011. With an application of OLS

method, results indicate that banks performance is not affected by change in inflation rate, interest rate and real GDP. Adama and Togbenou(2017), examined the impact of only external factors on 9 banks of Togo for the period of 2006-2015. The results highlight that increase in GDP and exchange rate lead to decrease in banks profitability in the long run, whereas inflation do not pose any influence on banks profitability. Abusomwan(2018), also found out that increase in macroeconomic stability leads to increase profitability of Nigerian banks. Ifuero , Osamwonyi and Michael(2014), checked the impact of GDP, interest rate and inflation on listed banks of Nigeria for the period of 1990-2013. Ordinary Least Squares (OLS) results highlight that increase in GDP leads to increase Nigerian banks performance, decrease in interest rate tends to increase Nigerian banks performance, whereas change in inflation do not affect the performance of Nigerian banks. Pratama (2015) examined the impact of inflation, interest rates and exchange rate on the performance of Islamic banks of Indonesia for the period of 2007-2012.

The Vector Error Correction Model (VECM) results show that performance of Indonesian Islamic banks is affected by external factors only in the short run. Caro (2017), examined the impact of GDP, inflation, unemployment rate and FDI, NPL rate, interest rate, mark-up rates and exchange rate on the performance of 60 MFIs of Ecuador for the period of 2003-2013. Regression results show that no MFI is affected by change in any selected external factor. Saeed and Akhter (2012), examined the impact of Money Supply, Exchange Rate, Industrial Production, Short Term Interest Rate and Oil prices on banking index of Pakistan. Regression test was run on data of 29 banks for the period of 2000-2010. The results indicate that increase in Money Supply, Exchange Rate, Industrial Production, and Interest Rate decreases the banking index, whereas with the increase in oil prices, banking index increases.

Although the topic had been studied by many scholars, but there is still vacuum to be filled. This study attempts to fill the gap by studying this topic within the current time frame, with large sample and most importantly, it explores the topic with detailed framework and also fills the gap in literature by including FDI that has not been studied before particularly within the context of Pakistani banks.

2.1 Key concepts and definitions:

Macroeconomic variables*:* They show overall economic status of a country. These factors may have impact on banks performance as found by many researchers in their studies carried out in different countries (Riaz & Mehar,2013; Aviliani et al., 2015). These are the external factors which are out of control of banks' management. The widely used economic indicators are; GDP, inflation rate, and interest rate. However, this study also selects unemployment rate, industrial production, exchange rate, FDI and money supply.

Gross domestic product (GDP): measures the amount generated by the production of goods and services within the country. It is a measure of economic activity which is used in many studies. The theory suggest that bank performance may enhance due to rise in GDP because people can payback their loans on due date so it decreases bad debts; people borrow more for production which increases banks' interest income (Combey & Togbenou, 2017).

Interest rate: is the rate which bank charge to borrower along with principal amount. It is rate of return for bank and cost of debt for the borrower. Exchange rate is the value of one currency versus the value of other currency, say 1$= 156.05PKR.

Unemployment rate: reflects the percentage of unemployed worker out of total workforce of a country.

Foreign direct investment: is the money brought by firms or individuals of one country in the business activities located in other country.

Money supply: M0 and M1 means all cash or liquid instrument available in country's economy at a particular time. M2 includes M1, in addition to short term banks deposits and other money market funds.

Banks performance: To measure banks performance, many studies look into financial statements of banks. Financial statement shows banks' performance by profitability indicators, that is banks' ability to use theirs asseto to produce profits in excess over(myaccountingcourse.com). The mostly used profitability indicators in studies are ROA and ROE (Hasanov et al., 2018; Issah & Antw,2017; Egbunike & Okerekeoti,2018; Abel & Roux,2016; Bilal et al., 2013). However, this study adopts NIM with ROA and ROE.

Akhtar et al. (2017) define **return on asset (ROA)** as a measure that shows the profitability of banks by utilization of its assets. It also shows the management' efficiency in generating profits by through the use of its assets.

Return on equity (ROE) shows the profits the bank generates through the investment of shareholders' equity. Banks with higher ratios ratio are assumed to be more profitable.

