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Bank Specific and Macroeconomic Determinants Impact on Banks Profitability: Evidence from Asian Countries

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Abstract

The study purpose is to check the bank-specific and macroeconomic determinants impact on commercial banks of Asian countries and also study explore the areas need to be focused by bank management to improve management efficiency. To achieve the study objective, penal data are collected from bank's financial statements of different Asian countries which cover period from 2008-to-2015. For data analysis purpose, regression model technique used by using Eviews-9.The results of this study is that bank specific and macroeconomic determinants have strongly influence on bank's profitability. The results also suggest that larger asset size of banks may lead to increase in bank's profitability. Further; the Leverage (LV) impact negatively while liquidity (LQ) impact positively on banks profitability. This study relates to previous studies that bank specific and macroeconomic determinants influence on bank's profitability. Bank specific determinants influence positively and macroeconomic determinants influence negatively on banks profitability. The studies contribute new value in the literature and suggest managers to keep in focus the factors which can add value r increase bank profitability.

Keywords: Return on asset (ROA); Return on equity (ROE); Commercial banks; Profitability; Asian countries.

1. Introduction

Financial institution plays a very important role for economic development of a country. Financial institutions which include commercial banks, micro finance banks, insurance companies, discount housing finance companies, non-banking finance companies. All these financial institutions are monitor and control by security and exchange commission of Pakistan (SECP).

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Banking sector is major element of financial institutions that are helpful for a country for economic development. The efficient banking sector of a country adds major contribution in economy stabilization. These factors help to improve management efficiency as well as supervise them. This study gives answer of the question: what are the determinants which impact banks profitability?

There are two types of determinants: 1) bank specific relates to internal factors and 2) macroeconomic relates to external factors. Both factors influence on the structure and financial performance of banks in all countries. Internal factors shows management efficiency and effectiveness, which helps to increase the bank's profitability. Macroeconomic factors include gross domestic product (GDP) and inflation rate that shows the economic condition of a country. Macroeconomic factor also influence on the banks profitability. In previous studies results shows that external factors add positive value in financial position of banks. In this study, the impact of determinants on banks profitability (bank specific and macroeconomic) is used and data collected from commercial banks selected from Asian countries.

The determinants influence the bank's profitability and bank specific determinants are leverage, liquidity, asset size, financial risk, capital adequacy while macroeconomic are Gross Domestic Product (GDP) and inflation rate (IR)). Bank specific determinants are related to management efficiency and directly influence on the financial performance. Macroeconomic determinants are applicable on national level and influence to the whole population of a country. Profitability of banks is basic element for financial development. Profitability means financial gain of bank from operating activities and can be checked with return on asset (ROA), return on equity (ROE) and earnings per share (EPS). This study conducted on ten commercial banks using data from period 2008-2015. The future direction is to make further studies there are numbers of bank specific variables, so this study can also be conducted by using other bank specific variables as well as by adding other macroeconomic variables.

This study explains in five sections: In the first section discussed about commercial banks of Asian countries. Second section is related to previous studies and their conclusions. Theoretical model developed and data collection is discussed in third section. Data analyzed and results found in fourth section. Fifth section explains the conclusion of study.

2. Literature review

The determinants that play an empirical role on banks profitability, it creates interest for researchers to find variables that impact on the banks profitability. Early studies identify the factors that influence on the bank's profitability as well as identify bank specific and macroeconomic factors. In the literature, past studies on the banks profitability give their contribution on the specific factors and focus on panel of different countries. The basic aim of the literature reviewed is to find the factors that influence on banks profitability.

According to [1] he examined the relationship between bank specific and macroeconomics factors on profitability of banking sector in Pakistan. The data obtained from the forty four banks from the period of 2005-2009. They used regression method for analyses. The results concluded that external factors have significant impact on profitability and internal factors (loans, deposits, growth) are not significant for banks profitability .The results suggest that management decision not influence but external macroeconomics factors effects on profitability.

According to [2] they investigated the bank specific factors and macroeconomic factors that influence on performance of commercial banks in Ghana. Sample population selected from five commercial banks and penal data covered the period from 2010-2015. Regression, correlation, and descriptive techniques are used to measure the results. The results shows that bank specific factors have positive relation with profitability and macroeconomic factors effect negatively on bank's profitability.

