
Macroeconomic Indicators impact on Investment of Islamic Banking Industry An Empirical analysis from Pakistan

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Abstract:

The aim of this research is to study the impact of Macroeconomic and Bank specific indicators on Investments of Islamic Banks in Pakistan. Data has been obtained from 2006 to 2018 of full-fledged Islamic Banks in Pakistan. Bank investment was taken as the dependent variable. Macroeconomic variables such as GDP, Exchange Rate, Interest Rate and Inflation were taken as an independent variable, whereas Bank specific variables are Bank Spread, NIM, Credit Risk, Bank Size, Financing, Deposits and Lag of dependent variable as previous year investments were used as Predictors. Descriptive statistics, Correlation Matrix, Trend Analysis and Panel least square regression method was applied. It was found that GDP has a significant and positive impact on Islamic Banks' investment. Moreover finding suggest that NIM, Bank Size and previous year investments have a significant and positive impact on investment of Islamic Banks in Pakistan whereas financing has a negative and significant impact on investment of Islamic Banks in Pakistan. This research will be useful to all stakeholders such as SBP, SECP and Bankers to recognize the key variables that create a significant impact on investment of banks so they can implement the strategy which makes the financial system efficient and robust and will directly contribute in the growth of the economy as well. This study is also helpful to academicians and it will minimize the gap in the existing literature of Islamic Banking in Pakistan.

Keyword: Investments, Islamic Banking, GDP, Bank Size, Pakistan

Introduction:

Islamic banking system is an interest free system that works according to the Shariah principle. Shariah provides regulation to all aspects such as social, political, judicial, economic, spiritual and domestic. Islamic banking system is based on profit and loss sharing and it also avoids interest based transactions. Islamic banking system is the key element that provides multi-facet solution to the global economy. It provides the structure that risk-free capital should replace with risk-related capital. Islamic banking

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system prohibit from Riba, Gharar, Najash, khalabah and Gambling. Islamic banking encourages investment and provides the platform to various businesses. Islamic banking system creates an environment which provides equality, honesty and joint collaboration. Islamic Banking is flourishing in Muslim as well as Non-Muslim countries due to its two unique characteristics such as risk-sharing approach and prohibition from Riba. Islamic Banking is now a globally accepted financial system. In Pakistan Islamic banking was first introduced in 2002 when the first Islamic Bank such as Meezan Bank Limited was established. Currently, there are five full fledged Islamic banks that are operational in Pakistan such as 1) Meezan Bank Ltd 2) Dubai Islamic Bank Pakistan Ltd 3) Al-Baraka Bank Pakistan Ltd 4) BankIslami Pakistan Ltd and MCB Islamic Bank Ltd. The growth of Islamic banking in Pakistan is exponential. According to the SBP bulletin, the asset of Islamic Banking is 13.8% whereas deposits are 16% of the total banking industry. Total assets of Islamic Banks are Rs 2,995 billion whereas total deposits are Rs 2,407 billion as of September 2019.

Table 1 Islamic Terminologies

Term	Definition
Riba	It means that any excess benefit over the principal.
Gharar	It means excessive uncertainty and unnecessary ambiguity in the transaction.
Najash	It means the manipulation and overpricing in the transaction
Khalabah	It means hiding the fault and overstating the product by manipulation

Quran provides us the principle and guideline which are binding to all Muslims and it is necessary to follow its commands and restrict from those activities which are forbid. Quran strictly prohibits interest, usury or any other kind of interest. Islamic banking system follows the rules and regulation and avoids the interest in their transactions. Following verses are from Quran which strictly prohibit the interest.

Table 2: Quran Verses regarding prohibition of interest

<p>“And whatever you give to take back more that it may increase the wealth of the givers, then it will not increase with Allah, and whatever you give as charity desiring Allah's pleasure, then those have two fold increase”. [Al-Rum 30:39]</p>	<p>وَمَا أَتَيْتُمْ مِنْ رَبًّا لِيَرْبُوَ فِي أَمْوَالِ النَّاسِ فَلَا يَرْبُوا عِنْدَ اللَّهِ ۖ وَمَا أَتَيْتُمْ مِنْ زَكَاةٍ تُرِيدُونَ وَجْهَ اللَّهِ فَأُولَٰئِكَ هُمُ الْمُضْعِفُونَ ﴿٣٩﴾</p>
<p>“And because they took usury whereas they were prohibited from it, and they consumed people's wealth unjustly, and those of them who became infidels, We have prepared a painful torment for them”. [Al-Nisa 04:160-161]</p>	<p>وَ أَخَذِهِمُ الرِّبَا وَ قَدْ نُهُوا عَنْهُ وَ أَكَلِهِمْ أَمْوَالِ النَّاسِ بِالْأَبْطَالِ ۖ وَ أَعْتَدْنَا لِلْكَافِرِينَ مِنْهُمْ عَذَابًا أَلِيمًا ﴿١٦١﴾</p>
<p>“O believers! Devour not interest, doubled and redoubled; and fear Allah, in the hope that you may get prosperity”. [A'le Imran 03:130]</p>	<p>يَا أَيُّهَا الَّذِينَ آمَنُوا لَا تَأْكُلُوا الرِّبَا أَضْعَافًا مُضَاعَفَةً ۚ وَ اتَّقُوا اللَّهَ لَعَلَّكُمْ تُفْلِحُونَ</p>
<p>“And Allah made trade lawful and made interest unlawful”. [AL-BAQARAH 02:275-276]</p>	<p>وَ أَحَلَّ اللَّهُ الْبَيْعَ وَ حَرَّمَ الرِّبَا</p>
<p>“O People who Believe! Fear Allah and forego the remaining Riba, if you are believers. And if you do not, then be certain of a war with Allah and His Noble Messenger; and if you repent, take back your principal amount; neither you cause harm to someone, nor you be harmed”. (AL-BAQARAH 02:278-9)</p>	<p>يَا أَيُّهَا الَّذِينَ آمَنُوا اتَّقُوا اللَّهَ وَ ذَرُّوا مَا بَقِيَ مِنَ الرِّبَا إِن كُنْتُمْ مُؤْمِنِينَ ﴿٢٧٨﴾ فَإِنْ لَمْ تَفْعَلُوا فَأْذَنُوا بِحَرْبٍ مِنَ اللَّهِ وَ رَسُولِهِ ۖ وَ إِن تَتُوبُوا فَلَكُمْ رُءُوسُ أَمْوَالِكُمْ ۖ لَا تَظْلِمُونَ وَ لَا تُظْلَمُونَ ﴿٢٧٩﴾</p>

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Islamic Banking financing and investments are based on the asset back mechanism. Islamic banking offers Shariah-compliant products to its customers such as Running Musharakah, Istisna, Salam, Ijarah, Diminishing Musharakah, Murabaha, Musawamah and Mudarabah.