Net interest margin (NIM) is the difference obtained by deducting the amount of interest earned on advances by the banks and the amount of interest given to depositors in relation to banks' earning assets.

2.2 Conceptual framework:

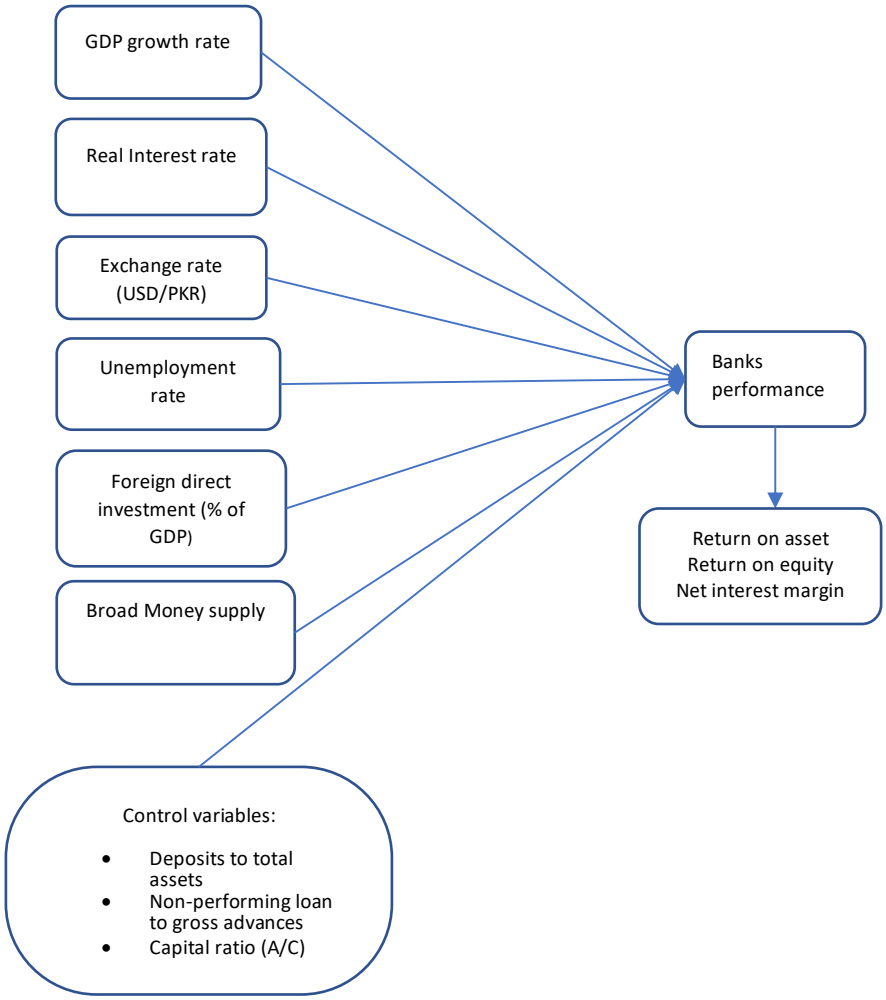

Figure 1: Conceptual framework

2.3 Theoretical underpinnings:

To support the relationship between macroeconomic indicators and banks performance, following theories has been studied.

Arbitrage pricing theory: When there is an increase in inflation, people tend to have less savings. Consequently, there is deduction in investment too which may affect banks performance. For instance (decrease in deposits), a person earns 5000 Rs a month and deposits 1000 Rs in bank every month, but after an increase in prices of goods, he cannot save, hence will not be able to deposit any amount in the bank. I another case se (increase in bad loans), if a person has taken a loan of 1m Rs and pays 10k Rs every month, if inflation increases, then he will not be able to pay back to bank, hence bank will suffer. Arbitrage pricing theory (APT) explains that price of an asset is affected by multiple factors that can be macroeconomic variables (Saeed & Akhter,2012). For bank, advances and loan to institutions are assets which are vulnerable to the risk of fluctuation in macroeconomic indicators of the country. This study has tested the hypothesis of this theory by checking whether fluctuation in inflation rate affects banks performance.

