

**LOW INTEREST RATE IMPACTS ON ISLAMIC AND
CONVENTIONAL BANKS**

by

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❖ Chapter 1: Introduction

1.1 Background of research

The world financial market is increased dramatically in the last decades, though, risk of these markets and their management approach is not new, not contemporary and not recent issues. Therefore, the consequence and outcome of the huge, massive and vast growth of the financial global market is the risk inherent within it and the risk may originate, even, thus, an event that is a thousand of miles away from a specific domestic market. Nevertheless, the financial market reacts and reaction to this change similar crisis, commodity price and interest rate affect it very quickly. Hence, financial risk must be measured and identified to be managed appropriately. However, the probability of loss is the risk and the possibility of loss is the exposure. These two terms are used interchangeably because the outcome of the exposure is a rising risk (Horcher, 2011). The financial risk arises as a result of the financial activities of a business. This risk could be controlled and by financial risk management which is the process to manage these uncertainties. However, risk could be managed but not avoided. For example, the output of an international crisis similar Covid-19 could be managed but cannot be avoided (Dooley, 2000). Likewise, banking institutions are exposed to many types of risks. Banking institutions specifically have three important types of risk. These three important major risks are credit risk, market risk and operational risk (Raghavan, 2003). These three major risks in both conventional and Islamic banking institutions. While many have the belief that Islamic banking is risk-free, in fact, a case study of Bank Islam Malaysia Berhad (BIMB) explained that the perception of free risk does not exist and that Islamic banks risk are understatement nor it is risk-free (Ahmad Najib, 2010). This report examines the risk involved in three Islamic banks, (Bank Islam Malaysia Berhad, RHB Malaysia and HSBC) and Three commercial banks(Maybank, Public Bank Berhad and Ambank) and the risk practice of these banks through a financial statement analysis approach. Therefore, the analysis of these banks' financial statements of the year 2015 to 2020 to understand and explain the three major risks associated with banks which are market, credit and operational risk.

1.2 Research gap and problem statement

The research in this report is to show and examine a low interest rate environment related to the banks' non-performance loan ratio, return on asset and return on equity of both Islamic and

commercial banks. Also, to show the impact of low interest rate environment on both, Islamic and conventional banks' capital structure.

1.3 Research objectives

This report main objective is to examine the outcome of low interest rates on both banks, Islamic banks and conventional banks. Also, this report aims to examine the outcome of both Islamic and conventional risk management. However, when the overnight interest rate is low it is converting to the banks offered deposit rate. As well as when cutting the interest rate to be negative, below zero, will result in the same. To be more specific, the non-performing loan ratio, NPL, will be influenced by the low interest rate. And the banks' capital structure also will be affected and influenced by the lowering overnight interest rate environment.

1.4 Research questions

The questions included in this research are:

- To determine three Islamic and conventional banks' performance of three ratios: return on equity (ROE), return on asset (ROA), and non-performance loan (NPL) of 6 years from 2015 to 2020.
- To determine for both banks, Islamic and conventional, interbank rates, interest rate, and an inflation rate of the years from 2015 to 2020.
- To determine the corporate governance variables of the board of directors.

1.5 Significance and justification of research

This study is significant due it is examined, studied and analysed the low interest rate effect in banks, both Islamic banks and commercial banks, by looking at one of the two approaches of measuring the risk level of banks. The two approaches are either by looking at financial statement analysis or by stocks analysis. However, this study applied a financial statement analysis approach in analysing the impact of low interest rate impact on banks ratios and the impact on the banks' capital structure.

❖ Chapter 2: Literature Review

Many elements affect banks' structure and its ratios similar interest rate, inflation rate, interbank rates and the number of board directors of banks which in this study are the independent

variables. While the dependent variables in this report are return on equity (ROE), return on asset (ROA) and non-performance ratio (NPL).

2.1 Return on Equity

Return on equity is the system to measure how much is the net income over, by and divided on the equity of shareholders of a firm. This system is one of the profitability measures performance of a firm. Thus, it is to show the different of firms' performance within the same industry. Mostly, the thumb rule is applied to all ratios to determine whether it is a good ratio or not. Also, a ratio of 15% to 20% indicates that ROE is considered good. However, return on equity emphasis and focuses on the element of equity of the firm investment portfolio. It is the net income—revenue after cost and debt—over the stockholder's equity (Damodaran, 2007).

2.2 Return on Asset

Return on the asset, ROA, is an indicator, tool and method of the performance ratio of a company similar to return on equity, ROE. Though, ROA is to show how profitable is an institution relating to its total asset. ROA helps the management and other individuals to see how the firm uses its total asset to make a profit that whether the asset is used efficiently or not. Also, it helps investors to decide to invest in a company. However, ROA could be used as a tool for comparing a company within the same sector and industry. While ROE takes and carries debt into account when it is measured, ROA does not take it into account. For example, in case there is no debt of a firm the ROE would be the same as ROA. Moreover, the higher the ROA indicates that the asset is utilised more efficiently. Additionally, ROA show how much cash and earning was generated by using the asset, invested capital (Danisware & Daryanto, 2020).

2.3 Non-performance Loan

Non-performing loan, NPL, is the issue, question and matter of banks to survive, survive, pull through and keep its parts and soul together. Many elements determine the NPL ratio. For example. Some factors are related to macroeconomic measures similar real GDP, inflation, interest rate. However, a Non-performing loan is defined as the total of borrowed money upon the borrower default within 90 days. In other words, the debtor default on the payment of the loan and did not made the scheduled payments. Hence, once the loan becomes a non-performing loan indicate it is out of the ordinary that it would be paid in the future. Therefore, when the NPL ratio is high indicates the inefficient of banks' policy of credit and leads to a failure of the policy. For instance,

during a crisis usually, the NPLs ratio is high in the banking sector similar 2008 crisis which is the default on a mortgage payment that affects the whole world and started from the U.S.A. Hence, the NPL ratio is the most important reason for a bank's decrease in earning, profit and income. Therefore, the NPLs ratio is vital, crucial and key for banks (Saba et al., 2012).