Islamic bank investment is mainly comprised of Government Sukuk and in Capital Market. The government borrows from Islamic Banks in the form of Sukuk. Sukuk are the Islamic bonds that are back by assets. Islamic banks invest in shariah-compliant stocks. Financing and investment are two separate functions of banks. Financing is the loan given to the customer and the general public and on maturity, the customer returns the loan whereas investment is the loan to government and investment in the capital market (Islam et al., 2017). Banks diversify their portfolio by investment and financing. Banks do investment to generate a higher return on their portfolio. By given loans to the government, the overall risk of the bank is also reduced. Investment is a key component of bank assets. Thirumalai and Chandar (2014) revealed that the bank should properly lay down the investment policy so the liquidity and the safety of the fund to be ensured as well as to generate a maximum profit on it. Therefore Islamic banks need to identify the key factors that create an impact on investment of the Islamic Bank.

Literature Review

Very limited empirical studies have been done to investigate the determinant of investment of Islamic Banks. The majority of the research has been performed for commercial banks only. The following are the studies related to Macroeconomic and Bank specific variables impact on bank's investment.

Bhattarai (2018) investigate the determinant of investment of commercial banks in Nepal. He analyzed the bank-specific and macroeconomic variable effect on investment. Data is obtained from 2009 to 2016 of commercial bank and ordinary least square regression analysis was applied. He discovered that the Credit to Deposit ratio, Non-Interest Income, GDP and Exchange Rate have significant impact on the investment of commercial banks. He also found that Non-Interest income has a positive impact on the investment portfolio of commercial banks.

Adhegaonkar (2015) considered the factors that impact Indian banking financing and investment portfolio. He has obtained the data for the last thirteen years. He found that regulator policies are strictly followed by the banks and commercial banks are investing in SLR securities and also giving finance to the priority sector. Finding suggests that credit to deposit ratio and liquidity have a negative relationship with

banks investments. He also noticed that foreign banks are giving preference toward investment activities rather than financing to their customers.

Njiiri (2015) informed that investment plays a key role in the financial performance of the banks. Bank invests its funds to earn higher profit and to enhance its overall return on the portfolio.

Bhavet, Jindal & Garg (2013) suggested that banker should place their excess fund in investment due to which they will be able to produce maximum profit. Income from the investment will create other sources of revenue for the banks.

Wildman (2010) studied the determinants of investment of German commercial banks. He examined the investment portfolio of commercial banks which is in the capital market and found that stock market performance and stock market capitalization have a significant impact on the investment of German banks. He also found that financial market development has a strong influence on the German bank's investment portfolio.

Akinlo and Ogo (2002) found that commercial banks have opened many branches in recent year and these banks are having high deposits and granted many loans to the public as well as to government. They further revealed that banks major earning is derived from the combination of financing and investment activities. Bank place their funds where they get maximum return and also try to mitigate the risk on their portfolio.

Maginn et al (2007) examined the strategic and tactical asset allocation of commercial banks. He found that strategic asset allocation has a significant impact on the investment of commercial banks.

Alger and Alger (1999) has determined the large banks are in a good position as compare to the small bank as they have diversified depositors and they can meet their liabilities whereas small banks have to keep sufficient funds in the liquid asset. Banks with sufficient deposit have better risk management.

Hypothesis of the Research:

The following hypothesis is developed by reviewing the related literature and it will statistically be tested to obtain the answer of research objective.

Hypothesis (H₁): Macroeconomic and bank specific variables have a significant impact on investment of the Islamic Banks in Pakistan.

Research Methodology

Study Variables

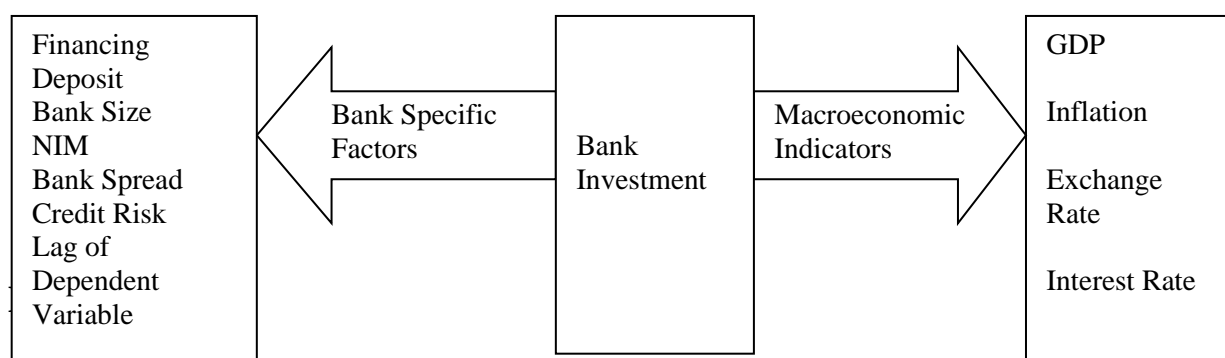
The following table shows the variables and their expected behavior according to the literature.

Table 3: Variable Description

Symbol	Variable	Operational Definition/ Measurement	Expected Sign
GDP	Gross Domestic Product	Current year Real GDP minus Previous Year Real GDP/Previous year Real GDP.	Positive
IR	Interest Rate	Weighted Average lending Rate	Positive/ Negative
ER	Exchange Rate	PKR Exchange Rate to USD	Positive
Inf	Inflation	Consumer Price Index(CPI)	Positive/ Negative
CR	Credit Risk	A ratio of nonperforming loan to total advances	Positive/ Negative
Log(TL)	Total Financing	Bank total financing divided by Total Asset	Negative
Bank Size	Bank Size	Natural Logarithm of Total Asset	Positive
NIM	Net Interest Margin	Net Interest/ Total Asset	Positive
BS	Bank Spread	Net Interest/ Total Interest	Positive/Negative
Deposit	Deposit	Total Deposit/ Total Asset	Positive
TI(-1)	Total Inv (-1)	Total investment of previous year	Positive

Study Models:

In the following table macroeconomic and bank specific variables are mentioned which our selected in our study model. Regression analysis was applied to the model.