Quantity theory of money: Banks performance is also affected when there is change in interest rate. For example, deposits increase when interest rate increases, because people deposit more money in bank to get high returns. As a result, disposable income decreases which leads to decrease in inflation. On the contrary banks asset increases, when interest rate decreases because people

take more loan from bank and withdraw their deposit to invest somewhere else for high return. As a result, money supply increases in market because customer has more money to spend in market, thus inflation rises. Quantity theory of money supports the relationship between variations in money supply and variations in price of goods. This study has tested the hypothesis of this theory by checking whether fluctuation in interest rate affects banks performance.

Increase in unemployment rate may benefit banks by causing a reduction in their operating expenses. When there is high unemployment rate in the country, bank can delay the increment in salaries of employees, hence decreasing operating cost. There exists a negative association between unemployment rate and economic growth. When unemployment rises, demand for product decreases which affect industrial production. This decline the need of labor, which ultimately elevate unemployment rate (Kemi & Dayo ,2014). No theory has been found that directly supports the relationship between unemployment rate and banks performance. However, many studies have used the former factor and found that increase in unemployment adversely affect banks performance (Akani et al., 2016; Mahmood et al., 2019). This study has tested the conclusions drawn by former researchers with respect to the association between unemployment and banks performance. The result of this study may help in formulating the theory relating to this aspect.

3. RESEARCH METHODOLOGY

The research methodology of the study is discussed in the following sections.

3.1 Research philosophy & approach

Since this study used secondary data—that is, already available data—it is value-free and does not represent the researcher's data collecting efforts. During the process of collecting data, the researchers would engage with research participants as little as possible, if at all (Wilson, J. ,2010). The gathering and analysis of data, however, becomes the sole responsibility of the researcher. Using the Post positivism philosophy, which incorporates quantified observations leading to statistical analysis, encompasses all of these traits. The world is assumed to be objective and external in this research, which is solely fact-based. This indicates that the researcher's prejudice or personal interests had no impact on the study's findings. Furthermore, the conclusions drawn from the data are still accurate because they are based on published data that has previously been validated and vetted. However, there is no assurance that the outcomes are accurate.

Through the statistical analysis, this study created hypotheses that were then evaluated. These traits steer the investigation in the direction of deduction. Additionally, investigations using the positivist research paradigm frequently use logical reasoning (Crowther & Lancaster, 2008). The study begins with a broad assumption (theory), collects data, and then analyses the evidence to arrive at a particular conclusion that is applicable to Pakistan. According to Wilson, J. (2010), the deductive method is a procedure that entails developing hypotheses based on accepted theory before deciding on a research plan to verify the hypotheses. Deductive reasoning, according to Pelissier et al. (2008), is the process of beginning with a broad statement and coming to a particular conclusion. Certain here refers to fitting for a specific situation.

3.2 Research strategies, choice and time horizon

Since the information was obtained from websites for the nation's economy statistics and public records of banks, the research was conducted using an archival research technique. This approach is appropriate for research that adheres to positivism since it allows for the collection of objective facts from the records. The primary motivation for using this technique is to arrive at a reliable result. It also appears to be the best strategy for testing the hypotheses.
Since the study's data collection and data interpretation are both quantitative, just one research method is used. It is employed when research collects and analyses data alone using a quantitative or qualitative technique. (Azorín & Cameron,2010).

The study has collected data over a specific time period and from many banks, hence its time horizon is a panel study, one of the categories of longitudinal study. It is utilized in situations when data is gathered over a set period of time from a sample drawn from a larger population. It aids researchers in observing development trends over a longer time span and drawing reliable and logical conclusions.3.3 Data collection sources. The study collects secondary data. The state bank of Pakistan's publications and annual reports are where data on the bank's performance metrics are found. You may get information about a country's macroeconomic indicators on the global bank website.

3.3 Data analysis technique

After ensuring that the data are normal using the multicollinearity, heteroskedasticity, and model specification tests, data analysis is performed using multiple linear regression on E-views. Regression analysis is used to determine the amount of growth an independent variable can contribute to the dependent variable while holding another parameters constant. Because the research involves more than one independent variable, multiple regression is performed.

