Determinants of Commercial Banks Performance:
Empirical Evidence from Pakistan

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ABSTRACT

Financial sector has always been considered as the back bone for a sustainable economic growth in any country. This study aims to scrutinize the impact of bank-specific and macro-economic determinants on Pakistani commercial bank's performance. Since 80's few value-based measurement models like market value added, cash flow return on investment, cash value added, shareholders value added, shareholders value analysis and economic value added have been emerged as an alternative to the conventional accounting-based measures. Supporting these concepts, the bank valuation requires a model able to adjust the bank-specific characteristics of valuation. EVA is a measure that captures true economic profit of an organization earned over time for its owners. Despite the extended amount of literature on EVA implementations on firms, there is a lack of EVA computation on banking industry. The research objective of this paper employs EVA theory to validate the claim to be true performance indicator. To test this claim, the analysis will be conducted on commercial banks listed on Karachi Stock Exchange by using Pooled OLS techniques for the period 2009-13. In this regard, using two regression models, EVA will be compared with one of the traditional measure, ROE as a dependent variable. Results of this study show that EVA model is superior to ROE and CAR, EFF, ASQ and GDP are strong determinants of commercial banks performance in Pakistan.
KEYWORDS: EVA, ROE; CAR, EFF, GDP, Inflation

1. INTRODUCTION

Financial intermediaries have an imperative financial role in the economy and their efficiency influence economic growth. Banks are the financial intermediaries that play an important role in the economy by providing different services. Banking sector plays an important role in strengthening the economic activities and growth and considered as the back bone of an economy (Khan, Anuar, Choo, & Khan, 2011). Countries having sound and profitable banking system play an important role in the stability of financial system and can easily cope up financial distress (Bilal, Saeed, Gull, & Akram, 2013). For that reason it is crucial to determine all those factors which influence bank's performance.

Banking sector is exposed to diverse internal (bank specific) and external (macroeconomics) factors that have an effect on their performance. Factors which are in control of bank's management are internal whereas all those factors which are beyond the control of bank's management are external factors (Raza, Jawaid, & Shafqat, 2013).

Pakistan's banking sector consists of 38 Scheduled Commercial banks; including 5 public sector banks, 22 private sector banks, 4 specialized banks and 7 foreign banks at the end of 2012. State Bank of Pakistan (SBP) is the Central Bank of the country and has authority to regulate and supervise all banking companies operating in Pakistan. Commercial banks need to be aware of all those factors (internal and external) that affect their financial performance. Guru, Staunton, and Balashanmugam (2002) explained that internal factors presented in balance sheet demonstrate strategies and decisions of banks management regarding the sources of funds and their utilizations. Whereas, internal factors related to profit and loss account shows that how competent bank's management is in creating revenues and controlling costs.

So, this paper endeavors to determine the factors that impact the performance of commercial banks listed in Pakistan for the period of 2009-2013. A few researches has been conducted in Pakistan to examine the determinants of banks profitability by using different accounting measures i.e. return on assets

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(ROA) and return on equity (ROE). This study examines the performance of banks with both; accounting based measure (ROE) and value based measure (EVA)[1] in order to determine the best performance measure. So, the foremost intention of this paper is to employ EVA theory to validate the claim of true performance indicator.

1.1 Objectives of the Study

The primary objective of this study is to empirically determine the factors (internal and external) that affect banks performance in Pakistan and the emphasis is to identify which one of the two measures of performance i.e. Accounting based measures (ROA and ROE) and Value based measure (EVA), if any, is superior. Following are the main objectives of this study:

- To determine the main internal factors (bank specific) that effect performance of commercial banks in Pakistan.
- To determine the main external factors (macroeconomics) that effect performance of commercial banks in Pakistan.
- To determine the best performance measure i.e. accounting based or value based, in relation to internal and external factors.

1.2 Significance of the Study

Results of this study will help banks management to effectively manage their internal factors and to anticipate all external factors that contributes in boosting banks performance. Worth of this research is not limited to banks management only; other stakeholders will also get benefit from it. They can predict banks performance. Bank's regulators and policy makers can anticipate the performance to plan rules and strategies in order to improve profitability of banks as they are concerned with the stability of banking system.

The rest of this paper is arranged as follows: Section 2 provides review of previous studies, Section 3 presents the research hypothesis of the study, Section 4 explains variables of the study and research methodology, Section 5 presents the results of the study and Section 6 provides conclusion and recommendations.