2.4 Interest Rate

Interest rate is a percentage, proportion and ratio of what an individual charged when he or she borrows or uses an asset that is from the lender similar to the percentage charged on a loan. This is a yearly ratio basis called the annual percentage rate, APR, that is explained and measured on the principles of the asset. Furthermore, this asset that is used by the borrower could be cash, machine, building, consumer goods, and others. The formula of calculating the interest rate is the interest amount paid in a specific period over, divided, by the principal amount, the original amount of principle before any interest, multiple by the period that is involved which is the amount of interest infraction, in decimal. However, the central banks' intervention when there is demanded liquidity asset by lowering the interest rate and pushing it down to meet this demand. This process by the central banks affects the expected future of interest rate broadcast and, though, the incentive for banks to involve in the commitment that rise the need for intervention. However, this could lead to an increased future need for a low interest rate. Nevertheless, this intervention by central banks includes issues. This low interest rate obliges less penalty for banks that have larger leverage and decrease the amount of maintaining liquidity. Moreover, to offset this the central banks could announce that it will push the interest rate above the equilibrium by altering the interest rate behavior in normal time (Diamind & Rajan, 2012). One of the features of the current financial crisis is the cutting interest rate to a low rate, zero rates, or below zero rates (Coibion, et al., 2012).

2.5 Inflation Rate

The inflation rate is known as the keeping on increasing of price of goods and services that is related to a decreasing on stabling currency. Hence, the price of goods and services increases made the currency relatively decreased in its value. For example, before ten years the milk, cigarette, and other product were much cheaper, not expensive or its value and price increased. This is known as the present value of the money related to its future value. Another example, gold price in the 1900s was only \$386.20 per ounce, while today its price rocket sky high. In today, the gold price equals \$1,895.35 which is an increase equal to 390.77%. However, the inflation rate keeps

increasing and its central bank's job to manage and control it by policies similar to monetary policy to target a 2% annual inflation rate. Therefore, it could be a good indicator and a positive sign when it boosts the consumer's demand and consumption that is creating economic growth for a nation. However, central banks reduce the inflation rate in the short phrase by conducting a contractionary monetary policy which is the rise to the interest rate and cutting or reducing the monetary growth (King, 1996).

2.6 Interbank Rates

Interbank rate is the rate of interest that banks charged when banks borrow money. In other words, it is the percentage of interest rate between banks of short-term loans. Banks face low liquidity at some point in time and they must borrow liquid funds to satisfy their needs at that particular time. Also, the interbank rate is what a bank pays as interest when they have wholesale transactions of foreign currency with a bank from outside their region, trade currencies between banks of a different nation. Therefore, banks must have liquid cash to meet everyday demand and this is a federal reserve requirement to have sufficient liquid assets with banks to meet this demand of daily withdrawal. This need of banks is managed through lending and borrowing between banks to meet the needs of clients and to cover any shortfall, while at the same time earning modest interest on any surplus. This rate of earnings is based on the U.S.A current federal reserve funds rate which is well-known as the overnight rate or interbank rate. Moreover, the estimation of the market rate is by a fixing arrangement that is measured through bank quotes such as HSBC and similar banks that are large and dominated the market (Carrera & Vega, 2012). fixing arrangement similar Libor which is referring to an interest rate of London banks at which it offers a fund to lend before 11:00 London time (Andersen, et al., 2005).

2.7 Number of Boards of Director

Modern business control writing has witnessed the development of a broad frame of realistic effort on the usefulness of boards of directors in observing managers and on their impact on corporate performance. Subjects included incorporate the relative among performing and the percentage of outside directors (Hermalin & Weisbach, 1991; Bhagat & Black, 2002), board volume (Yermack, 1996; Eisenberg et al., 1998) and management structure (Brickley et al., 1997). However, corporate governance literature forecasts that the greater, bigger and larger the board are the poor of function and performance for the banks. For instance, some scholars, academics and

professors criticised the performance of the bigger size of the board of directors, debating that troubles of inadequate interaction and communication, task coordination and the process of decision making will weaken the effectiveness of such a group. However, a study in 2009 by Belkhir tested the relationship between the size of the board of directors and banks' performance found that an expansion of a board response to the growth of bank total asset. Also, the study indicated that it is no difference between a small and large board of director related to performance that is a small size board of director did not outperform larger once (Belkhir, 2009).