Figure 1

Research Objectives

In this study, the research objective is to investigate the macroeconomic and banks specific factor that creates an impact on the investment of Islamic Banks in Pakistan.

Research Questions

1. What will be the impact of macroeconomic and bank specific variables on investment of Islamic Banks in Pakistan?

Population Frame

The following table shows five full fledged Islamic banks are working in Pakistan.

Table 4: Population Frame

1	Meezan Bank Ltd
2	AlBarka Bank Pakistan Ltd
3	BankIslami Pakistan Ltd
4	Dubai Islamic Bank Pakistan Ltd
5	MCB Islamic Bank Ltd

Sample Size and Selection of Sample

In our research four full fledge Islamic banks were selected which are 1) Meezan Bank Ltd 2) Dubai Islamic Bank Pakistan Ltd 3) Al-Baraka Bank Pakistan Ltd and 4) BankIslami Pakistan Ltd. Data has been selected from 2006 to 2018. The above-

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mentioned banks represent more than 70% of market capitalization which is the significant figure to analyze the data as per (Yasir & Hijazi, 2006). Data has been obtained from the bank's financial statement and also from the State Bank of Pakistan. MCB Islamic bank was not considered as it is established recently in 2015 whereas our study is based on 2006 to 2018.

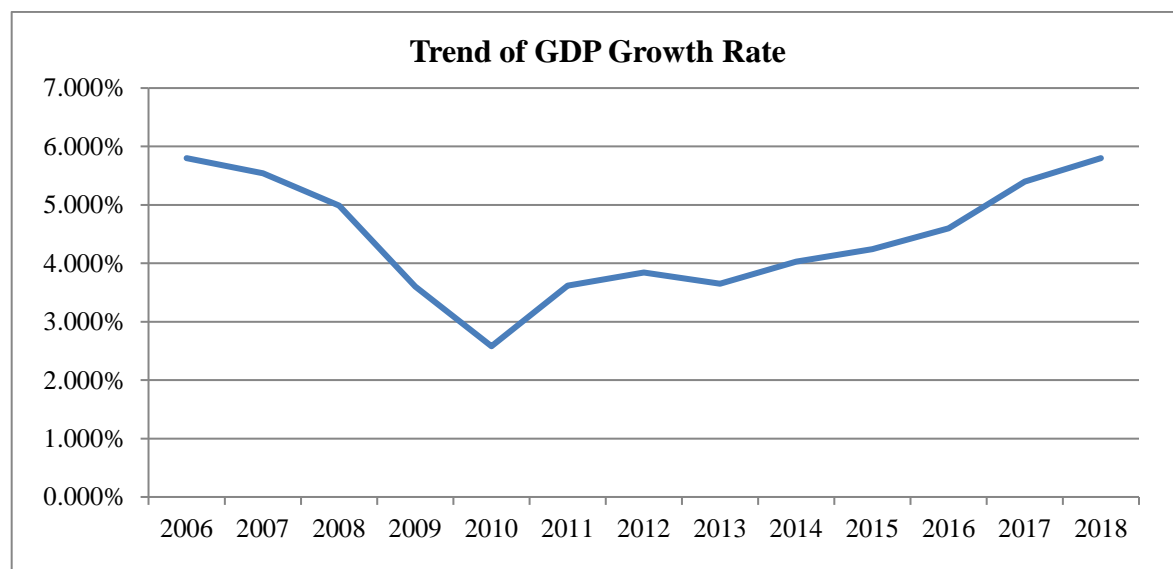
Trend Analysis

Trend analysis from 2006 to 2018 of all the variables of study are mentioned below

Trend of GDP Growth rate

GDP is the macroeconomic indicator which shows the goods and services produced within the country. GDP growth rate of Pakistan in 2018 was 5.81%. The average GDP growth rate is 4.1%. Lowest GDP growth rate in Pakistan was noted as 0.36% in 2009. Trend of GDP growth from 2006 to 2018 is shown in following graph.

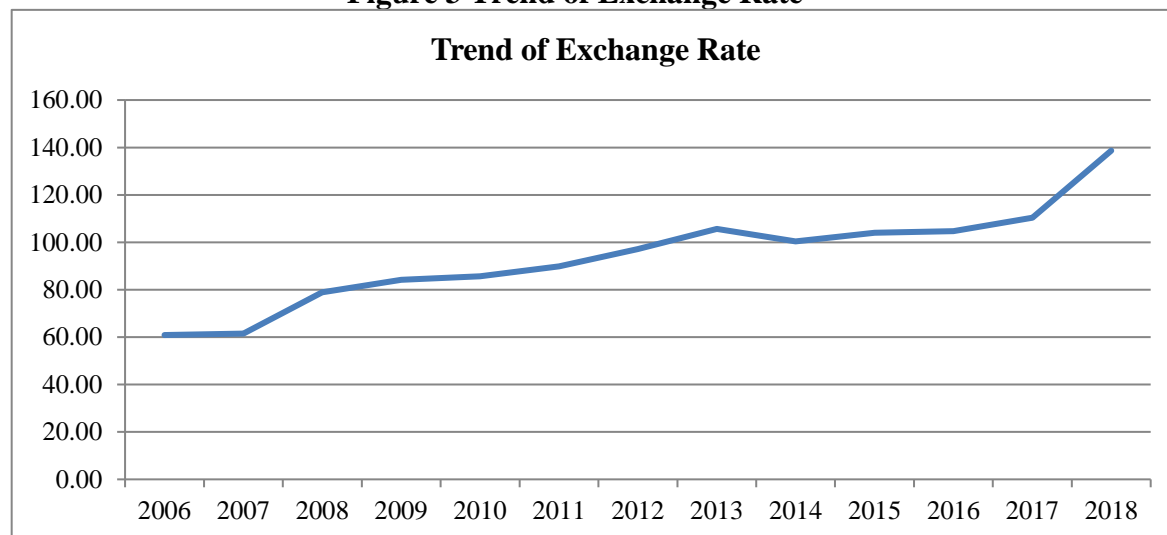
Figure 2 Trend of GDP Growth Rate



Trend of Exchange Rate

Exchange rate is the macroeconomic indicator. Exchange rate in Pakistan in 2018 was 138.6. Average exchange rate from 2006 to 2018 was 93.98. Trend of Exchange rate from 2006 to 2018 is shown in the following graph.