According to [3] they checked relationship between bank specific characteristics and profitability of European banking sector, data is obtained from thirty five European banks over the period from 2009-2013 and get results by using regression analysis. The study reveals that size of asset and capital ratio has significant impact on bank's profitability while higher loans loss has lower profitability. Results also suggest that higher deposits and loans tend to be more profitable but its effect on profitability statically is insignificant

According to [4] they reported the impact of bank specific factors on the profitability of banks. They find the impact of bank specific and macroeconomic factors on the bank's profitability and data collected from period 2007-2012. Regression model techniques were used. They conclude that asset size and management performance increase the return on asset (ROA).The findings indicate that determinates have positive impact on the profitability.

According to [5] he conclude the impact of internal factors on profitability of Islamic and conventional banks in UAE. Panel data was used for this study of sample period from 1996-2008. He adopted the descriptive statics correlation for analysis. In this study result shows that there is a positive relationship between asset size of banks, liquidity, and return on assets and leverage, financial risk have negative relation with banks profitability.

According to [6] they checked the determinants that effect on the profitability of banks in Bangladesh. OLS fixed effect and two steps GMM model were used. The result shows that credit liquidity, cost efficiency, gross domestic product and real interest rate have negative effect and capital adequacy, liquidity, assets size, inflation rate and stock market turnover have positive impact on profitability of banks. Furthermore devolvement banks and private commercial banks more profitable than public banks.

With the reference of [7] they examined the factors that influence on the profitability of banks in Albania. They classified the factors in two categories bank specific and macroeconomic factors that impact on the profitability. Time series regression and cross sectional regression method adopted for analysis. They resultssuggest that internal factors not only influence on the profitability of Albania banks, they also affected by changes in the macroeconomic factors.

According to [8] he investigated the factors that impact on profitability of commercial banks in Pakistan. He collected data from 23 banks of Pakistan for the period of 2009-2012. He conducted the study only internal factors. He used descriptive statics, regression analysis, natural logarithm techniques. The finding of this study is that cost efficiency, capital adequacy, and liquidity are those variables to check the management decision that effect on profitability of banks. Other variables asset size and deposits are not impact on profitability of banks.

According to [9] he reported the determinants that effect on the profitability of banks in Tanzania. He obtained the data from 23 banks from the period of 2009-2013 and regression model was adopted for results. He used both bank specific and macroeconomics determinant are as independent variables and return on asset (ROA), return on equity (ROE), net interest margin (NIM) used as dependent variables. He found that profitability of banks influenced by management decision and macroeconomic factors have not significant contribution.

According to [10] he examined the study of development and growth of Islamic banking sector in Pakistan. He checked the growth of Islamic banks in Pakistan. He collected data from five Islamic banks by using sample period 2008-2012 and analyzed. In this study he concluded that state bank of Pakistan, Liquidity management and regularity bodies for implementation of corporate governance rules and regulation of free interest rate services become the cause of continuous growth and devolvement of Islamic banks in Pakistan.

According to [11] they investigated that the impact of bank specific characteristics and macroeconomic factors on Malaysian commercial banks financial performance. With the help of regression model data are analyzed which is collected from the period of 2003-2009. In this paper they found that bank specific factors effect on the profitability of banks, while no support evidence found of macroeconomic factors impact on profitability.

With the reference [12] they checked the bank specific and macroeconomics factors effects on Islamic banks profitability of different countries of Asia. Panel data collected from twelve different countries from period of 2006-2010 and regression model adopted. In this paper results shows that assets size of bank and efficiency of management have a greater influence on the bank's profitability.

According to [13] they examined the profitability of private and commercial banks of Pakistan. Data collected from 22 private and public banks for period 2006-2009. They employed Regression, descriptive and correlation techniques. The Study concludes that asset size has positive relationship with profitability; capitalization and credit risk have negative impact on bank's profitability. Profitability checked by return on asset and Operating efficiency measured by return on equity.

With the reference of [14] he investigates the effect of macroeconomic components and inside aspects of bank to the profitability of banks during 1992-2003 in Korea. He stated that there is negative effect of liquidity on the profitability of banks, so small amount of liquidity establish the superior profitability. The banks that are more concentrate towards diversification have a positive effect on profitability. Bank of Korea shows less profitability after crises and more profitability before crises.

According to [15] he checked the internal factors that impact on the profitability of banking sectors in Pakistan. He conducted the study by collection of data from ten banks with sample period of 2004-2008 by using least square (POLD) method. He concludes that higher total assets do not lead to higher profitability due to diseconomies of scale. But higher loans add more contribution towards profitability and their impact is not significant. Equity and deposits have the positive impact on profitability.

