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Comparison of Impact of Macroeconomic & Bank-Specific Variables on Pakistan's Islamic & Conventional Banks' Profitability

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ABSTRACT

This study examines comparison of how profitability of firms, in the Islamic Banking & Conventional Banking of Pakistan, is influenced to nominated financial and economic indicators, i.e. Liquidity, GDP, Inflation, Capital Adequacy & Size of the firm. For this purpose, the authors select five leading Islamic banks and seventeen conventional banks & choose annual data from 2009 to 2018 to study the behavior of dependent variables toward independent variable i.e. Return On Asset. By employing Panel Regression, the author concluded that macro-economic variables have insignificant impact on profitability of both types of banks. Size has found significantly negative impact on profitability of Islamic banks. The authors have also found that liquidity has a significant and positive impact on Islamic banks whereas liquidity and capital adequacy have significantly negative with conventional banks' profitability. The conclusions will be helpful for the banking sector to implement their policies accordingly in order to generate more profit in future.

Keywords: *Profitability, Islamic Banks, Conventional Banks, ROA.*

Introduction

The Banking system of Pakistan is the most stable sector in the financial sector of the nation. It has provided thousands of employments to the educated individuals and enables an economy to move ahead in a stable way. Even during the tenure of economic crisis, when developed countries' financial institution were fallen down, there was a Pakistan Banking sector, which griped out all the hits of recession that's why stockholders, investors, debtors, depositors, lenders etc were not eager to pull out all monetary assets from banks in order to safe their securities. Initially in Pakistan, there were only traditional banks that had run their operation conventionally. Their main source of income was interest and they still exist with noticeable market share.

In the twenty first century, there was a boom in the banking sector by introducing full fledge Islamic banks, which will be working under Sharī'ah compliant. Soon after the commencement of operation of Islamic banks, they had captured a market share of banking sector of Pakistan. Their deposits, market share, volume, etc. have been continually increasing since 2004 when they had started their operations. Being a Muslim country, it was the manifest of initial rulers to establish an interest free economy in Pakistan and Islamic banks was one of the initiatives to fulfill such thought. Individuals had deposited their funds from conventional banks to Islamic banks in order to get rid of interest which provide confidence and boost to Islamic banks in Pakistan.

The banking sector should be strong in the sense that it also provides employment to a large number of people and their families are dependent on them. If banking sector will lose the profitability, then the result will lead to downsizing which creates unemployment. Hence, the firmness of this sector is highly recommended for society and economy both.

It is important for the Pakistan economy to have a feasible banking system therefore the researchers are keen to find out the factors of the both pillars of banking sectors profitability. Although, number of researches have been done on the same topic but either they have taken maximum five years or not whole banking system. This will be the first comprehensive study in which the authors will take annual data of ten years and more than 90% of the population as sample. This study will be helpful to portray the whole and true picture of determinants of profitability of Pakistan Banking system.

Literature Review:

Theoretical Background

The theories which justify the association of selected variables and their relationships are as below:

Inflation:

According to theory of Perry (1992), if inflation increases then the profitability of banks will be declined. It is easily understood that if inflation increases, then consumers will have less to deposit therefore financial institution will have less funds to re-invest and earn more profit.

Size:

Economy Theory suggests that increase in size will help to increase in profit. The firm will produce their product in less cost and earn more profit. This concept is also known as economies of scale which indicates that up to optimum level or economic order quantity, the producer will produce the goods in the minimum cost within relevant range which will increase the profitability because of the lessen cost of goods sold.

GDP:

According to Francis (n.d.), an increase in growth will result in increment of profitability of Islamic banks. It is easily understandable that if economy produce more goods and services than there will be an excess inflow of cash in the market, which will be deposited in banks through which they earn more profit through the Sharī'ah mode of investments. GDP also represents the total number of production of goods and services within one financial year of any economy. The increase in GDP creates employment, increase in purchasing power and decrease the poverty of economy therefore it is one of the vital factor which affects the profitability of financial institutions.

Liquidity:

Francis (n.d.) stated that lesser liquidity increases banks' profitability. If the liquidity decrease, then the profitability will be increased as postulated by the theorist because it is an assumption that firms will utilize their liquid assets in an effective way in order to set off current liabilities and enhance the working capital management.