2.8 Research framework model

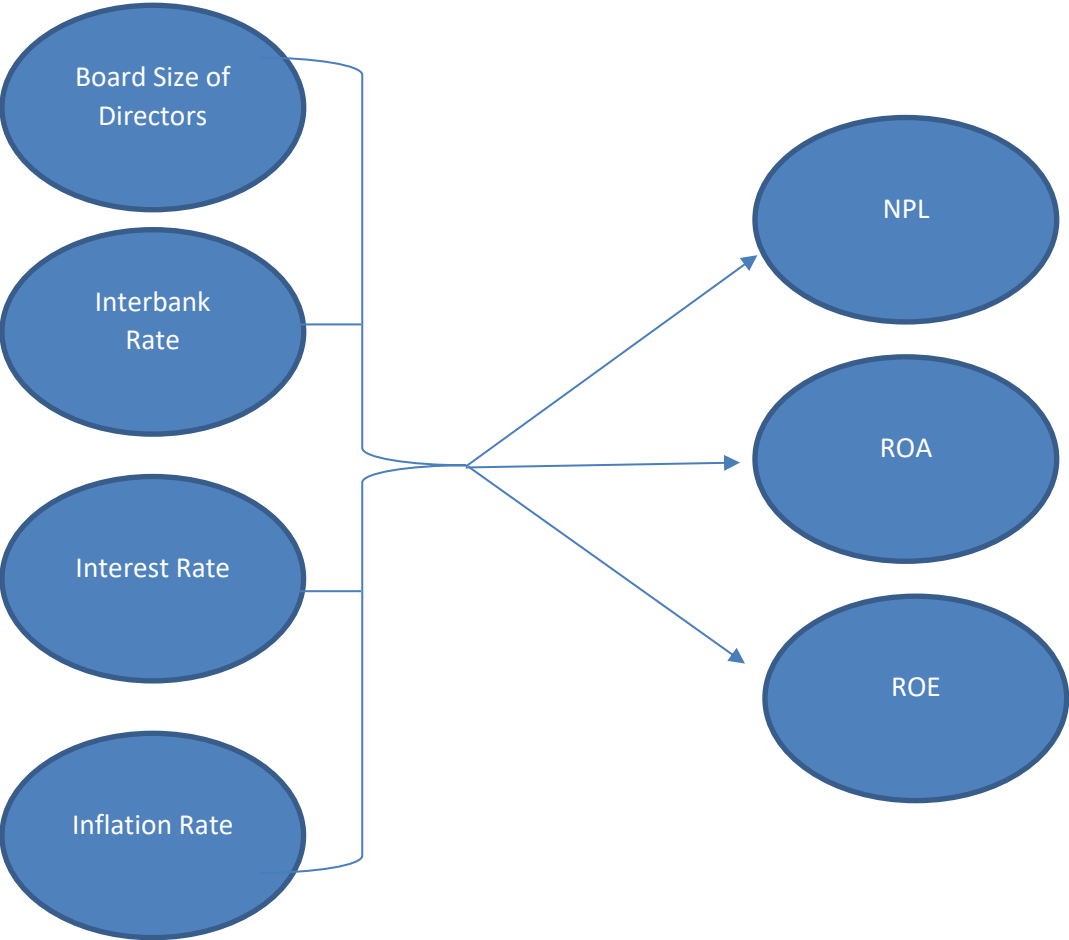


Figure 2. 1: Framework model

Table 2. 1: Islamic and conventional banks ratios

Islamic	year	ROA in %	ROE	NPL	Inflatio n	Interest rate	Independen t Board of Director	interbank -intraday- rates
Bank Islam Malaysia Berhad (BIMB)	2015	1.43%	17.67%	1.09%	2.10	3.20	0.83	3.04
	2016	1.37%	17.12%	1.09%	2.08	3.08	0.86	3.01
	2017	1.35%	16.42%	1.09%	3.80	2.99	0.78	2.98
	2018	1.33%	15.83%	1.09%	0.97	3.19	0.67	3.18
	2019	1.28%	15.35%	1.09%	0.66	3.05	1.00	3.04
	2020	1.28%	15.35%	1.09%	0.11	2.70	1.00	2.07
	2015	0.69%	10.73%	1.90%	2.1	3.23863566	0.5	3.04
	2016	0.64%	11.97%	2%	2.08	3.115274	0.38	3.01
	2017	0.71%	11.77%	2%	3.8	3.0594405	0.5	2.98
	2018	0.72%	12%	2%	0.97	3.249445	0.714285714	3.18
RHB Malaysia.	2019	1.56%	25.14%	2.01%	0.66	3.10357333	0.545454545	3.04
	2020	1.27%	21.55%	2.56%	0.11	2.75418966	0.6	2.07
	2015	0.50%	0.50%	2.30%	2.10	3.20	0.71	3.04
HSBC	2016	0.10%	0.10%	1.29%	2.08	3.08	0.71	3.01

	2017	0.50%	0.50%	1.235		3.80	2.99	0.63	2.98
	2018	0.60%	0.60%	0.148		0.97	3.19	0.71	3.18
	2019	0.30%	0.30%	1.6		0.66	3.05	0.57	3.04
	2020	0.20%	0.20%	2.70%		0.11	2.70	0.57	2.07
Conventional	year	ROA in %	ROE	NPL	Inflation	Interest rate	Independent Board of Director	interbank-intraday-rates	
	2015	3.06%	0.24	1.01%	2.1	3.199585	0.6	3.90	
	2016	2.30%	0.197	1.35%	2.08	3.063497	0.769230769	4.16	
	2017	2.42%	0.228	1.77%	3.8	2.979505	0.727272727	4.30	
	2018	2.57%	0.223	1.74%	0.97	3.19211	0.72	4.03	
	2019	2.31%	0.224	2.20%	0.66	3.053041	0.75	4.14	
Maybank	2020	2.63%	0.2383	2.20%	0.11	2.718901	0.75	4.20	
	2015	0.405	4.17%	0.63%	2.1	3.199585	0.5	3.90	
	2016	0.327	3.95%	0.60%	2.08	3.063497	0.555555556	4.16	
	2017	0.32	3.65%	0.50%	3.8	2.979505	0.625	4.30	
Public Bank Berhad	2018	0.339	3.74%	0.5	0.97	3.19211	0.571428571	4.03	

	2019	0.329	3.44%	0.49%	0.66	3.053041	0.625	4.14
	2020	0.297	3.07%	0.46%	0.11	2.718901	0.625	4.20
	2015	0.411	3.60%	2.30%	2.1	3.199585	0.625	3.90
	2016	0.232	1.85%	1.29%	2.08	3.063497	0.777777778	4.16
	2017	0.264	2.10%	1.235	3.8	2.979505	0.7	4.30
	2018	0.219	1.54%	0.148	0.97	3.19211	0.6	4.03
	2019	0.299	2.60%	1.6	0.66	3.053041	0.7	4.14
Ambank	2020	0.157	1.33%	1.57%	0.11	2.718901	0.6	4.20

❖ Chapter 3: Proposed Research Methodology

3.1 Research Design and Paradigm

The methodology of this research is to examine the relationship of both Islamic banks and commercial banks ratio of ROA, ROE and NPL to interest rate, inflation rate, interbank rate and board of directors. All data within this research is secondary data that has been collected from different internet sources and banks' financial statements.

The study included in this research implements a multiple regression model to analysis, explain and determine the elements that influence the relationship of the dependent variable with the independent variables. Also, all regression done by excel worksheet and the data of banks are for three commercial banks and three Islamic banks of six years started from 2015 until the year 2020.