According to [16] they examined and derived the factors that effect on banking profitability in Pakistan. They used the sample period from 2005-2009 for collection of data and adopted the regression analysis method. In this research dependent variables are return on assets, return on equity and net interest margin used and ratio of equity, capital to total assets, ratio of total loans to total assets, ratio of total deposits to total assets, Gross domestic product (GDP), Consumer price index(CPI) and Market capitalization (MC) are used as independent variables. As a result they found that macroeconomics have major impact on the banks profitability.

With the reference [17] they checked the effect of profitability components (industry particulars, macroeconomic, particular bank's) from 372 business bank before and after the emergency in Switzerland from1999-2009.There opinion were collected as that from 1999-2006 was a pre crises and 2007-2009 was well considered to be as emergency time. By using the GMM estimator technique got the result. Devolvement in credit volume is normal or over is influences decided on the profitability.

With the reference of [18] they examined the factors effect on European banks profitability. In this research used both internal and external factors that effect on earnings performance. They used the OLS technique, fixed effects models and obtained the data from EU banks from the period 1994-1998. Their results concluded that not only internal factors like management decision effects on performance but also macroeconomic factors effect on banks profit.

According to [19] they checked the impact of bank inside components industry related elements identified with the macro economy on the profitability of bank in Greek aimed (1985-2001). The result stated that capital , credit risk, working expense , inflation, manufacturing devolvement and business cycle have positive impact whereas the size of bank impact negatively on profitability.

Conceptual Framework:

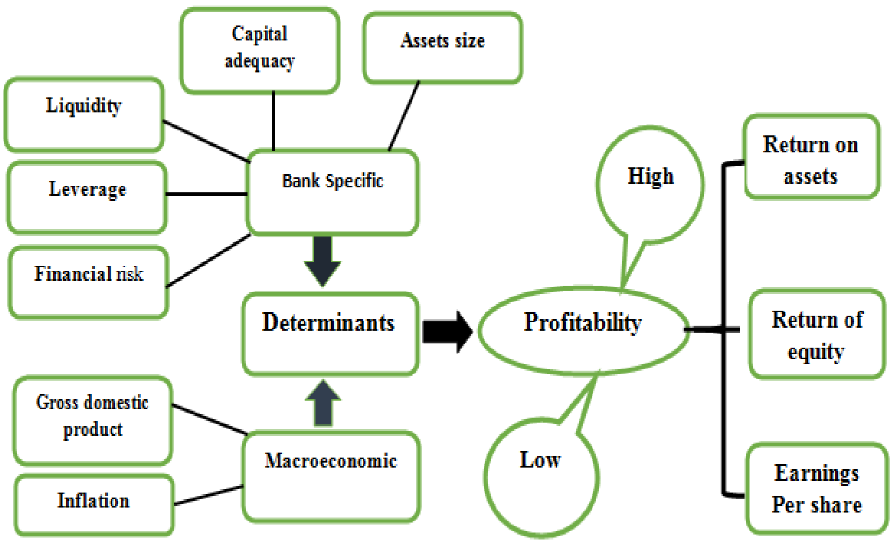

Figure 1

4. Data and Methodology

Determinants bank specific and macroeconomic effects on bank's profitability. To check the profitability of banks return on assets (ROA) and return on equity (ROE) and earnings per share (EPS) are used as dependent variables. Bank specifics factors are internal factors that are related to bank policy, objectives and decision of management. Bank specific factors include liquidity, leverage, asset size, financial risk and capital adequacy. Macroeconomic factors include inflation rate and gross domestic product (GDP). Bank specific and macroeconomic factors are used as independent variables.

Table1: Determinants of bank's profitability

Determinates	Variables	Measures	Notations
Profitability	Return on assets	Net profit / total assets	ROA
	Return on equity	Net profit / equity	ROE
	Earnings per Share	Net income – preferred dividend / no. of common shares	EPS
Bank specific	Assets size	Log of total assets	LogAS
	Liquidity	Liquid asset / total asset	LQ
	Leverage	Total debt / Total Equity	LV
	Financial Risk	Total liability / total asset	FR
	Capital adequacy	Total equity/total asset	CA
Macroeconomics factors	Inflation rate	Annual inflation rate	IR
		Annual GDP growth rate	GDP

4.1. Dependent variables

4.1.1. Return on asset (ROA)

Return on asset (ROA) is the percentage of profit relative to its total asset. It shows management efficiency that use their asset in the best interest of bank. Return on asset (ROA) is calculated net income divided by total assets. [10]

4.1.2. Return on equity (ROE)

Return on equity is the percentage of return of its shareholder equity. It measures the bank's profitability generated from the shareholders money that they invested. Return on equity (ROE) is calculated net income divided by common shareholder equity[4].