Previous Studies:

Number of researchers has done their studies on this topic but, it is noticeable that the secondary data is dynamic in nature. Thus, the dynamic nature of secondary data enforces the demand to analyze the behavior of explanatory variables with the dependent variables time by time. Some of the researchers are as below:

The researchers tested the case of Sudanese Islamic Banks. The author chooses the data from 2005 to 2013 of total twenty-seven Sudanese Islamic banks. The author tested the three profitable models in order to find out the effective determinants. Panel regression was employed as the statistical tool. The

researcher concluded that the bank size and leverage have an adverse impact on the profitability. He further concluded that capitalization and ownership have positive relationship with the Return on Assets. [1]

Internal factors i.e. banks size, liquidity, leverage or capital structure are the significant factors of bank's profitability. [2] The authors took the annual data over the period 2007-2013 of Gulf countries banks of both pillars and the methodology he used was multiple regressions. The results show that there are no significant differences between the profitability of both types of banking system. [3] The authors took the annual data over the period 2004-2009 and employed GMM technique in order to analyze the data of thirty-three conventional banks and sixteen Islamic banks. The study concluded that capital had significant positive impact on profitability of both banks whereas size has no noticeable impact on profitability of conventional and Islamic banks. [4]

The authors determine the influence of macroeconomic and financial variables on Jordanian Islamic Banks profitability. The authors took the data of twelve years, i.e. 2000-2011 and hired the GMM technique methodology. The study concluded that macroeconomic variables were good factors of Islamic Banks' profitability whereas internal factors were found to be insignificant with the Islamic banks' profitability.[5] In another paper, the authors found that banks' size had a positive significant impact on profitability of Malaysian Islamic banks. However, other financial variables were found to be insignificant. [6] The researcher used regression analysis to analyze the data of banks of eight Middle Eastern countries. The authors found that size has negative influence on the profitability of banks. [7]

The researcher estimated the performance of Islamic banks of Indonesia. By employing regression methodology, the authors concluded that Inflation has a positive impact on profitability. [8] Bank specific variables have a positive and significant influence on profitability of Islamic banks. [9] The authors compared the impact of financial and macro-economic variables on profitability of thirty-eight conventional banks and thirteen Islamic banks. The authors had taken the annual data over the period 2002-2009. The authors have found that the size of the bank had significantly positive relationship with the profitability of Islamic banks whereas it was found insignificant in the case of conventional banks. Furthermore, GDP was positively correlated and Inflation was negatively correlated with the profitability of both banking systems. [10]

Some researchers establish a positive association between profitability and bank size. [11] [12] [13] On other hand some empirical studies found inverse relationship between above two variables for example. [14] [15]

The researcher has taken seventy-one conventional and forty-six Islamic banks, which are working within the boundaries of GCC countries. Annual data over the period 2005-2012 were taken to test the hypotheses of the study. By using CAMEL approach, the authors concluded that bank size is the significant determinant for both banking systems. Moreover, the GDP and Inflation were found insignificant in both cases of traditional and Islamic banks. [16]

Hypotheses:

Ho: Bank size, Capital Adequacy & Liquidity have insignificant impact on the profitability of the conventional and Islamic Banks.

Ho: GDP and Inflation have insignificant impact on the profitability of conventional and Islamic banks.

Methodology:

Sample:

Five Islamic banks and seventeen conventional are taken as the sample in this study. Traditional banks' income is mainly focus on interest which is forbidden in Islam whereas Islamic banks are working under Sharī'ah compliant mode where interest is not the part of transactions. The researchers have taken only those banks which were fully operated under the prescribed tenure and exclude those banks which were not available at any time period between 2009 to 2018.

Collection of Data:

The authors have taken annual data over the period 2009-2018. The macro-economic data have been taken from Economic Survey and Pakistan Bureau of Statistics, whereas the data of bank-specific indicators were taken from their published financial statements which are available at their respective websites.

Statistical Plan:

Panel Regression will be used as the statistical tool to analyze the annual ten years' data. It is the most effective tool to examine the balanced or unbalanced panel data. In this study, there are cross sectional data on the banking industry and annual data of macroeconomic variables which form panel data. Hausman Test will be helpful to find out the most suitable model between Fixed Effect, Random Effect and OLS. The authors will also run diagnostic tests in order to fulfill the assumptions of panel regression.

Variables:

-Dependent Variable:

(a) ROA:

ROA measures the revenue earned by the firm per unit of the asset. It demonstrates the fact that how well the top management utilizes the invested capitals to produce revenue. It reveals the efficiency of assets in order to utilize

them to generate profit or revenue. [17]

Table 1: Dependent Variable and their Assessment.

Variable	Variable Name	Assessment
ROA	Return On Assets	Net Income/Total Assets

-Independent Variables:

(a) GDP:

GDP is an abbreviation of Gross Domestic Product. The researcher will take annual growth for GDP as an independent variable. It shows that the marginal change in the production of services and products per year. It is observed that if GDP increases, then profitability of the financial institutions will be increased and vice versa. The growth in GDP will lead to increase in production which enhances the revenue of organizations and individuals.