3.4 Sample size

The population is 35 financial institutions members listed on State bank of Pakistan website. However, the study has selected 32 commercial banks. The sample has excluded the banks that are merged or acquired e.g. Burj bank is now part of Al Baraka bank; NIB is now owned by MCB. It also excluded bank whose data is unavailable from 2006 like MCB Islamic. The time period for the data collection is 13 years pre covid era (2006-2018).

4. RESEARCH MODELS

The multiple linear regression equation developed to test the causality is:

$$ROA_{it}=\beta_0+\beta_1 DTA_{it}+\beta_2 NPL_{it}+\beta_3 CAPR_{it}+\beta_4 GDP4_{it}+\beta_5 FDI_{it}+\beta_6 INT_{it}+\beta_7 BROAD\_MONEY_{it}+\beta_8 UNEM_{it}+\beta_9 EXCR_{it}+u_{it} \quad \textbf{(eq a)}$$

$$ROE_{it}=\beta_0+\beta_1 DTA_{it}+\beta_2 NPL_{it}+\beta_3 CAPR_{it}+\beta_4 GDP4_{it}+\beta_5 FDI_{it}+\beta_6 INT_{it}+\beta_7 BROAD\_MONEY_{it}+\beta_8 UNEM_{it}+\beta_9 EXCR_{it}+u_{it} \quad \textbf{(eq b)}$$

$$NIM_{it}=\beta_0+\beta_1 DTA_{it}+\beta_2 NPL_{it}+\beta_3 CAPR_{it}+\beta_4 GDP4_{it}+\beta_5 FDI_{it}+\beta_6 INT_{it}+\beta_7 BROAD\_MONEY_{it}+\beta_8 UNEM_{it}+\beta_9 EXCR_{it}+u_{it} \quad \textbf{(eq c)}$$

5. FINDINGS AND ANALYSIS

Correlation analysis is used to view the nature of relationship exist between variables. Positive r means increase in one variable leads to increase in other variables; whereas negative r means increase in one variable leads to decrease in other variables. The value of correlation coefficient

lies between -1 to +1. The closer the value of correlation to +1 or -1, the stronger the relationship exists between variables. The given table is showing the correlation between the variables of study.

Table 1: Correlation analysis

	NIM	**ROA**	**ROE**	**DTA**	**NPL**	**CAPR**	**GDP**	**FDI**	**INT**	**BRDM**	**UNEM**	**EXCR**
NIM	1.00	0.30	0.13	-0.01	-0.21	0.33	-0.09	-0.05	0.01	-0.08	-0.02	0.00
ROA	0.30	1.00	0.22	-0.04	-0.15	-0.19	0.08	-0.12	0.12	-0.07	0.14	0.12
ROE	0.13	0.22	1.00	0.01	-0.18	0.00	0.02	-0.07	0.02	-0.01	0.01	0.00
DTA	-0.01	-0.04	0.01	1.00	-0.07	0.04	0.02	0.05	0.02	0.00	-0.05	-0.08
NPL	-0.21	-0.15	-0.18	-0.07	1.00	-0.66	-0.08	0.02	0.04	-0.01	-0.02	0.02
CAPR	0.33	-0.19	0.00	0.04	-0.66	1.00	-0.02	0.04	-0.04	0.03	-0.06	-0.06
GDP	-0.09	0.08	0.02	0.02	-0.08	-0.02	1.00	-0.33	0.26	0.36	0.57	0.28
FDI	-0.05	-0.12	-0.07	0.05	0.02	0.04	-0.33	1.00	-0.58	0.33	-0.65	-0.66
INT	0.01	0.12	0.02	0.02	0.04	-0.04	0.26	-0.58	1.00	-0.53	0.70	0.64
BROAD_MONEY	-0.08	-0.07	-0.01	0.01	-0.01	0.03	0.36	0.33	-0.53	1.00	-0.36	-0.55
UNEM	-0.02	0.14	0.01	-0.05	-0.02	-0.06	0.57	-0.65	0.70	-0.36	1.00	0.86
EXCR	0.00	0.12	0.00	-0.08	0.02	-0.06	0.28	-0.66	0.64	-0.55	0.86	1.00