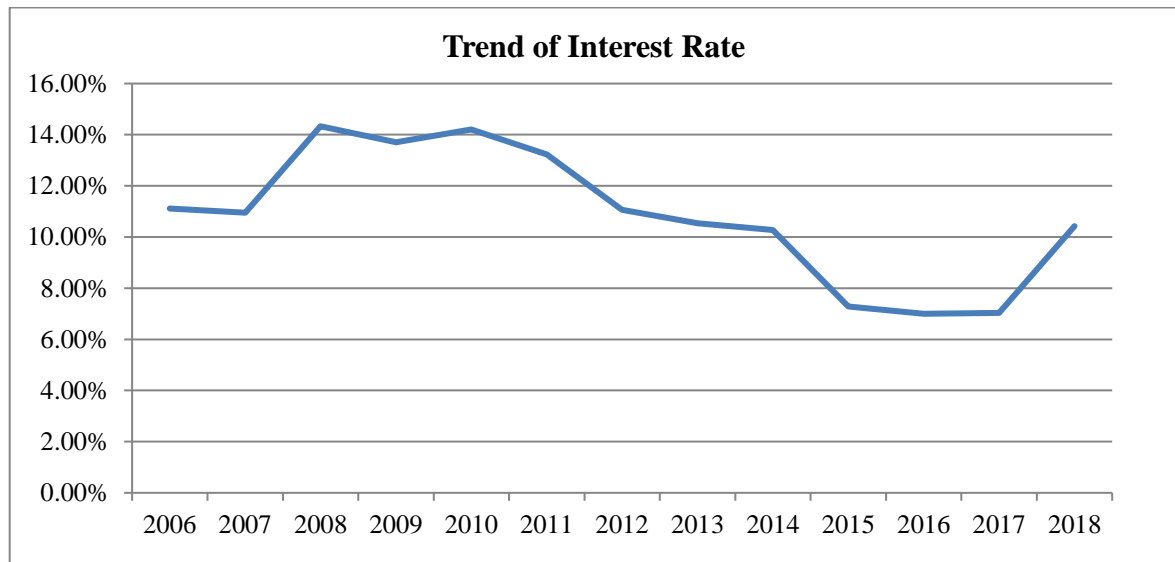
Figure 3 Trend of Exchange Rate



Trend of Interest Rate

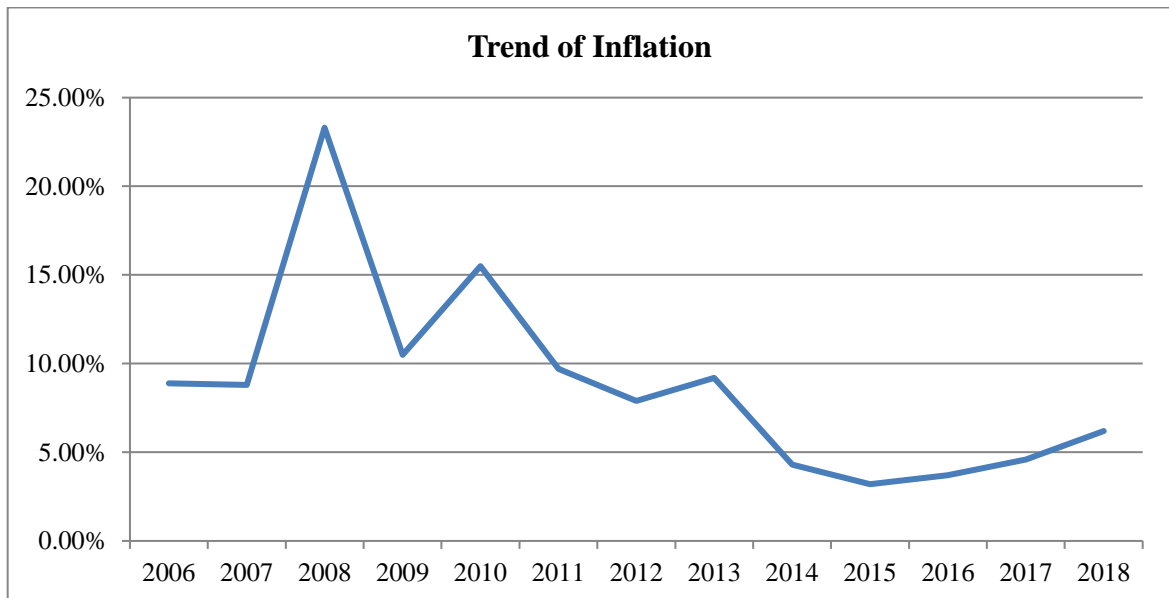
The interest rate is also a macroeconomic indicator. In the last several years Pakistan's interest rate remains highly volatile. The average interest rate from 2006 to 2018 was 10.08%. The highest interest rate was seen in 2009 which was 15.61% where the lowest interest rate was touch in 2016 which was 6.01%. The trend of interest rate from 2006 to 2018 is shown in the following graph.