❖ Chapter 4: Analysis

4.1 Islamic banks

Analysis of Islamic banks ROA, ROE, NPL, Inflation, Interest, Interbank rates, independent board of director and coefficient of variation

4.1.1 Descriptive statistics

Table 4. 1. 1: Descriptive analysis

Ratio of	ROA in %	ROE	NPL	Inflation	Interest rate	Indepent Board of Director	interbank-intraday-rates
Mean	0.00879 4444	0.10727 7778	0.17977 7778	1.62	3.05225 3232	0.682520 843	2.88666 6667
Standard Error	0.00111 7755	0.01950 0365	0.10740 7442	0.29403 5479	0.04075 2481	0.039602 585	0.08987 6458
Median	0.00715	0.11985	0.02	1.525	3.08	0.690476 19	3.025
Mode	0.0128	0.1535	0.0109	2.1	3.2	0.714285 714	3.04
Standard Deviation	0.00474 2235	0.08273 304	0.45569 1185	1.24748 6885	0.17289 8135	0.168019 54	0.38131 3519
Sample Variance	2.24888 E-05	0.00684 4756	0.20765 4456	1.55622 3529	0.02989 3765	0.028230 566	0.1454
Kurtosis	- 1.49458 2529	- 1.23697 7552	6.72719 006	- 0.61064 693	0.43325 1993	- 0.124542 074	1.78336 9528
Skewness	- 0.09828 3346	- 0.15227 2524	2.77954 129	0.61008 3211	- 1.12840 0117	0.388218 117	- 1.82452 6136
Range	0.0146	0.2504	1.5891	3.69	0.54944 5	0.62	1.11

Minimum	0.001	0.001	0.0109	0.11	2.7	0.38	2.07
Maximum	0.0156	0.2514	1.6	3.8	3.24944	1	3.18
Sum	0.1583	1.931	3.236	29.16	54.9405	12.28537	51.96
Count	18	18	18	18	18	18	18
Confidence Level(95.0%)	0.00235	0.04114	0.22660	0.62036	0.08598	0.083554	0.18962
coefficient of variations	53.9230	77.1203	253.474	77.0053	5.66460	24.61749	13.2094
	8258	2173	9895	0633	022	152	2752
	741	8966	7011	633	6517	586	7526

Interpretation:

ROA ratio means is 0.0087% and its median is 0.007% which indicates right-skewed more to non as the difference is a small fraction of 0.001%. However, ROE, NPL, inflation, interest, board of directors and interbank rate are 0.10%, 0.179%, 1.62%, 3.052%, 0.682% and 2.89% respectively. However, all the values of mean and median almost the same which indicates the distribution of data is neither left nor right-skewed. Also, the standard deviation almost equal the average, hence, data points are very close to the mean. Lastly, the coefficient of variation (C.V) indicates the level of dispersion around the mean. The higher the value the more is the level of dispersion. ROA, ROE, NPL and inflation rate are the highest. 53,77,253 and 77 respectively. While the lowest are 5, 24 and 13 which are interest rate, board of directors and interbank rate.

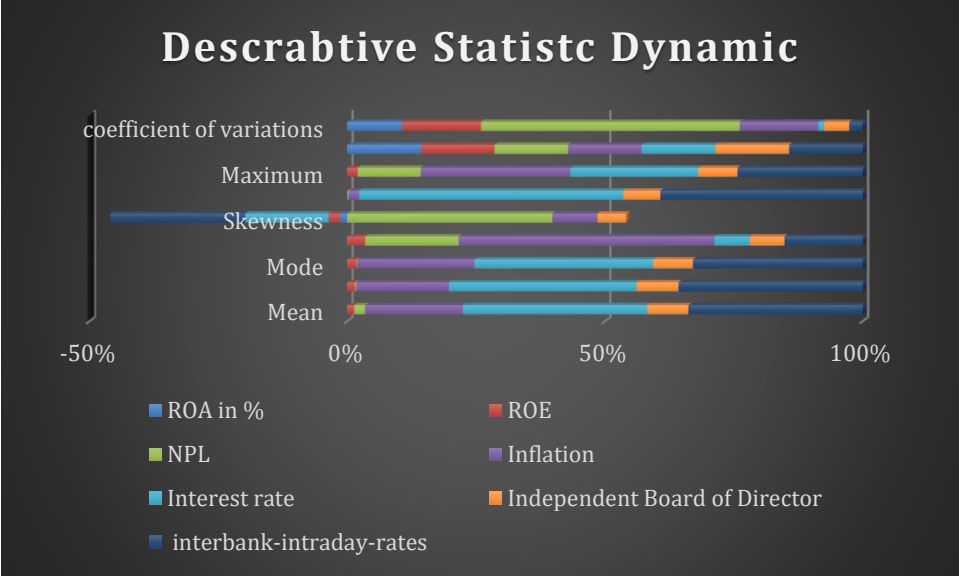


Figure 4. 1 Islamic descriptive statistics

4.1.2 Regression analysis

The impact of independent variables on the three dependent variables which are ROA, ROE and NPL. The independent variables in this study are the same for all the three dependent variables:

Independent variables are:

- Inflation rate (IR)
- Interest rate (ir)
- Board of Directors (BD)
- Interbank rate (ib)

Many studies have been done that examined the relationship between these three dependent variables ROA, ROE and NPL related to IR, ir, BD and ib which are the independent variables in this study.

First of all, an interpretation of the summary output of all the coefficients for ROA, ROE and NPL. Then determining whether the model and variables are significant at a 5% significance level. Lastly, report of the interpretation result:

- ROA

Table 4. 2: ROA summary output:

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.43876999
R Square	0.19251910
Adjusted R Square	0.05593655
Standard Error	0.00487306
Observations	18

ANOVA

	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	7.36019E-05	1.84005E-05	0.77486303	0.56079914
Residual	13	0.000308708	2.37467E-05		
Total	17	0.000382309			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	-0.01061516	0.038426901	0.27624292	0.78670435	0.09363143	0.072
Inflation	-6.4605E-05	0.00114366	0.05648969	0.95581071	0.00253533	0.002
Interest rate	0.00558470	0.019958996	0.27980905	0.78402660	0.03753408	0.048