2. LITERATURE REVIEW

In literature we found many studies that determined impact on banks profitability by internal and external factors in the context of different countries. In this section some literature is reviewed regarding the determinants of banks profitability. In Turkey, Moussa (2012) investigated the impact of different determinants of banks profitability i.e. bank specific and macroeconomics factor[2] for the period of 2001 – 2010 and banks profitability is measured by ROA and ROE. Study concluded that capital ratio (CAR), bank size and economic growth are positively associated with banks profitability whereas Inflation has an inverse relation. Further it provides evidence for the efficiency of foreign banks in turkey. In another study Alper and Anbar (2011) proposed that in Turkey profitability of banks can be inflated by increasing bank size and non-interest income and higher interest rates (real) can accelerate higher profit for banks.

In Indonesia, Syafri (2012) explored the effect of internal i.e. bank size, bank loans, capital, credit risk, non-interest income and cost to income ratio and external factors i.e. economic growth and inflation on banks profitability. For profitability measurement ROA is used as a dependent variable. Result shows that both external factors are insignificant for Indonesian banks. However loans and equity of banks are significant and has a positive relation with profitability.

Dore (2013) determined the bank specific and macroeconomic factors of commercial banks profitability in Ghana and concluded that profitability of commercial banks in Ghana is positively related with bank specific variables i.e. Capital adequacy and liquidity of banks and macroeconomic variables i.e. GDP and inflation are negatively associated with profitability. Bilal et al. (2013) in their study analyze the effect of bank specific i.e. deposit to asset, bank size, capital ratio, net interest margin and non-performing loans to total advances and macroeconomic factors i.e. inflation, real GDP and industry production growth rate on profitability measures (ROA and ROE) of all commercial banks. Results shows that bank specific factors (bank size, net interest margin, industry production growth rate and non-performing loans to total advances) are significant and positively effect ROA and ROE except NPL that shows negative relation with

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[1] EVA is a measure that captures true economic profit of an organization earned over time for its owners.
[2] Bank specific factors are Capital ratio, Assets quality ratio, Management efficiency ratio, Liquidity ratio and bank size and Macroeconomic factors are Inflation and GDP growth.

both profitability measures. Capital ratio is also found significant and positively related in relation with Return on Equity (ROE) only. Among macroeconomic factors only real GDP has significant positive relation with Return on Assets (ROA).

Perera, Skully, and Chaudrey (2013) examined the determinants of commercial banks profitability of four South Asian countries (India, Pakistan, Bangladesh and Sri Lanka). Return on Assets (ROA) is used as profitability measure. Commercial banks of different countries are taken into account for analysis, so the differences across countries are considered by adding factor of Corruption and law; measured by Control of Corruption index (CORR) and Rule of Law index (ROL) respectively. It was found that well capitalized, efficient and low risk south Asian banks are more profitable as management efficiency and equity capital level are significant and positively related with profitability whereas loans to deposit ratio is significant but negatively related with banks profitability. South Asian bank also show economies of scale affect as banks (larger in size) are found more profitable. However, competition in negatively related with profitability.

Taha (2013) examined the profitability of banks in Jordan and revealed that bank specific factors are more important than macroeconomic factors. Capital adequacy (CAR), assets quality, bank size and management efficiency; all these internal factors are significant and positively related with banks profitability. In Malaysia, Guru et al. (2002) conducted a study to recognize all determinants of profitability; that are in the jurisdiction of management of banks i.e. internal factors and others that are related to environment i.e. external factors.

Mamatzakis and Remoundos (2003) examines the determinants of ROA and ROE i.e. profitability measures of commercial banks in Greek. Study found that management related factors i.e. loan to asset ratio, equity to assets ratio and personal expenses primarily elucidate profitability. Heffernan and Fu (2008) evaluates the performance of Chinese banks by considering four different measures of performance[3] to select the best measure and found that best measures of performance are EVA and NIM.

Many studies have been conducted in determining the internal and external determinants of banks profitability in the context of Pakistan. Khan et al. (2011) conducted a study to examine banks profitability and explores the impact of internal (bank specific) factors on profitability of Pakistani banks over the period of 10 years and found that Deposit to asset ratio, Deposit to loan ratio, loan to assets ratio, loan growth, Non-performing loans, Net interest margin, tax and return on assets significant. However NPLs and tax are negatively related with banks profit.

Bukhari and Qudous (2012) conducted the same study and found that only advances and credit risk are significant and positively related with banks profitability. Whereas other variables i.e. bank size, non-interest income (NONII), expenses, import export, CPI and discount rate are found insignificant. Azam and Siddiqui (2011) in their study find out that foreign banks in Pakistan are more efficient; have high profitability than domestic banks and have less effect of macroeconomics factors.