Figure 4 Trend of Interest Rate



Trend of Inflation Rate

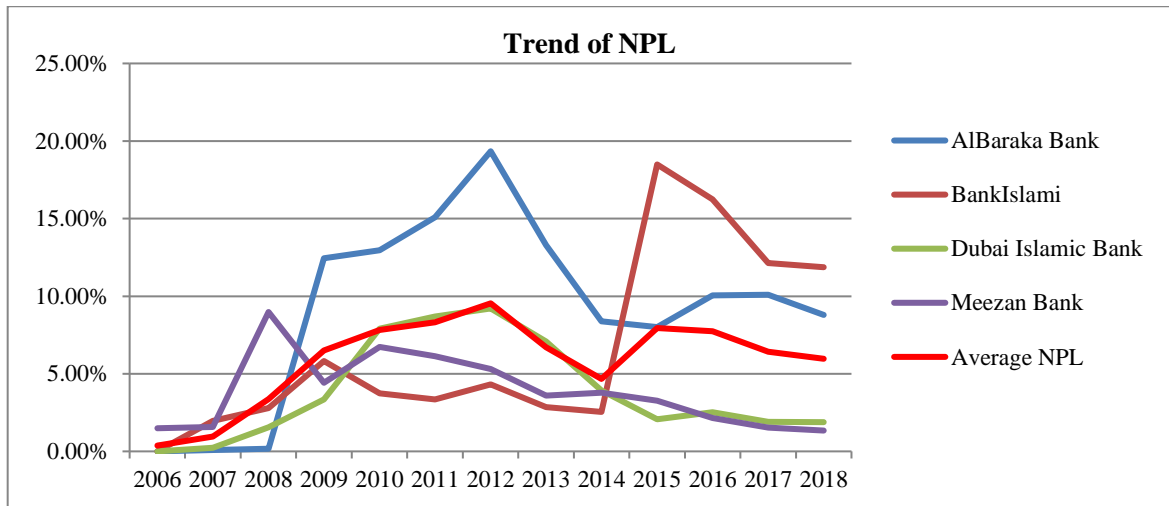
Inflation is the macroeconomic indicator that shows the increase in the price of commodities over the period. In this study, CPI was considered as the proxy for inflation. The average inflation rate in Pakistan from 2006 to 2018 is 8.91%. The highest inflation rate was seen in 2008 as 23.3% whereas the lowest inflation was 3.2% in 2015. Trend of interest rate from 2006 to 2018 is shown in the following graph.

Figure 5 Trend of Inflation

Trend of Credit Risk

NPL is used as the proxy to measure credit risk. Average NPL of the Islamic banking industry from 2006 to 2018 was 5.87%. Trend shows that overall NPL is reducing over the period. It is positive for Islamic banks. Trend of credit risk from 2006 to 2018 is shown in the following graph.

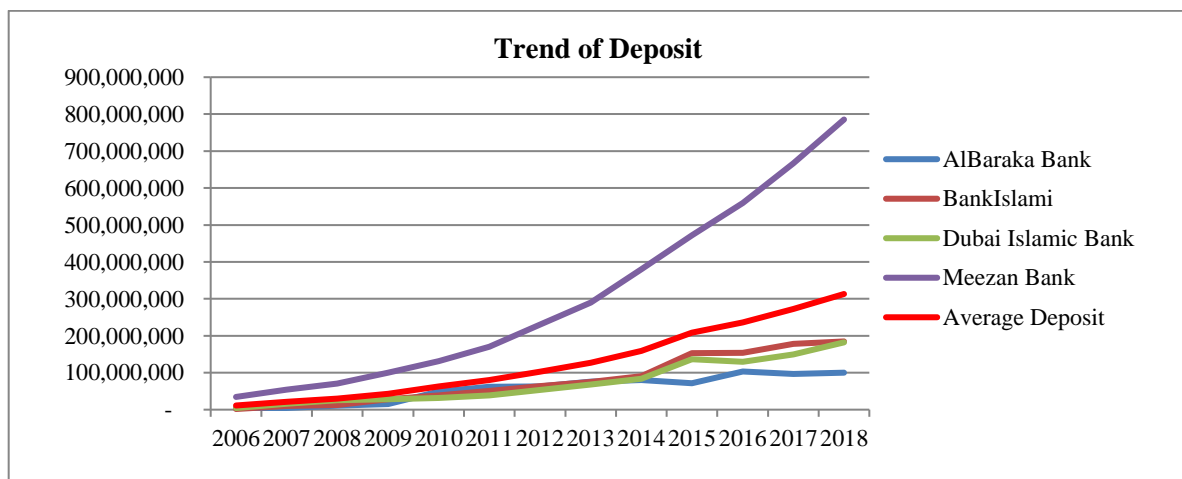
Figure 6 Trend of NPL



Trend of Deposit

Deposits are considered as the key component for the banks. Trend shows that the deposit is increasing significantly which shows the comfort of the depositor on Islamic banks. Trend of deposit from 2006 to 2018 is shown in the following graph.

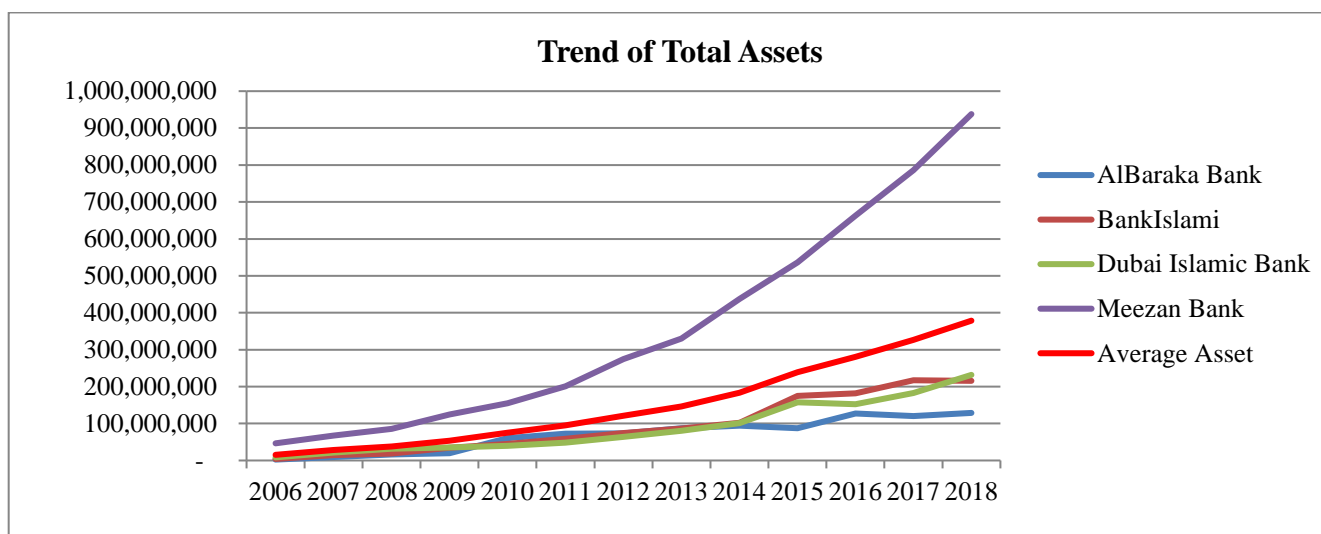
Figure 7 Trend of Deposit



Trend of Bank Size

Bank assets are used as a proxy for bank size. Bank assets are the combination of financing and investments. Trend shows that the Islamic bank assets are increasing significantly over the period. Trend of bank asset from 2006 to 2018 is shown in the following graph.