(b) Inflation:

CPI index will be taken as a proxy of Inflation, which indicates the rise or decline in price every year by using base year.

(c) Liquidity:

Liquidity risk measures the availability of cash and liquid assets which can be rapidly transfer into cash. In many previous studies, the researchers have used liquidity to determine its impact on profitability.

(d) Size:

Size refers to the total number of assets for any firm. It is postulated that increase in size will lead to increase in profit of any firm.

(e) Capital Adequacy:

The ratio of equity to total assets (CA) describes the strength of any organization. Stability of financial institutions depends upon an effective capital structure. [18] [19] [20]

Table 2: Independent Variables & Their Assessments.

Variables	Variables Name	Assessment
LIQ	Liquidity	Total Loans/Total Deposits
SZ	Size of the Bank	Log of Total Assets
INF	Inflation	CPI
GDP	Real Gross Domestic Product	Annual Growth Rate of Economy
CA	Capital Adequacy	Equity/Total Assets

Conceptual Framework:

The equations which have been developed for all models are as below:

***Equation (Islamic Banks)*:** ROA = Bo + B1GDP + B2INF + B3CA + B4LQ + B5SZ + σ

Where, PF = Profitability of Banks, Return On Asset of banks of Islamic Banks
GDP = Gross Domestic Product
INF = Inflation
CA = Capital Adequacy of Islamic Banks
SZ = Size of Bank
LQ = Liquidity of Banks of Islamic Banks
σ = Error

Equation (Conventional Banks):ROA = Bo + B1GDP + B2INF + B3CA + B4LQ + B5SZ + σ

Where, PF = Profitability of Banks, Return On Asset of conventional banks
GDP = Gross Domestic Product
INF = Inflation
CA = Capital Adequacy of conventional banks
SZ = Size of Bank
LQ = Liquidity of Banks of conventional banks
σ = Error

Transformation of Equation:

Due to achieve the expectations of panel regression, the researchers have transformed the equations into Log Log form to remove the issue of heteroscedasticity. If heteroscedasticity occurs, the results or finding will be bogus, therefore it is compulsory for scholar to satisfy all norms of panel regression during analysis. Hence, the transformed equations for both models are as below:

***Equation (Islamic Banks)*:**

Log(ROA) = Bo + B1Log(GDP) + B2Log(INF) + B3Log(CA) + B4Log(LQ) + B5Log(SZ) + σ

Equation (Conventional Banks):

Log(ROA) = Bo + B1Log(GDP) + B2Log(INF) + B3Log(CA) + B4Log(LQ) + B5Log(SZ) + σ

Empirical Results

Table 3: Panel Regression Results

Variables	Fixed Effect Model - Islamic Banks	Random Effect Model- Conventional Banks
GDP	-0.185 (0.960)	0.166 (0.204)
Inflation	-0.478 (0.587)	0.579 (0.149)
Size	-0.684*** (0.009)	-0.347 (0.334)
Liquidity	2.011*** (0.022)	-2.121*** (0.004)
Capital Adequacy	0.456 (0.222)	-0.213*** (0.001)
F-Statistic (P-Value)	5.44 (0.00014)	6.97 (0.0000)
R-Squared	0.423	0.398
Hausman Test	Prob>chi2 = 0.0000	Prob>chi2 = 0.0000
Breusch and Pagan Lagrangian multiplier test for random effects		- Prob > chibar2 = 0.0000

In table 3, under Islamic banking model, the Hausman Test result was significant, i.e. p>chi2=0.000 therefore fixed effect model was supposed to be more fit. In the fixed effect model, it was found that size had a significant negative impact on profitability of Islamic banks i.e. one percent increase in size will lead to decrease 0.684% of profitability and liquidity had a positive impact on profitability of Islamic banks i.e. one percent increase in liquidity will increase 2.01 % of profitability whereas capital adequacy was insignificant. However, macroeconomic variables, i.e. GDP and Inflation were found to be insignificant. The r-squared value i.e. .423 revealed that 42.3% variation in dependent variable

has been describing the chosen independent variables. The significant p-value of F-statistics proved that the model is for analyze the data.

In the conventional banking model, the Hausman test rejected the fixed effect model. Afterwards, Breusch and Pagan LM test for random effects provide evidence that the random effect model is more suitable than Ordinary Least Square model therefore random effect model was finally selected. The Random effect model for conventional banks revealed that macroeconomic variables had no impact on profitability of conventional banks. In financial variables, capital adequacy and liquidity were significantly negative with the profitability of conventional banks, i.e one percent increase in capital adequacy and liquidity will decrease 0.213% and 2.01% of profitability respectively. However, size was found to be insignificant with the profitability of conventional banks. The R-squared value of 0.398 indicates that 39.8% of variation has been covering by these independent variables. F-statistic significant value is the evident of fit model.