Looking at table 1, we can see that NIM has no relationship with exchange rate. However, it has positive relationship with return on assets, return on equity, capital ratio and interest rate; whereas it has negative relationship with deposits to total assets, non-performing loan, GDP, FDI, broad money and unemployment rate. With ROA, we can see that ROA is positively correlated with NIM, return on equity, GDP, interest rate, unemployment and exchange rate; whereas it is negatively correlated with deposit to total assets, non-performing loan, capital ratio, FDI and Broad money. With ROE, it is prominent that ROE has no relationship with exchange rate and broad money. However, ROE is positively correlated with NIM, ROA, deposit to total assets, GDP, interest rate and unemployment rate; whereas it has negative relationship with non-performing loan, FDI and broad money supply.

Table 2
Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/24/19 Time: 23:11
Sample: 2006 2018
Periods included: 13
Cross-sections included: 32
Dependent Variable: ROA

Table 2: Dependent Variable: ROA

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	1.726153	1.353046	1.275753	0.2028
DTA	-0.000462	0.000433	-1.066132	0.2870
NPL	-0.058093	0.007128	-8.150047	0.0000
UNEM	0.175268	0.241948	0.724403	0.4692
INT	0.015102	0.035557	0.424713	0.6713
GDP	0.133219	0.079334	1.679217	0.0939
FDI	-0.010089	0.017368	-0.580879	0.5616
EXCR	1.341472	0.550057	2.438788	0.0152
CAPR	-0.012068	0.001415	-8.526414	0.0000
BROAD_MONEY	0.000981	0.021934	0.044709	0.9644
R-squared	0.190876	Mean dependent var		0.628870
Adjusted R-squared	0.172940	S.D. dependent var		2.370264
S.E. of regression	2.155586	Akaike info criterion		4.397747
Sum squared resid	1886.499	Schwarz criterion		4.494638
Log likelihood	-904.7314	Hannan-Quinn criter.		4.436058
F-statistic	10.64191	Durbin-Watson stat		0.955130
Prob(F-statistic)	0.000000			

In table 2, the impact of explanatory variables has been checked on ROA. It seems that model is significant with F-Stats (10.64) greater than 4. Adj R squared with 17% is explanatory power of the model.

The equation becomes

$ROA_{it} = 1.72 + 0.133GDP_{it} - 0.058NPL_{it} + 1.34EXCR_{it} - 0.012CAPR_{it}$

As per sig value, GDP, non-performing loan, exchange rate and capital ratio are found to be significant at 0.10% level of significance. 1% variation in GDP tend to increase ROA with 13%, ceteris peribus. 1% variation in non-performing loan tend to decrease ROA with 5.8%, ceteris peribus. 1% change in exchange rate will lead to change ROA by 1.3%, ceteris peribus. 1% change in capital ratio will lead to change ROA by 1.2%, ceteris peribus.

Table 3:
Dependent Variable: ROE
Method: Panel Least Squares
Date: 11/24/19 Time: 23:11
Sample: 2006 2018
Periods included: 13
Cross-sections included: 32
Total panel (balanced) observations: 416

Table 3: Dependent Variable: ROE

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	109.3294	93.05475	1.174893	0.2407
DTA	-0.005008	0.029794	-0.168074	0.8666
NPL	-2.401038	0.490215	-4.897931	0.0000
UNEM	-6.556663	16.63982	-0.394035	0.6938
INT	0.648701	2.445422	0.265272	0.7909
GDP	-2.183908	9.141780	-0.238893	0.8113
FDI	-2.104597	1.194457	-1.761969	0.0788
EXCR	-0.323584	0.970635	-0.333374	0.7390
CAPR	-0.313945	0.097340	-3.225237	0.0014
BROAD_MONEY	0.265388	1.508460	0.175933	0.8604
R-squared	0.064619	Mean dependent var		-4.348486
Adjusted R-squared	0.243883	S.D. dependent var		151.6128
S.E. of regression	148.2488	Akaike info criterion		12.85941
Sum squared resid	8922950.	Schwarz criterion		12.95630
Log likelihood	-2664.756	Hannan-Quinn criter.		12.89772
F-statistic	15.116391	Durbin-Watson stat		2.264217
Prob(F-statistic)	0.001222			

In table 3, the impact of explanatory variables has been checked on ROE. It seems that model is significant with F-Stats (15.11) greater than 4. Adj R squared indicates that 24% variation in ROE is explained by the model.