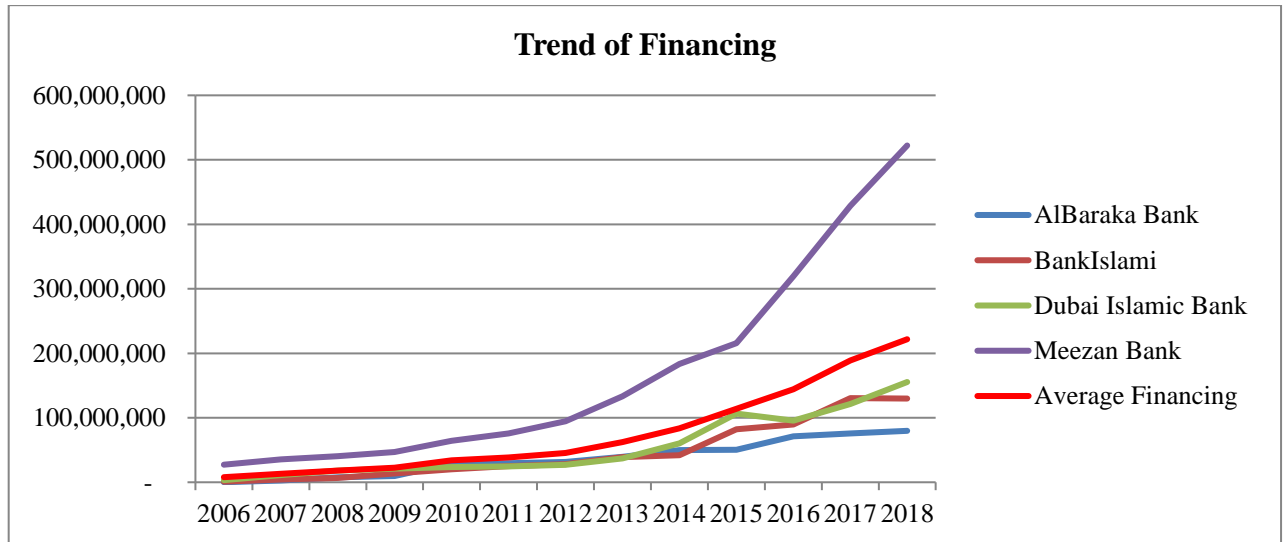
Figure 8 Trends of Bank Assets



Trend of Financing

Financing is a key function of banks as the major revenue of banks is generated from the financing activity. Trend shows that the financing of Islamic banks is increasing over the period. It shows the customer's willingness to obtain finance from Islamic Banks. Trend of financing from 2006 to 2018 is shown in the following graph.

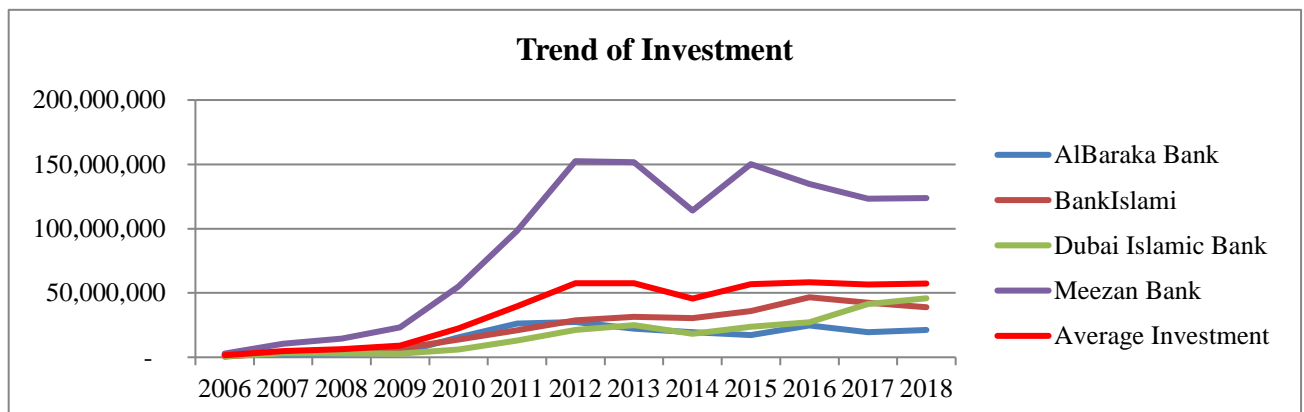
Figure 9 Trend of Financing



Trend of Investment

Banks invest in government securities such as Sukuk as well as in the capital market. Banks do investment as well as financing to diversify their asset portfolio. Trend of investment is stable over the period. Trend of investment from 2006 to 2018 is shown in following graph.