	0.01246740		1.70197225		0.00335787	0.028
Board of Director	7	0.007325271	1	0.11253765	8	
	-		-		-	
interbank-intraday-	0.00209270		0.21852117	0.83041614	0.02278184	0.018
rates	6	0.009576672	5	5	7	

- The regression

$$ROA = \beta_0 + \beta_1 (IR) + \beta_2 (ir) + \beta_3 (BD) + \beta_4 (ib)$$

$$ROA = -0.01 - \beta_1 (6.46) + \beta_2 (0.0055) + \beta_3 (0.012) - \beta_4 (0.002)$$
- Correlation coefficient, $r = 0.4387$
There is a weak relationship between ROA and the independent variables
- Coefficient of determinants, $r^2 = 0.1925$
19.25% of the relation of ROA is explained by IR, ir, BD and ib. while the remaining 80.75% is explained by other variables.
- Hypothesis, test the significance of the overall model at 5% significance level:
 - $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (Model is not significant)
 - Ha: at least one $\beta_i \neq 0$ (Model is significant)
 - **Significance level** $\alpha = 0.05$
Reject H_0 if p-value < 0.05
 - Test statistics p-value_{ts} = 0.56
 - Compare
 $0.56 > 0.05$, do not reject H_0

p-value is larger than the significance level indicates that there is sufficient evidence in the sample to conclude that a non-zero correlation does exist. Therefore, there is sufficient evidence to show that model is not significant and that correlation does not exist at 5% significance level.

- Test whether the independent variables are significant at 5% significance level
 - $H_0: \beta_i = 0$ (Independent variables not significant)
 - Ha: $\beta_i \neq 0$ (Independent variables significant)
 - **Significance level** $\alpha = 0.05$

Reject Ho if p-value < 0.05

- Test statistics: p-value_{x1} = 0.955810717

p-value_{x2} = 0.784026609

p-value_{x3} = 0.11253765

p-value_{x4} = 0.830416145

Compare: p-value_{x1} = 0.955810717 > 0.05 do not reject Ho

p-value_{x2} = 0.784026609 > 0.05 do not reject Ho

p-value_{x3} = 0.11253765 > 0.05 do not reject Ho

p-value_{x4} = 0.830416145 > 0.05 do not reject Ho

- There is sufficient evidence to show that independents variables are not statistically significant due its p-value larger than the usual significance level of 0.05, therefore, there are not significant.

Report:

The initial value of ROA is -0.0106 in case of inflation increases by 1 unit the average ratio or ROA would decrease by 6.4605E-05, holding other variables constant. Also, if the interest rate increased by 1 unit the average value of ROA would increase by 0.0055, holding other variables constant. While in case the board of directors increased by 1 unit the average value of ROA ratio would increase by 0.00124, holding other variables constant. Lastly, if the interbank rate increased by 1 unit the average value would decrease by 0.00209, holding other variables constant.

- ROE

Table 4. 3: ROE summary output:

SUMMARY OUTPUT

<i>Regression Statistics</i>	
	0.24036236
Multiple R	5
	0.05777406
R Square	6

	-
	0.23214160
Adjusted R Square	5
	0.09183522
Standard Error	5
Observations	18

ANOVA

	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	0.00672264	0.00168066	0.19927886	0.93428282
Residual	13	0.109638212	0.00843370	6	7
Total	17	0.116360851	9		

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0.23088207	0.724173601	0.31882144	0.75492654	1.79536402	1.79536402
Inflation	0.00271418	0.021552828	0.12593181	0.90171266	0.04927624	0.04927624
Interest rate	0.17309641	0.376136966	0.46019516	0.65297879	0.63949809	0.63949809
Board of Director	0.08925605	0.138048281	0.64655682	0.52916908	0.20897912	0.20897912
interbank-intraday-rates	0.08546063	0.180477026	0.47352640	0.64369090	0.47535754	0.47535754

- The regression

$$ROE = \beta_0 + \beta_1 (IR) + \beta_2 (ir) + \beta_3 (BD) + \beta_4 (ib)$$

$$ROE = -0.23 - \beta_1 (0.0027) + \beta_2 (0.173) + \beta_3 (0.089) - \beta_4 (0.085)$$
- Correlation coefficient, $r = 0.24036$

There is a weak relationship between ROE and the independent variables
- Coefficient of determinants, $r^2 = 0.05777$

5.77% of the relation of ROE is explained by IR, ir, BD and ib. while the remaining 94.23% is explained by other variables.
- Hypothesis, test the significance of the overall model at 5% significance level:
 - $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (Model is not significant)
 - H_a : at least one $\beta_i \neq 0$ (Model is significant)
 - **Significance level** $\alpha = 0.05$
 - Reject H_0 if $p\text{-value} < 0.05$
 - Test statistics $p\text{-value}_{ts} = 0.9342$
 - Compare
 - $0.9342 > 0.05$, do not reject H_0

p -value is larger than the significance level indicates that there is sufficient evidence in the sample to conclude that a non-zero correlation does exist. Therefore, there is sufficient evidence to show that model is not significant and that correlation does not exist at 5% significance level.

- Test whether the independent variables are significant at 5% significance level
 - $H_0: \beta_i = 0$ (Independent variables not significant)
 - $H_a: \beta_i \neq 0$ (Independent variables significant)
 - **Significance level** $\alpha = 0.05$
 - Reject H_0 if $p\text{-value} < 0.05$
 - Test statistics: $p\text{-value}_{x1} = 0.901712666$
 - $p\text{-value}_{x2} = 0.652978797$
 - $p\text{-value}_{x3} = 0.529169085$
 - $p\text{-value}_{x4} = 0.643690903$
 - Compare: $p\text{-value}_{x1} = 0.901712666 > 0.05$ do not reject H_0
 - $p\text{-value}_{x2} = 0.652978797 > 0.05$ do not reject H_0

$p\text{-value}_{x3} = 0.529169085 > 0.05$ do not reject H_0

$p\text{-value}_{x4} = 0.643690903 > 0.05$ do not reject H_0

- There is sufficient evidence to show that independent variables are not statistically significant due to its p-value larger than the usual significance level of 0.05, therefore, there are not significant.