The equation becomes

$ROE_{it} = 109.32 - 2.40NPL_{it} - 2.10FDI_{it} - 0.313CAPR_{it}$

As per sig value, non-performing loan, FDI and capital ratio are found to be significant at 0.10% level of significance. 1% variation in non-performing loan tend to decrease ROE with 2.40%, ceteris peribus. 1% variation in FDI tend to decrease ROE with 2.10%, ceteris peribus 1% change in capital ratio will lead to change ROE by 0.31%, ceteris peribus.

Table 4
Dependent Variable: NIM
Method: Panel Least Squares
Date: 11/24/19 Time: 23:12
Sample: 2006 2018
Periods included: 13
Cross-sections included: 32
Total panel (balanced) observations: 416

Table 4 : Dependent Variable

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	4.977759	1.150857	4.325264	0.0000
DTA	-0.000167	0.000368	-0.453795	0.6502
NPL	0.000909	0.006063	0.149961	0.8809
UNEM	0.061472	0.205793	0.298708	0.7653
INT	-0.015191	0.030244	-0.502298	0.6157
GDP	0.119464	0.064939	1.839627	0.0665
FDI	-0.026292	0.014772	-1.779803	0.0759
EXCR	-0.007849	0.012004	-0.653886	0.5136
CAPR	0.006525	0.001204	5.419697	0.0000
BROAD_MONEY	-0.014381	0.018656	-0.770877	0.4412
R-squared	0.127536	Mean dependent var		3.167404
Adjusted R-squared	0.208196	S.D. dependent var		1.941508
S.E. of regression	1.833470	Akaike info criterion		4.074043
Sum squared resid	1364.815	Schwarz criterion		4.170935
Log likelihood	-837.4010	Hannan-Quinn criter.		4.112354
F-statistic	6.594312	Durbin-Watson stat		0.604620
Prob(F-statistic)	0.000000			

In table 4, the impact of explanatory variables has been checked on NIM. It seems that model is significant with F-Stats (6.59) greater than 4. Adj R squared indicates that 20% variation in NIM is explained by the model.

The equation becomes

$NIM_{it} = 4.977 + 0.11GDP \_ 0.026FDI_{it} – 0.006CAPR_{it}$

As per sig value, GDP, FDI and capital ratio are found to be significant at 0.10% level of significance. 1% variation in GDP tend to increase NIM with 11%, ceteris peribus.1% variation in FDI tend to decrease NIM with 2.6%, ceteris peribus. 1% change in capital ratio will lead to change NIM by 0.06%, ceteris peribus.

6. HYPOTHESIS SUMMARY

H1: Deposits do not have any impact on banks performance. (Retained)
In all three models, deposits to total assets ratio is found to be insignificant. The results are in line with Homaidi et al. (2018) who sampled 60 commercial banks of India for the period of 2008 to 2017 who sampled 10 commercial banks of turkey for the period of 2002 to 2010. In Pakistan, (Bilal et al., 2013) also found same result on data of 25 commercial banks for the period of 2007 to 2011.Another Pakistani study confirms the result by taking ten Pakistani banks for the time frame between 2010-2014(Ameer, 2015). The results are aligned with (Ebenezer etal.,2017) who included sixteen commercial banks of Nigeria between 2010 to 2015. DaiThich (2017) also found same results on the data of Vietnam listed banks over the period for 2007–2016. However, the theory suggest that increase in deposits pose a positive impact on banks growth and stability. The results are incongruent with the theory.