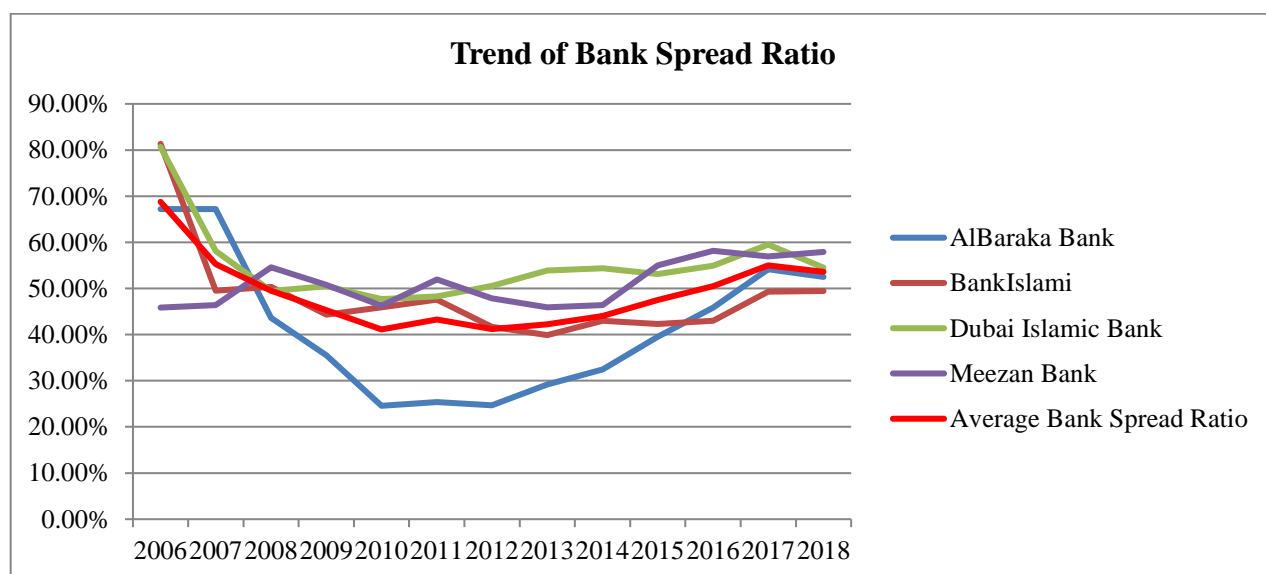
Figure 10 Trend of Investment



Trend of Bank Spread Ratio

Bank spread is the bank specific variable. It is measured as net income to total income. The average spread of Islamic banks is 49%. Trend of bank spread from 2006 to 2018 is shown in the following graph.

Figure 11 Trend of Bank Spread Ratio

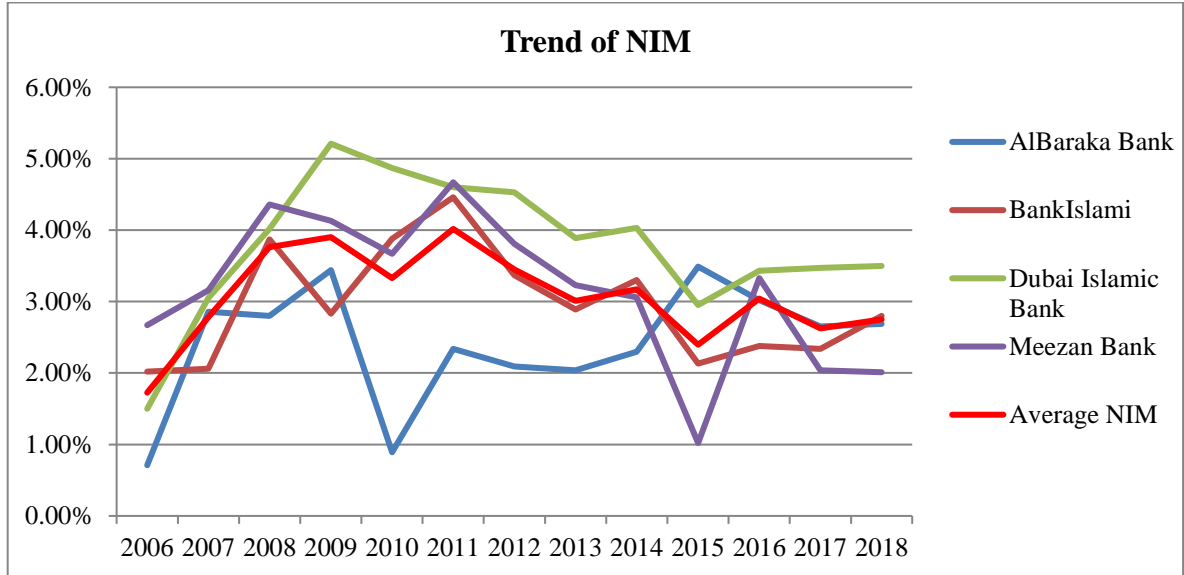


Trend of Net Interest Margin (NIM)

The net interest margin is used to determine the efficiency of the banks. It is measured as net income to total assets. Islamic Bank's average NIM from 2006 to 2018 was 3.07%. Trend of NIM from 2006 to 2018 is shown in the following graph.

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Figure 12 Trend of Net Interest Margin



Empirical Results

Descriptive Statistics:

Descriptive statistics are shown in the following table. The mean of GDP was 4.18%, the Exchange rate mean was Rs 93.98, the mean of Interest rate was 10.08% and the mean of Inflation rate was 8.93%. The mean of financing of Islamic bank was 47%. The mean of Net interest margin was 3.1%. The mean of NPL was 5.8%. Bank spread mean was 49.65%. The mean of the Investment portfolio is 23.2%. The mean of Deposit ratio was 78.65%.

Table 5: Descriptive Statistics

	TA	NIM	BS	CR	Fin	Inv	Deposit	GDP	IR	INF	ER
Mean	1.520008	0.03074	0.49651	0.05874	0.47562	0.232088	0.786500	0.044377	0.108600	0.089062	93.9830
Median	8686672	0.03055	0.49362	0.03850	0.47263	0.201466	0.830150	0.042400	0.109500	0.088000	97.1100
Maximum	9.380008	0.05210	1.00000	0.19340	0.67873	0.555538	0.885700	0.058000	0.143300	0.233000	138.650
Minimum	2448298.	0.00710	0.24570	0.00000	0.01344	0.000000	0.000000	0.025800	0.070000	0.032000	60.8800
Std. Dev.	1.940008	0.01013	0.13058	0.05053	0.12422	0.108542	0.145403	0.009777	0.025047	0.053261	20.2370
Skewness	2.487072	-0.17172	1.17654	0.92838	0.918703	0.737609	-3.636973	-0.0731	-0.2213	1.440460	0.21110
Kurtosis	9.068282	2.75451	6.84543	3.02561	5.05365	3.721630	18.32760	1.986985	1.963428	4.716805	3.08572
Sum Sq. Dev.	1.920018	0.00524	0.86972	0.13025	0.78700	0.600846	1.078247	0.004875	0.031995	0.144676	20886.4

Correlation Matrix

The following table shows the result of the correlation matrix. The result indicates that in the data multicollinearity does not exist as all variable value is less than 0.8. Kennedy (2008) revealed that multicollinearity is not present when the correlation value is less than 0.8.