Table 4: Diagnostic Tests for Panel Regression Analysis

Tests	(Fixed Effect Model) Islamic Banks	(Random Effect Model) Conventional Banks
Breusch-Pagan LM test of independence	0.4629	0.2312
Wald Test for Group Wise Heteroscedasticity	0.2420	Robust Command
Wooldridge test for autocorrelation in panel data	0.5036	0.1901

Table 4 shows the details of diagnostic tests to fulfill the assumptions of panel regression. If the assumptions of panel regression are not fulfilling then the results are found to be spurious therefore it is necessary to solve the issues of heteroscedasticity, autocorrelation and level of independence. In the case of Islamic banks, Breusch- Pagan LM Test, Wald Test and Wooldridge In Table 4, we can observed that all the test results are found to be insignificant which indicates that there is no level of independence, heteroscedasticity and autocorrelation respectively. The same results are found in Random effect model's diagnostic tests. However, due to unavailability of heteroscedasticity test at STATA, the authors had run robust error command, which helps to reduce standard error and heteroscedasticity. When one deals with heteroscedasticity, serial correlation is overlooked, and when one deals with

serial correlation, heteroscedasticity is overlooked. Robust estimation of the variance covariance matrix is an exception of the reported estimates. [21]. He developed a formula for heteroscedasticity test jointly with autocorrelation, but it was neither an econometric instrument nor run by any software. [22]

Conclusion:

The main objective of this study is to compare the impact of macro-economic and financial indicators on the profitability of Islamic and Conventional banks of Pakistan. The authors concluded that macro-economic variables, i.e. Inflation and Gross Domestic Product have no impact on profitability of both types of banks. The justification of result could be the developing economic system of Pakistan because Pakistan is still not counted as developed nation in the sense of the economy therefore the researcher could not find the true impact. However, it was assumed that increase in GDP will increase the profitability according to the primary theories and secondary researches conclusions but in this study the insignificant results reject the both postulates. Inflation is also one of the important macro-economic factors which affect the banking sector revenues as we know that it takes part in the calculation of interest rate. It was assumed that increase in inflation may increase the interest rate which will result in an increase in revenue of the financial institutions. The insignificant impact may be justified by the fact that to increase in interest rate, the deposits were increased too but again they could not finance them in any profitable venue from where they could earn valuable returns. Furthermore, Islamic banks do not have any policy to generate proportional revenue from their assets, therefore the size was found to be negatively associated with the profitability of Islamic banks. On other hand, it is insignificant with conventional banks. It is also an established fact that conventional banks have more assets but they do not take any advantage. They are not generating revenue from their assets as much as they could. It shows the ineffectiveness and inefficiency of banking sector of Pakistan. It also indicates that Islamic and conventional banks do not possess any effective re-investment strategies because lack of re-investment options or failure of an effective investment decisions lead to such findings.

Islamic banks are mainly focusing on short term financing instruments, therefore their profitability will be increased if liquidity increase, but as far as conventional bank's concern, the authors has found the reverse impact. Both banking sectors should focus on their liquidity management because it will stable their working capital management. The effective working capital management will boost up the profitability in the end. Conventional banks are also inefficient in generating profit with an increase in equity, but Islamic banks were insignificant in this

department therefore both banking sector should seriously think about the productive equity financing options. Furthermore, they have to prepare an exceptional plan prior equity financing so that such raised equity will be invested in profitable venues. All in all, Islamic banks have minor edge by generating revenue from liquid assets only and conventional banks are unproductive in generating income from equity, liquidity and total assets.

Both banking systems need to manipulate their tools and policies which enable them to generate revenue from their assets and equity otherwise their increase in deposits will lead to non-performing or ineffective assets. If any bank does not have good re-investment options or financing possibilities, then it will result into deficit balance because each organization has to pay their obligations too such as employers' salaries, utilities etc. All in all, both banking sectors need to develop such policies by which they utilize their liquid and long term assets in order to generate revenue and enhance the stability of banking sector.

Limitations:

This study is limit to the banks which were fully operated with 2009-2018 therefore the researcher has used the balanced panel data for the analysis.

Recommendations for Future Researchers:

The future researchers may enhance this model by incorporated more internal and external variables as explanatory variables whereas some other profitability proxies should be used as dependent variables i.e. ROE, ROCE etc. Moreover, the future researchers may include other banks which were excluded by the researchers to avoid unbalanced panel regression. The researcher may incorporate the data from 2004 till date to analyze the same model.

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