4.1.3. Earnings per share (EPS)

The amount of net income portion allocated to each common shareholders. Earnings per share represents to the profitability of banks. It is calculated through subtracting preferred dividend from net income dividing by its total number of shareholders.

4.2. Independent variables

Independent variables are divided into two categories bank specific (internal) and macroeconomic (external) factors. Bank specific factors are related to bank policy objectives and management decision. Macroeconomics factors are called external factors because these are related to environment situation.

4.2.1. Bank specific factors

Assets size: The market value of securities in a portfolio that is invested by banks in market which helps to checks the progressing of funds towards its profitability. Asset size is calculated by taking natural log of total asset of bank[10]

Leverage: The amount of debt in capital structure that is received from other institution and it is the liability of banks to fulfill the financial obligation that cause to greater profitability than the interest payable.

It is calculated by total debt divided by total equity.

Liquidity: The ability of the asset of banks sold in the market without losing its value. A bank unable to pay its obligations unless spare liquid asset. It is calculated liquid assets divided by total liabilities. [4]

Financial Risk: The financial risk is calculated by dividing total liabilities to total asset. The financial risk ratio indicates capital worth of a bank.

Capital adequacy: To check the strength and stability of banks. Capital adequacy is an indicator to measure the capital of bank and also used to protect the depositors of banks.

4.2.2. Macroeconomics factors

Gross Domestic Product (GDP): Means the per capita income of a country which shows the economic condition of a country. GDP decision factors demand and supply effect on the bank's profitability and is used as independent variable.

Inflation rate: Increase in the prices of goods and services and continuously excess supply of money over time.

5. Data

The data are collected from financial statements of selected banks for the period 2008-2015 of Asian countries. The selected banks of sample are Habib bank limited (HBL), Muslim commercial bank (MCB), United bank limited (UBL), Al-habib (ABL), Al-falah (AFBL) from Pakistan, Al-Irfah bank (AIBL) from Bangladesh, HSBC bank from Malaysia; Post Bank (PB) of Iran, DFFC bank from Sri-Lanka and UOB Bank of China. The data obtained from the financial statements of banks and macroeconomic factors data collected from site world of economy.

5.1. Methodology

Panel data were used to analyze the determinants of bank profitability. Regression model were used for this study.

$$y = \alpha + \beta X_{nt} + \varepsilon \ldots\ldots\ldots (1)$$

In this equation dependent and independent variables presented. The above given equation can be rewritten as follows,

$$Profitability = f(\,Bank\ Specific\ and\ Macroecnomic\ variables) \ \ldots\ldots. (2)$$

Where profitability is checked by return on asset (ROA), return on equity (ROE), earnings per share (EPS) and bank specific which includes liquidity (LQ), leverage (LV), asset size (AS), financial risk (FR), capital adequacy (CA), and macroeconomic factors gross domestic product (GDP) and inflation rate (IR).

$$ROA = \alpha + \beta_1 LV_{nt} + \beta_2 LQ_{nt} + \beta_3 logAS_{nt} + \beta_4 FR_{nt} + \beta_5 CA_{nt} + \beta_6 GDP_{nt} + \beta_7 IR_{nt} + \varepsilon \ldots..(3)$$

$$ROE = \alpha + \beta_1 LV_{nt} + \beta_2 LQ_{nt} + \beta_3 logAS_{nt} + \beta_4 FR_{nt} + \beta_5 CA_{nt} + \beta_6 GDP_{nt} + \beta_7 IR_{nt} + \varepsilon \ldots.. (4)$$

$$EPS = \alpha + \beta_1 LV_{nt} + \beta_2 LQ_{nt} + \beta_3 logAS_{nt} + \beta_4 FR_{nt} + \beta_5 CA_{nt} + \beta_6 GDP_{nt} + \beta_7 IR_{nt} + \varepsilon \ldots.. (5)$$

Table 2.Descriptive Analyses

Table: 2 states descriptive statistics of 10 commercial banks sample period from 2008-2015. Descriptive statistics used as to examine and analyze bank's profitability.