Report:

The initial value of ROE is -0.23088. In case of inflation increases by 1 unit, the average ratio or ROE would decrease by 0.0027, holding other variables constant. Also, if the interest rate increased by 1 unit, the average value of ROE would increase by 0.173, holding other variables constant. While in case the board of directors increased by 1 unit, the average value of ROE ratio would increase by 0.0892, holding other variables constant. Lastly, if the interbank rate increased by 1 unit, the average value would decrease by 0.08546, holding other variables constant.

- NPL

Table 4. 4: ROE summary output:

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.56121021
	8
R Square	0.31495690
	9
Adjusted R Square	0.10417441
	9
Standard Error	0.43130287
	9
Observations	18

ANOVA

					<i>Significance</i>
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>F</i>

			0.27795937	1.49422710	0.26065741
Regression	4	1.111837494	3	2	7
			0.18602217		
Residual	13	2.418288257	4		
Total	17	3.530125751			

	Standard				
	Coefficients	Error	t Stat	P-value	Lower 95%
Intercept	7.45882974		2.19308236		0.11126166
	6	3.401071415	6	0.0470918	2
	-		-		-
	0.06548862		0.64697652	0.52890590	0.28416667
Inflation	2	0.101222563	4	6	6
	-				-
	3.95653111			0.04321886	7.77287012
Interest rate	3	1.766522116	-2.23972917	4	4
	-		-		-
	0.79915099		1.23260742	0.23954920	2.19980843
Board of Director	4	0.648341864	3	2	5
	1.88757910		2.22694850	0.04424904	0.05643360
interbank-intraday-rates	6	0.847607884	1	8	1

- The regression

$$NPL = \beta_0 + \beta_1 (IR) + \beta_2 (ir) + \beta_3 (BD) + \beta_4 (ib)$$

$$NPL = 7,4588 - \beta_1 (0.0654) - \beta_2 (3.956) - \beta_3 (0.799) - \beta_4 (1.887)$$

- Correlation coefficient, $r = 0.5612$

There is a moderate relationship between NPL and the independent variables

- Coefficient of determinants, $r^2 = 0.314956$

31.49% of the relation of NPL is explained by IR, ir, BD and ib. while the remaining 68.51% is explained by other variables.

- Hypothesis, test the significance of the overall module at 5% significance level:

- $H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (Model is not significant)

Ha: at least one $\beta_i \neq 0$ (Model is significant)

- **Significance level** $\alpha = 0.05$

Reject Ho if p-value < 0.05

- Test statistics p-value_{ts} = 0.26065
- Compare
0.26065 $>$ 0.05, do not reject Ho

p-value is larger than the significance level indicates that there is sufficient evidence in the sample to conclude that a non-zero correlation does exist. Therefore, there is sufficient evidence to show that model is not significant and that correlation does not exist at 5% significance level.

- Test whether the independent variables are significant at 5% significance level

- Ho: $\beta_i = 0$ (Independent variables not significant)

Ha: $\beta_i \neq 0$ (Independent variables significant)

- **Significance level** $\alpha = 0.05$

Reject Ho if p-value < 0.05

- Test statistics: p-value_{x1} = 0.528905906

$$\text{p-value}_{x2} = 0.043218864$$

$$\text{p-value}_{x3} = 0.239549202$$

$$\text{p-value}_{x4} = 0.044249048$$

Compare: p-value_{x1} = 0.528905906 $>$ 0.05 do not reject Ho

p-value_{x2} = 0.043218864 $<$ 0.05 do not reject Ho

p-value_{x3} = 0.239549202 $>$ 0.05 do not reject Ho

p-value_{x4} = 0.044249048 $<$ 0.05 do not reject Ho

- There is sufficient evidence to show that independent variable interest rate and interbank rate are significant at 5% significance level. While inflation and board of directors rate are not statistically significant due to its p-value greater than the usual significance level of 0.05, therefore, they are not significant.

Report:

The initial value of NPL is 7.4588. In case of inflation increases by 1 unit, the average ratio or NPL would decrease by 0.0654, holding other variables constant. Also, if the interest rate increased by 1 unit, the average value of NPL would decrease by 3.956, holding other variables

constant. While in case the board of directors increased by 1 unit the average value of the NPL ratio would decrease by 0.79915, holding other variables constant. Lastly, if the interbank rate increased by 1 unit the average value of NPL would increase by 1.88757, holding other variables constant.

4.1.3 Correlation

Table 4. 5: correlation of Islamic banks

<i>Rate of</i>	<i>ROA in</i>	<i>ROE</i>	<i>NPL</i>	<i>Inflation</i>	<i>Interest</i>	<i>Board of</i>	<i>Interb</i>
<i>%</i>	<i>%</i>				<i>rate</i>	<i>Director</i>	<i>ank</i>
							<i>rates</i>
ROA in %	1						
	0.915575						
ROE	255	1					
	-	-					
	0.390718	0.475409					
NPL	299	413	1				
	-	-					
	0.107427	0.135735	0.106299				
Inflation	783	099	18	1			
	-	-	-				
	0.022051	0.043940	0.048300	0.325021			
Interest	017	975	862	365	1		
	0.431191	0.173374	0.193615	0.180846	0.144153		
Board of	502	613	542	76	543	1	
Director							
	-	-	-	-	-	-	
interbank-	0.028019	0.093142	0.129443	0.455975	0.929843	0.093562	
intraday-	287	024	927	344	541	522	
rates							1

Interpretation:

The correlation relationship between variables revealed that when one variable changes the other tend to change in a particular direction. ROE and ROA have a correlation of 0.9155% which is the next highest after the interbank in relation to interest rate correlation of 0.929%. The lowest

are interest rate and interbank in relation to ROA. The correlation are 0.022 and 0.028 respectively in relation to ROA.