Gul, Irshad, and Zaman (2011) analyzes the relationship of bank specific and macroeconomics factors with the profitability of banks in Pakistan and showed that both these factors have a strong relationship with banks profitability. Rasool, Aamir, Hussain, and Attique (2012) examines the impact of bank specific and macroeconomics variables on profitability of commercial banks in Pakistan by taken ROA, ROE and NIM as profitability measures. Study found that banks should enhance their assets quality, operational efficiency and capital adequacy to increase their profitability.

Riaz and Mehar (2013) explored the impact of both factors (bank specific and macroeconomic) on commercial bank's profitability in Pakistan for the period of 2006-2010. Profitability is measured by accounting measures i.e. ROA and ROE and found that credit risk and interest rate are strong determinants of profitability. Azam and Siddiqui (2011) compare the domestic and foreign bank's profitability in Pakistan and found that foreign banks are more profitable as compared with domestic banks as external factors of the country has less effect on foreign banks.

3. HYPOTHESIS OF THE STUDY

Following Hypothesis are formed in the fulfillment of research objectives of this study.

H_1: There is a significant relation between bank specific factors and banks performance.
H_2: There is a significant relation between macroeconomic factors and banks performance.
H_3: Value based measure performs better than accounting based measure.

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[3] Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM) and Economic value Added (EVA).

4. DATA AND METHODOLOGY

4.1 Sample Size
In the final sample, data related to banks performance, internal and external factors is collected for 16 banks for the period of 2009-2013.

4.2 Data Source
Secondary data source is used for the study. Data related to internal factors (bank specific variables) is collected from audited annual reports (Balance Sheet and Profit and Loss account) of selected commercial banks.

4.3 Variables of the Study
In order to examine the determinants of Banks performance total 9 variables are included in this study on the basis of literature reviewed. Two of them are Dependent variables; (i) EVA (value based measure) and (ii) ROE (accounting based measure). Remaining 7 variables are further divided into two groups i.e. internal determinants (bank specific) and external determinants (macroeconomics).

4.3.1 Dependent Variables. In this study, two dependent variables are used in order to know that which measure; either accounting based or value based can better explain banks performance.

$$\text{Return on Equity} = \frac{\text{Net Profit after tax}}{\text{Total shareholders' equity}} * 100$$

According to its inventor – Stern Stewart, EVA is computed by deducting appropriate cost of capital from net operating profit. Thus, the model in its simple form is:

$$\text{EVA}^4 = \text{NOPAT} - (\text{Invested Capital} \times \text{Cost of Capital}) \text{ where;}$$

$$\text{Capital Invested} = \text{Book Value of Equity} + \text{Capitalized R\& D Expenses} + \text{Long Term Loans}$$

4.3.2 Independent Variables. Independent variables are further divided into two categories i.e. Bank specific and Macroeconomic variables. Table 1 shows the details of selected variables.

Table 1. Measurement of Independent Variables

	Independent Variables	Measurement	Notation
Bank Specific (Internal Factors)	Capital Adequacy	(Tier 1 Capital + Tier 2 Capital)/ Risk Weighted Assets	CAR
	Asset Quality	Total loans and Advances/ Total assets	ASQ
	Deposits	Total Deposits/ Total Assets	TDTA
	Efficiency	Interest income/ Interest expense	EFF
	Operating Efficiency	Operating Expense/ Interest Income	OPEFF
Macroeconomics (External Factors)	Inflation		INF
	Economic growth		GDP

4.4 Model Specification
Following 2 models are estimated in this study:

$$\text{ROE}_{it} = \alpha_0 + \alpha_1 \text{CAR}_{it} + \alpha_2 \text{ASQ}_{it} + \alpha_3 \text{TDTA}_{it} + \alpha_5 \text{EFF}_{it} + \alpha_7 \text{OPEFF}_{it} + \alpha_8 \text{INF}_{it} + \alpha_9 \text{GDP}_{it} + e_{it} \dots \textbf{ Model (1)}$$

$$\text{EVA}_{it} = \alpha_0 + \alpha_1 \text{CAR}_{it} + \alpha_2 \text{ASQ}_{it} + \alpha_3 \text{TDTA}_{it} + \alpha_5 \text{EFF}_{it} + \alpha_7 \text{OPEFF}_{it} + \alpha_8 \text{INF}_{it} + \alpha_9 \text{GDP}_{it} + e_{it} \dots \textbf{ Model (2)}$$

4.5 Analysis Techniques
Balanced data set is used for the analysis. Descriptive analysis is performed to know the basic characteristics of dependent and independent variables and correlation analysis is performed to measure association between them. Simple pooled regression analysis is applied then, to know the significant determinants of banks performance.