H2: Non-performing loans do not have any impact on banks performance (Rejected)
In ROA and ROE model, the impact of nonperforming loans to total loans (NPL) on profitability was observed as the most significant among various variables. It has significant negative impact on banks' profitability measured by ROA and ROE. The results are congruent with (Islam et al., 2017) who also used the same proxies of profitability by observing the data of 11 private commercial banks of Bangladesh for 2 years. DaiThich (2017) also found same results by taking ROA as proxy of profitability by observing the data of Vietnam listed banks for 10 years. Islam and Rana (2019) also observed the same results with ROA and ROE by taking the data of fifteen commercial banks in Bangladesh over the period of 2005–2015. The results are supporting the theory.

H3: Capital ratio does not have any impact on banks performance. (Rejected)
With all three models, capital ratio has negative impact on banks profitability. The results are incongruent with (Bilal et al., 2013) who found no significant impact on ROA , but positive impact with ROE, who sampled 25 commercial banks for 5 years. However, Khan et al.(2015) found significant positive impact on ROA by the data of 32 banks for 5 years. The results of the study are matching with risk- return hypothesis, which claims that lower capital ratio tends to increase profitability (Ameur & Mhiri,2013).

H4: Real interest rate does not have any impact on banks performance. (Retained)
All models show insignificant impact of interest rate on profitability. The results are congruent with (Khan et al., 2015) who took ROA as proxy. Acaravci and Çalim (2013) found same result by using ROA,ROE and NIM as proxy who sampled Turkish banks for the period of 1998 to 2011. Sheefeni(2015) also found same results by taking quarterly data of Namibian banks between 2001-2014. However, Topak and Talu (2017) found positive impact of interest rate on profitability measured by ROA & ROE.

H5: Exchange rate does not have any impact on banks performance. (Retained)
ROE and NIM models show insignificant impact of exchange rate on banks' profitability. However, exchange rate found to have positive impact on ROA. Topak and Talu(2017) found same result with ROE model, but found negative impact with ROA model. The results are incongruent with Davydenko (2010), who found significant positive impact of exchange rate on ROA and ROE as a proxy of profitability. The results are aligned with Hasanov et al.(2018) who found that exchange rate devaluation negatively affect their banks' profitability. The results are also congruent with (Akani et al, 2016) who found a significant positive impact of exchange rate on ROA, but insignificant impact with ROI. A study of to go by (Adama & Togbenou, 2017) also observed negative impact of exchange rate on both ROA and ROE in long run, but in short run,

no impact was observed. The banks performance may decline by devaluation in exchange rate as indicated by ROA model.

H6: Unemployment rate does not have any impact on banks performance (Retained)
Unemployment was found insignificant in all three models. The results are aligned with Henry (Akani et al., 2016) who observed the data of Nigerian banks for 34 years. The results are also similar to (Malahimm & Khatib, 2018) findings who observed 16 banks of Jordan for 5 years. However, with liquidity (Mahmood et al., 2019) found negative impact of unemployment rate, whereas Singh and Sharma (2016) found insignificant impact. The reason for such result may be that banks have many other sources available for generating income.

H7: Foreign direct investment does not have any impact on banks performance. (Rejected)

With ROE & NIM model, FDI was found to have significant negative impact, whereas with ROA model, it was found insignificant. The results are incongruent to (Caro,2017) who found no impact of FDI on operational adequacy by observing the data of 60 Micro finance institution of Ecuador for 10 years. However, (Ameer,2015) found positive impact of FDI on ROA & ROE. This study produced contradictory result.

H8: GDP does not have any impact on banks performance. (Rejected)
With ROA & NIM model, GDP has positive impact, whereas with ROE, it has insignificant impact. The results are dissimilar with Ameur and Mhiri(2013), who found insignificant impact of GDP on ROA,ROE & NIM. The result is similar to (Ameer, 2015; Ćuraka et al., 2012; Ebenezer et al., 2017; Roman & Dănuleţiu, 2013; Acaravci & Çalim, 2013; Mehta & Bhavani, 2017; Kohlscheen, 2018; Batten & Vo, 2019; Topak & Talu, 2017; Sufian & Kamarudin, 2012) who found same result with ROA. However, (Nuhiu et al., 2017) found no impact of GDP with all three indicators taken in current study.

H9: Broad Money supply do not have any impact on banks performance. (Retained)
All three models show that Broad Money supply has no impact on banks' profitability. The result is similar with (Akani et al., 2016) who observed Nigerian banks for 34 periods. Even with banking index, Saeed and Akhter (2012) found insignificant impact. The study results support the literature.