4.2 Commercial banks

Analysis of Conventional banks ROA, ROE, NPL, Inflation, Interest, Interbank rates, Independent board of director and coefficient of variation

4.1.1 Descriptive statistics

Table 4. 6: Descriptive analysis

Rate of	ROA in	ROE	NPL	Inflation	Interest	Board of	Interban
	%				rate	Director	k rates
Mean	0.20843 8889	0.09448 3333	0.20356 1111	1.62	3.03443 9833	0.65673 6967	4.12133 3333
Standard	0.03435	0.02255	0.10867	0.29403	0.03909	0.01923	0.03085
Error	0744	8739	9189	5479	5875	2876	9157
Median	0.248	0.03695	0.01655	1.525	3.05826 9	0.625	4.149
Mode	#N/A	#N/A	0.022	2.1	3.19958 5	0.625	3.9
Standard	0.14573	0.09570	0.46108	1.24748	0.16586	0.08159	0.13092
Deviation	7864	8622	6747	6885	9751	8181	4316
Sample	0.02123	0.00916	0.21260	1.55622	0.02751	0.00665	0.01714
Variance	9525	014	0988	3529	2774	8263	1176
Kurtosis	- 1.58586 5686	- 1.50887 2858	5.58753 0764	- 0.61064 693	0.13650 8254	- 1.02152 4852	- 0.59242 2742
Skewness	- 0.26382 8268	0.77383 5568	2.53086 231	0.61008 3211	- 1.00613 4106	- 0.07278 2055	- 0.47404 6975
Range	0.388	0.2267	1.5954	3.69	0.48068 4	0.27777 7778	0.4
Minimum	0.023	0.0133	0.0046	0.11	2.71890 1	0.5	3.9

Maximum	0.411	0.24	1.6	3.8	3.19958	0.77777	4.3
					5	7778	
Sum	3.7519	1.7007	3.6641	29.16	54.6199	11.8212	74.184
					17	654	
Count	18	18	18	18	18	18	18
Confidence Level(95.0 %)	0.07247	0.04759	0.22929	0.62036	0.08248	0.04057	0.06510
	3735	4778	3045	0633	5087	7821	7131
coefficient of variations	69.9187	101.296	226.510	77.0053	5.46623	12.4247	3.17674
	49	8303	233	633	9575	8875	6582

Interpretation:

ROA ratio means is 0.20843% and its median is 0.248% which indicates lift-skewed more to non as the difference is a small fraction of 0.04%. However, ROE, NPL, inflation, interest, board of directors and interbank rate are 0.094%, 0.203%, 1.62%, 3.0344%, 0.656% and 4.121% respectively. However, all the values of mean and median almost the same which indicates the distribution of data is neither left nor right-skewed. Also, the standard deviation of ROA, ROE, NPL, inflation and board of directors almost equal the average, hence, data points are very close to the mean. While interest rate and interbank rate are much less compared to the average which indicates that the points of distribution are not close to the average. Lastly, the coefficient of variation (C.V) indicates the level of dispersion around the mean. The higher the value the more is the level of dispersion. ROA, ROE, NPL, and inflation rate are the highest. 69.9, 101, 226.5 and 77 respectively. While the lowest are 5, 12 and 3 which are interest rate, board of directors and interbank rate.

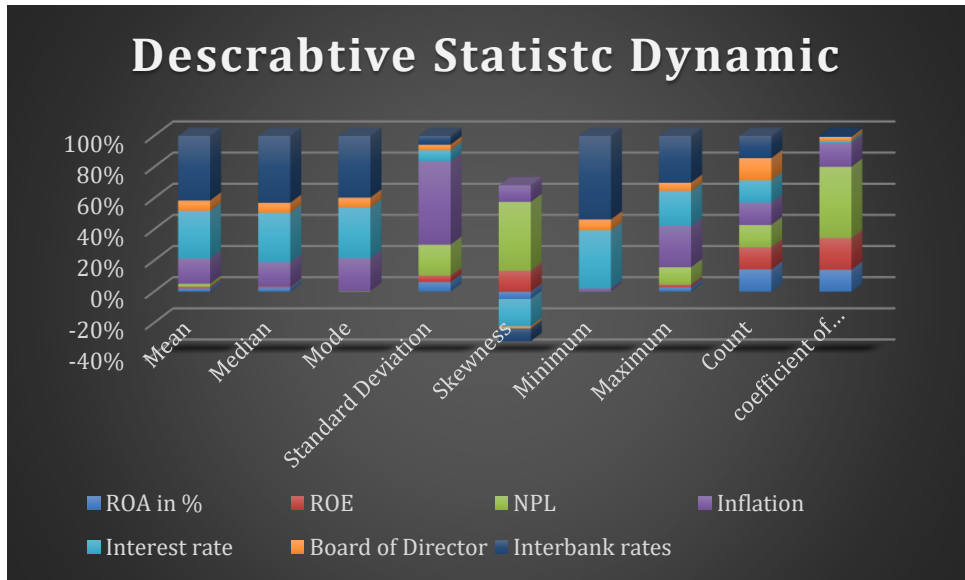


Figure 4. 2: Conventions descriptive statistics

4.1.2 Regression analysis

The impact of independent variables on the three dependent variables which are ROA, ROE and NPL. The independent variables in this study are the same for all the three dependent variables:

Independent variables are

- Inflation rate (IR)
- Interest rate (ir)
- Board of Directors (BD)
- Interbank rate (ib)

Many studies have been done that examined the relationship between these three dependent variables ROA, ROE and NPL related to IR, ir, BD and ib which are the independent variables in this study.