Table 6: Multicollinearity Test
Covariance Analysis: Ordinary

Correlation	GDP	IR	INF	ER	INV	FIN	TA	NIM	BS	CR	DEPOSIT
GDP	1.000000										
IR	-0.453865	1.000000									
INF	-0.170053	0.616511	1.000000								
ER	0.086072	-0.456347	0.450638	1.000000							
INVESTMENT	0.062402	-0.348958	0.336444	0.452830	1.000000						
FINANCING	0.248691	-0.463974	0.388057	0.590149	0.650945	1.000000					
TA	0.192505	-0.437050	0.377626	0.546325	0.642148	0.683203	1.000000				
NIM	-0.389103	0.367721	0.286363	0.006689	0.094006	0.205009	0.202412	1.000000			
BS	0.437267	-0.150396	0.073833	0.250095	0.004372	0.102524	0.079534	-0.121441	1.000000		
CR	-0.257680	-0.074339	0.121063	0.317553	0.072916	0.129248	0.124108	-0.100413	-0.612253	1.000000	
DEPOSIT	-0.304737	-0.160053	0.184389	0.536496	0.351885	0.289714	0.309419	0.350987	-0.631906	0.369613	1.000000

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Regression Model:

The following regression model was applied to determine the impact of the macroeconomic and bank specific variables on the investment of the Islamic Bank in Pakistan.

$$TI_{it} = \alpha + \beta_1 GDP_{it} + \beta_2 Interest_{it} + \beta_3 Inflation_{it} + \beta_4 Exchange\ Rate_{it} + \beta_5 Bank\ Spread + \beta_6 NIM_{it} + \beta_7 CreditRisk_{it} + \beta_8 Deposit_{it} + \beta_9 BankSize_{it} + \beta_{10} Financing_{it} + \beta_{11} TI(-1)_{it}$$

Where:

- GDP: Annual growth rate of Gross Domestic Product of Pakistan at year t.
- Interest: Weighted average lending Rate at year t.
- Inflation: Consumer Price Index at year t.
- Exchange Rate: PKR exchange rate to USD at year t.
- Log(Investment): Logarithm of total investment of the bank i at year t
- Deposit: Total deposit of the bank i at year t divided by total assets.
- Log (TA): Logarithm of total asset of banks i at year t. It is used as proxy of bank size.
- NIM: Net interest Margin of bank i at year t.
- BS: Bank spread i at year t
- Credit risk: It is ratio of NPL to gross financing of the bank i at year t.
- TI(-1): Lag of dependent variable

Table7: Panel Least Square (PLS) Output Investment Model

Dependent Variable ->		INVESTMENT
C	Coefficient	-0.53148
	t-Statistic	-2.09304
	Prob.	0.0435
GDP	Coefficient	1.817102
	t-Statistic	2.163592

	Prob.	0.0372
	Coefficient	0.61536
IR	t-Statistic	0.714334
	Prob.	0.4796
	Coefficient	-0.35223
INF	t-Statistic	-1.09297
	Prob.	0.2817
	Coefficient	0.000337
ER	t-Statistic	0.370704
	Prob.	0.713
	Coefficient	-0.31498
LOG(FINANCING)	t-Statistic	-4.28717
	Prob.	0.0001
	Coefficient	0.324548
LOG(TA)	t-Statistic	4.437105
	Prob.	0.0001
	Coefficient	0.174566
DEPOSIT	t-Statistic	0.676915
	Prob.	0.5028
	Coefficient	3.272855
NIM	t-Statistic	2.188081
	Prob.	0.0352
	Coefficient	-0.20646
BS	t-Statistic	-0.98916
	Prob.	0.3292
	Coefficient	0.119117
CR	t-Statistic	0.475725
	Prob.	0.6
	Coefficient	0.298213
INV_TA(-1)	t-Statistic	2.19815
	Prob.	0.0345
R-squared		0.755292

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Adjusted R-squared	0.68052
F-statistic	10.10129
Prob(F-statistic)	0.000001
Durbin-Watson stat	1.699075

Panel Least Square Regression Result:

The adjusted R-square value is 0.6805 in the model which means that 68.05% variation of the dependent variable is explained by Predictors. The F-statistics value was 10.10 whereas P-value was noted as zero which authenticate that the model is fit for testing. Durbin Watson test value was 1.69 which is near to 2 which confirms that there is no serial correlation issue in this model.

The result shows that GDP has a significant and positive impact on investment of Islamic Banks in Pakistan. Moreover, it was found that Bank size, Net interest margin, and previous year investment have a significant and positive effect on bank investment whereas financing has a negative and significant impact on bank investment.

Moreover, larger banks do higher investment and they are in the position of investing heavily in the capital market and government securities. Results are in line (Chernykh & Theodossiou, 2011).

More so, banks do investment to generate a higher return. The main aim of bank management is to earn a higher profit on their portfolio. The net interest margin is the measure of the bank's efficiency. Farinha and Prego (2013) and Jhingan (1994) found the same results.

Further, if banks do higher financing than the bank will have fewer funds for investment and vice versa. Olumuyiwa et al (2012), Vidhyadharan (1999) and Nwanko(1980) revealed that financing has a significant impact on bank investment.

Furthermore, in economic growth banks tend to invest in the capital market because if the economy is growing than the companies is also generating a higher profit and the dividend payout of the companies increases due to which banks get a higher return on their investment portfolio. Amidu(2014) also found that GDP growth rate and investment have a positive and significant impact on investment of banks

Hence, model confirms that the hypothesis should be accepted as macroeconomic indicators and bank specifics indicators plays important role in the determination of investment of the Islamic banks of Pakistan.

Conclusion and Recommendation:

In the current scenario of global economic situation there should be a system that create the balance and fair economic system. Islamic banking system is the one which have all aspects to maintain the linkage between social and economic matters of the society. It has fundamentals that have roots deeply ingrained according to the Shariah. This study investigates the determinant of investment of full-fledge Islamic Banks in Pakistan from the year 2006 to 2018. Finding suggests that macroeconomic variable such as GDP has a significant impact on investment of Islamic banks in Pakistan. Moreover, finding concludes that Bank specific variables such as Bank Size, Net interest margin and previous year investment have a significant and positive relationship with the investment, whereas financing is negatively associated with the investment of Islamic Banks in Pakistan. Macroeconomic and Banks specific variables should decisively be analyzed by Islamic Bankers while formulating the investment policy which will assist in better control of the asset portfolio of banks and improved financial stability and soundness of Islamic banking which will help in the development of an economy.

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