Coefficient of determination (R^2) is used to know the explanatory power of EVA model and ROE model. Model with highest R^2 will be selected as the best model to explain performance of banks and their determinants.

5. EMPIRICAL RESULTS

Results of the study are explained in this section.

5.1 Descriptive Analysis
Table 2 shows the descriptive statistics of dependent and independent variables, during the period of 2009 - 2013. It presents mean, median, minimum value, maximum value, standard deviation and number of

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[4] EVA (Economic Value Added) is basically a value based measure that takes in to account charge for opportunity cost of capital (Heffernan & Fu, 2008).

observations. Minimum and maximum values mean the smallest and highest value of the selected variables in entire data set.

Table 2. Descriptive Summary

	EVA	ROE	CAR	ASQ	EFF	OPEFF	TDTA	INF	GDP
Mean	-0.0110	-0.1480	15.3915	0.4683	1.6369	0.9408	0.7502	11.4851	2.9008
Median	-0.0123	0.1032	13.3650	0.4508	1.5604	0.9221	0.7709	11.9708	3.5900
Maximum	0.6228	0.2751	57.0400	1.0397	3.2591	1.4549	0.9083	13.9383	4.3600
Minimum	-0.1662	-14.7427	0.5600	0.2989	0.8223	0.1384	0.4513	7.6800	0.3600
Std. Dev.	0.0840	1.7493	9.5406	0.1201	0.4406	0.2129	0.0989	2.4179	1.4123
Observations	74	74	74	74	74	74	74	74	74

EVA is not presented in absolute terms of Pakistani Rupees in fact it has been standardized by dividing it by Invested Capital. Its Mean for all 16 banks over the period of 5 years is -0.011. Its standard deviation is estimated 0.084 over this period. This negative EVA means that nothing has been added to the owners' worth during the period - loss of net worth of the owners. ROE has a mean value of -0.148 for all the 16 banks over the study period of 5 years. The standard deviation of ROE is estimated at 1.749 over the same time period.

Asset Quality (ASQ) has s a mean value for 0.468 for all the 16 banks over the study period of 5 years. The standard deviation is estimated at 0.120 over the same time period. Credit Adequacy Ratio (CAR) has a mean value of 15.39 for all the 16 banks over the study period of 5 years. The standard deviation is estimated at 9.541 over the same time period. Mean value of efficiency (EFF) is 1.636 for all the 16 banks over the study period of 5 years. The standard deviation is estimated at 0.44. Operating efficiency (OPEFF) is 0.94 for all the 16 banks over the study period of 5 years on average. The standard deviation is estimated at 0.212 over the same time period. Mean value of Deposits (TDTA) is 0.75 for all the 16 banks over the study period of 5 years. The standard deviation is estimated at 0.099 over the same time period.

Inflation (INF) has a mean value of 11.485 for all the 16 banks over the study period of 5 years. The standard deviation is estimated at INF 2.418 over the same time period. Mean value of GDP is 2.901 for all the 16 banks over the study period of 5 years. The standard deviation is estimated at 1.412 over the same time period.

5.2 Correlation Analysis

Table 3 presents the correlation coefficients of dependent and independent variables. It shows that there is a positive correlation between EFF and EVA having correlation coefficient of 30.4 %. It also indicates positive relationship between ASQ and EVA, TDTA and EVA having coefficients of 9.1 % and 2.7 % respectively. OPEFF is negatively correlated with EVA at 13.9 %.

It also shows that there is a positive correlation between CAR and ROE having correlation coefficient of 21.42 %. It also indicates positive relationship between EFF and ROE having coefficients of 25.2 %. GDP is positively correlated with ROE at 24.4%.