7. CONCLUSION AND RECOMMENDATIONS

Current changes in country's macroeconomic indicators may tend to put an impact on almost all business activities prevailing in the economy. Hence, the study aimed to evaluate the impact of selected macroeconomic variables on banking performance of Pakistan. The study has observed the data of all working commercial banks of Pakistan for the period of 13 years (2006-2018). Correlation and multiple linear Regression analysis was run on EViews to find the results. Correlation results show that there was no relationship of exchange rate with NIM and ROE. Broad money was also not correlated with ROE. However, all other variables were correlated with each other. Regression analysis was run for three models. With ROA:

GDP and exchange rate have positive impact; whereas NPL and capital ratio have negative impact on banks profitability. With ROE: NPL, FDI and capital ratio have negative impact banks profitability. With NIM: FDI and capital ratio have negative impact, whereas GDP has positive impact on banks profitability. In short, the study found NPL, capital ratio, GDP and Capital ratio as main causes of variations in banks profitability. It is very important for banks to devise strong measures to recover their bad loans because it may badly affect banks monetary performance. Banks should also provide monetary assistance to new ventures that will not only increase banks

profit but also rise country's economy. As the results indicate, an incline in economic growth leads to an appreciation of banks' growth. Banks should depend more on their assets rather than equity because the rise in capital ratio leads to poor performance of banks. On the part of macroeconomic variables, banks should use FDIs efficiently so that they can yield high returns. As per the theory, inflows of FDI may pose negative effects on domestic industries of economy and so to banks. Hence, banks should increase their investment in domestic firms and facilitate exporters.

8.LIMITATIONS AND RECOMMENDATION FOR FUTURE RESEARCH

The study was limited to the data from 2006-2018, the addition of more historical data may improve the results. The study observed only commercial banks. Further research may incorporate the data of other types of banks such as MFIs, DFIs, and investment banks. The study collected annual data on all variables. Further research may be done by taking quarterly based data of all variables. This may also increase the generalizability of results. Further research can be done to check the impact of mergers on banks' performance since many banks have merged within the last decade.

8.1 Practical implications

The results of the study can be used by banks and monetary policy makers to identify how the fluctuations in the country's economic indicators such as GDP, FDI, interest, and exchange rate affect financial institutions' performance (particularly banks). In addition, banks can also play their role by taking advantage of favorable economic conditions for their profitability and stability. Also, bank operators would come to know about the effects of transitions in their performance due to bank-specific factors such as NPLs, Deposits and capital ratios.

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Appendix:

S.No.	Name of Banks		
1	Al Baraka Bank (Pakistan) Limited.	16	Industrial Development Bank of Pakistan.
2	Allied Bank Limited.	17	JS Bank Limited.
3	Askari Bank Limited.	18	MCB Bank Limited.
4	Bank Alfalah Limited.	19	MCB Islamic Bank Limited.
5	Bank Al-Habib Limited.	20	Meezan Bank Limited.
6	BankIslami Pakistan Limited.	21	National Bank of Pakistan.
7	Burj Bank Limited. (ALBARAKA)	22	NIB Bank Limited.(MCB)
8	Citi Bank N.A.	23	S.M.E. Bank Limited.
9	Deutsche Bank A.G.	24	Samba Bank Limited.
10	Dubai Islamic Bank Pakistan Limited.	25	Silk Bank Limited.
11	Faysal Bank Limited.	26	Sindh Bank Limited.(2010)
12	First Women Bank Limited.	27	Soneri Bank Limited.
13	Habib Bank Limited.	28	Standard Chartered Bank (Pakistan) Limited.
14	Habib Metropolitan Bank Limited.	29	Summit Bank Limited.
15	Industrial and Commercial Bank of China	30	The Bank of Khyber.
		31	The Bank of Punjab.
		32	The Bank of Tokyo-Mitsubishi Limited.
		33	The Punjab Provincial Cooperative Bank Limited.
		34	United Bank Limited.
		35	Zarai Taraqiati Bank Limited.