Table 2: Descriptive Analysis

	Mean	**Max**	**Min**	**S.D**
ROA	0.1314	0.9200	-0.1000	0.2311
ROE	0.3145	5.8000	-0.3000	0.8225
EPS	8.6266	50.2100	0.0000	9.5545
LV	1.0518	9.2100	0.0333	1.9730
LQ	0.2117	1.0100	0.0168	0.2881
AS	2.1631	11.0592	0.0889	4.1127
FR	0.8641	0.9880	0.5290	0.0983
CA	0.1665	0.3920	0.0803	0.0597
GDP	0.1013	0.8232	-0.0660	0.1883
IR	0.0967	0.3473	-0.0070	0.0689

The table states variable values and quantitative measures of mean, standard deviation, minimum and maximum. Mean shows average value. Deviation in values of mean represents by standard deviation. Descriptive statistics gives mean of return on asset (ROA) 13% and deviation of mean is 23 percent. Return on equity average is 31 percent and 82 percent deviate from its mean. Earnings per share (EPS) average are 8.6266 and deviation from standard is 9 percent. The ratios are very important for banks (leverage and liquidity). Both ratios show average

105 and 21 percent consecutively. Financial risk average means of selected banks 86 percent and deviation from mean 9.8 percent. The average means of real gross domestic production (GDP) rate 10 percent and its deviation to standard 18 percent. Inflation rate average is 9 percent and standard deviation is 6 percent.

Correlation:

Table: 3 demonstrate the relationship among independent variables (What is the effect of one variable on the other variable). Low correlation shows as in table: 3 between the independent variables. Co-efficient of low correlation states that multi co linearity does not exist.

Table 3: Correlations

	ROA	**ROE**	**EPS**	**LV**	**LQ**	**AS**	**FR**	**CA**	**GDP**	**IR**
ROA	1									
ROE	0.2467	1								
EPS	-0.2250	-0.1442	1							
LV	-0.2124	-0.1370	-0.2514	1						
LQ	-0.0936	-0.0608	-0.1182	-0.1472	1					
AS	-0.1444	-0.0723	-0.2232	0.6154	-0.1183	1				
FR	0.1408	0.1109	0.0145	-0.1457	-0.1880	0.0023	1			
CA	0.0509	0.0571	-0.0072	0.0920	-0.1718	0.1516	-0.3011	1		
GDP	-0.0738	-0.0364	0.0558	0.1091	-0.0381	-0.1580	-0.7229	0.2241	1	
IR	-0.1554	-0.2342	-0.1668	0.5439	-0.3098	0.4958	0.0251	-0.1788	-0.1393	1

Regression Analysis: Dependent variable: (ROA)

The regression model results of this study are closely related with the result of previous studies. R-Square value is 0.6129 which states that all the other variables explain return on assets (ROA) is 61.29 percent. The T-Statistics value getting from Robust Least Squares and test run in e-views.

Table 4: Regression Analysis: Dependent Variable (ROA)

	Co-efficient	**Std. error**	**t-statistic**	**Prob.**
C	0.2297	0.1485	15.4723	0.0000*
ROE	0.0176	0.0010	16.4486	0.0000*
EPS	0.0001	0.0093	1.4765	0.1398***
LV	-0.0007	0.0006	-1.1940	0.2325
LQ	0.0067	0.0035	1.8860	0.0593**
AS	-0.0254	0.0055	-4.6178	0.0000*
FR	0.2410	0.0140	-17.2065	0.0000*
CA	0.0354	0.0165	2.1451	0.0319*
GDP	-0.0746	0.0071	-10.4513	0.0000*
IR	0.0005	0.0177	0.0314	0.9749
R-Square	0.6129			
Prob.	0.0000			

Return on equity (ROE) positively influence on the profitability of banks and earnings per share (EPS) have positive and significant relation with return on asset (ROA). Leverage ratio (LV) shows negative and insignificant relationship while Liquidity ratio (LQ) shows positive but significant relationship with return on asset (ROA). This study finds that asset size has positive relationship with return on asset (ROA) (Masood and his colleagues2012). Asset size (AS) have significant relationship on return on asset (ROA). Financial risk shows negative and significant relationship on bank's profitability. Capital adequacy (CA) affects positively on return on asset (ROA) and significant found. GDP impact negatively and significant coefficient found while inflation rate (IR) influence positively and insignificant.