Table 3. Correlation Matrix

	EVA	ROE	CAR	ASQ	EFF	OPEFF	DEP	INF	GDP
EVA	1								

ROE	-0.0769	1							
	0.5152	-----							
CAR	0.0969	0.2142	1						
	0.0411	0.0668	-----						
ASQ	0.0910	-0.0270	-0.3019	1					
	0.4407	0.8193	0.0089	-----					
EFF	0.3040	0.2524	0.3290	-0.1764	1				
	0.0084	0.0300	0.0042	0.1327	-----				
OPEFF	-0.1395	-0.3671	-0.0421	0.1423	-0.7065	1			
	0.2359	0.0013	0.7216	0.2264	0.0000	-----			
TDTA	0.0273	0.0237	-0.5321	0.1019	0.0599	-0.1823	1		
	0.8174	0.8414	0.0000	0.3875	0.6121	0.1200	-----		
INF	0.1301	-0.1515	0.0339	0.2059	0.0241	0.0982	-0.1934	1	
	0.2693	0.1977	0.7742	0.0784	0.8387	0.4051	0.0987	-----	
GDP	-0.2137	0.2436	0.0001	-0.2443	-0.0090	-0.0567	0.1400	-0.6999	1
	0.0675	0.0365	0.9997	0.0360	0.9391	0.6312	0.2342	0.0000	-----

5.3 Regression Findings

Results of model 1 are presented in Table 4, with taking EVA as dependent variable. It shows that Capital adequacy ratio (CAR) is significant at 1% level of significance and positively associated with EVA. Efficiency and asset quality are also significant at 10% level of significance and have positive relation with dependent variable i.e. EVA. All other internal factors (bank specific) are insignificant. In external factors GDP is significant and positively associated with EVA; whereas INF is insignificant.

R^2 of the model is 0.2831 and adjusted R^2 is 0.1961. It shows that 28.3% variation in the dependant variable (EVA) is explained by the explanatory variables. Further, it is found that F-statistic for the model is highly significant which shows that overall model is significant.

Table 4.

Dependent Variable: EVA			
Independent Variables	Coefficients	Std. Errors	p-value
CAR	0.04304	0.00154	0.007
ASQ	0.16567	0.09925	0.090
TDTA	-0.0425	0.14026	0.763
EFF	0.07724	0.03992	0.057
OPEFF	0.11633	0.07695	0.135
INF	0.00291	0.00634	0.648
GDP	0.02746	0.01094	0.014
C	-0.35204	0.19278	0.072
R- squared	0.2831	F-statistic	3.42
Adjusted R – squared	0.1961	Prob(F-statistic)	0.0035

Results of model 2 are presented in Table 5, with taking ROE as dependent variable. Results presented in table shows that only two internal factors are significant. Capital Adequacy Ratio and Operating Efficiency are significant at 5% and 1 % level of significance respectively. CAR is positively related with ROE whereas OPEFF is negatively associated with ROE. All other internal factors (bank specific) are insignificant. Inflation (external factor) is insignificant whereas GDP is significant at 5 % level of significance and have positive association with ROE.

R^2 of the model is 0.259 and adjusted R^2 is 0.1815. it shows that 25.9% variation in the dependant variable (ROE) is explained by the explanatory variables.

Table 5.

Dependent Variable: ROE			
Independent Variables	Coefficients	Std. Errors	p-value
CAR	0.05936	0.02587	0.025
ASQ	2.2583	1.66856	0.18
TDTA	1.53784	2.35803	0.517
EFF	-0.66142	0.67118	0.328
OPEFF	-3.87925	1.29369	0.004
INF	0.0683	0.10651	0.524
GDP	0.37704	0.18383	0.044
c	-0.42806	3.24085	0.895
R- squared	0.259	F-statistic	3.34
Adjusted R - squared	0.1815	Prob(F-statistic)	0.0041

6. CONCLUSION

The purpose of this study is to scrutinize the impact of bank-specific and macro-economic determinants on Pakistani commercial bank's performance. For the performance measurement, two different measures are used i.e. accounting based measure (ROE) and value based measure (EVA). The study also aims to identify that which measure is superior in explaining performance of banks. Pooled regression is applied on balanced data set. Assets quality (ASQ), Efficiency (EFF), Capital Adequacy ratio (CAR), Deposits and assets ratio (TDTA) and Operating efficiency (OPEFF) are taken as bank-specific variables whereas Economic Growth (GDP) and Inflation (INF) are taken as macro-economic variables.

Results of the study show that CAR and GDP are significant and positively related with both the measures i.e. EVA and ROE. Other than these variables, EFF and ASQ are significant and have positive association with EVA. Inflation and TDTA are found insignificant in both models.

Overall results show that EVA has more significant results as compared to ROE. Further, explanatory power (R^2) of value based measure (EVA model) is more i.e. 28.3 % as compared with accounting based measure (ROE model) i.e. 25.9 %.

Findings of the study are helpful for the banks management as they can anticipate and effectively manage their internal factors and external factors that contributes in boosting their performance.

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