Regression Analysis: Dependent variable: (ROE)

The model results of this study are closely related with the result of previous studies. R-Square value is 0.5170 which states that all the other variables explain return on equity (ROE) 51.70 percent.

The results of table: 5 states that return on asset (ROA) has positive and significant relation with the profitability and earnings per share influence positively and significant. Leverage ratio impact positively on the profitability and found significant coefficient.

Liquidity ratio shows positive and significant relation. Asset size impacts positively and insignificant means greater asset size leads to greater profitability. The study finds that financial risk has positive and significant relationship.

In this study capital adequacy and return on equity has negative relationship.GDP has significant and inflation rate insignificant relationship but GDP positively and inflation rate negatively impact on return on equity (ROE).

Table 5: Regression Analysis: Dependent Variable: (ROE)

Table: 5….Regression Analysis: Dependent Variable: (ROE)				
	co-efficient	**std. error**	**t-statistic**	**Prob.**
C	-0.2425	0.0593	-4.0853	0.0000*
ROA	0.1741	0.0156	11.1222	0.0000*
EPS	0.0015	0.0003	4.0094	0.0001*
LV	0.0063	0.0024	2.6027	0.0092*
LQ	0.2178	0.0143	15.1827	0.0000*
AS	0.0175	0.0220	0.7961	0.4259
FR	0.2773	0.0560	4.9461	0.0000*
CA	-0.2091	0.0661	-3.1602	0.0016*
GDP	0.2065	0.0285	7.2343	0.0000*
IR	-0.0698	0.0692	-1.0089	0.3130
R-Square	0.5170			
Prob.	0.0000			

Regression Analysis: Dependent variable: (EPS)

R-Square value is 0.3613 which states that all the other variables explain earning per share (EPS) is 36.13 percent. The T-statistics value getting from Robust Least Square and test run in e-views. Return on asset (ROA) and return on equity (ROE) shows negative and insignificant relationship with earning per share (EPS).Leverage and liquidity shows negative relation while leverage has significant but liquidity has insignificant with earning per share (EPS). Both asset size (AS) and financial risk (FR) influences positively and insignificant. Capital adequacy (CA) has negative and significant coefficient.GDP has positive and significant but inflation rate (IR) shows negative and insignificant relationship.

Table 6: Regression Analysis: Dependent Variable (EPS)

	co-efficient	**std. error**	**t-statistics**	**Prob.**
C	1.2683	3.9532	0.3208	0.7483
ROA	-0.1301	1.0108	-0.1287	0.8975
ROE	-0.1238	0.2856	-0.4336	0.6646
LV	-0.3993	0.1604	-2.4882	0.0128*
LQ	-1.0445	0.9444	-1.1060	0.2687
AS	0.4928	1.4781	0.3334	0.7388
FR	3.0345	3.7602	0.8070	0.4197
CA	-8.0643	4.4350	-1.8183	0.0690**
GDP	12.2580	1.9130	6.4076	0.0000*
IR	0.6282	4.7244	-0.1329	0.8942
R-Square	0.3613			
Prob.	0.0000			

6. Conclusion

To examine banks performance, profitability is one and only major element by which performance of banks can be measured. Bank specific and macroeconomic variables are used to measure the profitability. To examine the bank’s profitability data is collected from bank’s financial statements of Asian countries and time period is selected from 2008-2015.The study concludes that liquidity (LQ) impacts positively and significantly on bank’s profitability, while return on asset (ROA) impact in the same manner and also concludes that financial risk (FR) negatively impact on return on asset(ROA) while positively on return on equity(ROE) and earnings per share in same manner. Further stated that asset size positively impact on the bank’s profitability with respect to return on equity (ROE) and earnings per share (EPS), which means greater asset size leads to greater bank’s profitability. Positively and significantly leverage impacts on return on equity (ROE) as well as liquidity impacts negatively on earning per share (EPS). It means more liquid asset leads to increase the profitability. Capital adequacy effects on return on asset (ROA) positively and insignificant while negatively and significant on return on equity (ROE) and earnings per share (EPS).In this study macroeconomic variable GDP has positive and inflation rate has negative influence on bank’s profitability. It means greater per capita income is an indicator to increase the bank’s profitability and inflation rate shows inverse relation means inflation rate increases then bank’s profitability decreases.

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