First of all, an interpretation of the summary output of all the coefficients for ROA, ROE and NPL. Then determining whether the model and variables are significant at a 5% significance level. Lastly, report of the interpretation result:

- ROA

Table 4 7: ROA summary output:

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.66662138
R Square	0.44438407
Adjusted R Square	0.27342533
Standard Error	0.12422600
Observations	18

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	0.160454613	0.04011365	2.59936439	0.08527410
Residual	13	0.20061731	0.01543210	9	2
Total	17	0.361071923			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	1.06276447	2.593183129	0.40983008	0.68860375	6.66499602	4.539
Inflation	-0.00366133	0.032758796	0.11176630	0.91271597	0.07443240	0.067

	0.21578418		0.65515529	0.52379215	0.49576221	0.927
Interest rate	5	0.329363414	6	7	1	
	-		-		-	
	1.29640906		3.02290490	0.00979762	2.22290909	0.369
Board of Director	2	0.428862006	3	8	9	
					-	
interbank-intraday-rates	0.35759066			0.44178319	0.61609573	1.331
	9	0.45070382	0.79340501	6	8	

- The regression

$$ROA = \beta_0 + \beta_1 (IR) + \beta_2 (ir) + \beta_3 (BD) + \beta_4 (ib)$$

$$ROA = -1.06 - \beta_1 (0.003) + \beta_2 (0.215) - \beta_3 (1.296) + \beta_4 (0.357)$$

- Correlation coefficient, $r = 0.6666$

There is a strong relationship between ROA and the independent variables

- Coefficient of determinants, $r^2 = 0.4443$

44.43% of the relation of ROA is explained by IR, ir, BD and ib. while the remaining 55.57% is explained by other variables.

- Hypothesis, test the significance of the overall module at 5% significance level:

- $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (Model is not significant)

H_a : at least one $\beta_i \neq 0$ (Model is significant)

- **Significance level** $\alpha = 0.05$

Reject H_0 if p-value < 0.05

- Test statistics p-value_{ts} = 0.085

- Compare

0.085 $>$ 0.05, do reject H_0

p-value is larger than the significance level indicates that there is sufficient evidence in the sample to conclude that a non-zero correlation do exists. Therefore, there is sufficient evidence to show that model is not significant and that correlation do not exists at 5% significance level.

- Test whether the independent variables are significance at 5% significance level

- $H_0: \beta_i = 0$ (Independent variables not significant)

Ha: $\beta_i \neq 0$ (Independent variables significant)

- **Significance level** $\alpha = 0.05$

Reject H_0 if p-value < 0.05

- Test statistics: p-value_{x1} = 0.912715979

p-value_{x2} = 0.523792157

p-value_{x3} = 0.009797628

p-value_{x4} = 0.441783196

Compare: p-value_{x1} = 0.912715979 > 0.05 do not reject H_0

p-value_{x2} = 0.523792157 > 0.05 do not reject H_0

p-value_{x3} = 0.009797628 < 0.05 reject H_0

p-value_{x4} = 0.441783196 > 0.05 do not reject H_0

- There is sufficient evidence to show that independent variable board of director is significant at 5% significance level. While interest rate, inflation and interbank rate are not statistically significant due its p-value greater than the usual significance level of 0.05, therefore, there are not significant.

Report:

The initial value of ROA is -1.06276 in case of inflation increases by 1 unit the average ratio or ROA would decrease by 0.00366, holding other variables constant. Also, if the interest rate increased by 1 unit the average value of ROA would increase by 0.2157, holding other variables constant. While in case the board of directors increased by 1 unit the average value of ROA ratio would decline by 1.296, holding other variables constant. Lastly, if the interbank rate increased by 1 unit the average value would increase by 0.35759, holding other variables constant.

- ROE

Table 4. 8: ROE summary output:

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.61074663
	0.37301144
R Square	6

	0.18009189
Adjusted R Square	1
	0.08666298
Standard Error	7
Observations	18

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	0.058086232	0.01452155	1.93350770	0.16473811
Residual	13	0.097636153	0.00751047	6	3
Total	17	0.155722385			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper</i>
Intercept	1.95297207	1.809065602	1.07954740	0.29996624	1.95527655	5.861
Inflation	0.01672080	0.022853308	0.73165784	0.47736030	0.03265076	0.066
Interest rate	0.17968611	0.229771672	0.78202033	0.44821259	0.67607763	0.316
Board of Director	0.82927887	0.299184232	2.77180007	0.01586287	0.18293063	1.475
interbank-intraday-rates	0.45736359	0.314421596	1.45461888	0.16949177	1.13663015	0.221

- The regression

$$ROE = \beta_0 + \beta_1 (IR) + \beta_2 (ir) + \beta_3 (BD) + \beta_4 (ib)$$

$$ROE = 1.9529 + \beta_1 (0.0167) - \beta_2 (0.179) + \beta_3 (0.829) - \beta_4 (0.457)$$

- Correlation coefficient, $r = 0.6107$

There is a strong relationship between ROE and the independent variables

- Coefficient of determinants, $r^2 = 0.3730$

37.3% of the relation of ROE is explained by IR, ir, BD and ib. while the remaining 62.7% is explained by other variables.

- Hypothesis, test the significance of the overall module at 5% significance level:

- $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (Model is not significant)

H_a : at least one $\beta_i \neq 0$ (Model is significant)

- **Significance level** $\alpha = 0.05$

Reject H_0 if p-value < 0.05

- Test statistics p-value_{ts} = 0.164738

- Compare

0.164738 $>$ 0.05, do reject H_0

p-value is larger than the significance level indicates that there is sufficient evidence in the sample to conclude that a non-zero correlation do exists. Therefore, there is sufficient evidence to show that model is not significant and that correlation do not exists at 5% significance level.

- Test whether the independent variables are significance at 5% significance level

- $H_0: \beta_i = 0$ (Independent variables not significant)

$H_a: \beta_i \neq 0$ (Independent variables significant)

- **Significance level** $\alpha = 0.05$

Reject H_0 if p-value < 0.05

- Test statistics: p-value_{x1} = 0.477360302

p-value_{x2} = 0.448212598

p-value_{x3} = 0.015862872

p-value_{x4} = 0.169491775

Compare: p-value_{x1} = 0.477360302 $>$ 0.05 do not reject H_0

p-value_{x2} = 0.448212598 $>$ 0.05 do not reject H_0

p-value_{x3} = 0.015862872 $<$ 0.05 reject H_0

$p\text{-value}_{x4} = 0.169491775 > 0.05$ do not reject H_0

- There is sufficient evidence to show that independent variable board of director is significant at 5% significance level. While interest rate, inflation and interbank rate are not statistically significant due its p-value greater than the usual significance level of 0.05, therefore, there are not significant.

Report:

The initial value of ROE is 1.9529 in case of inflation increases by 1 unit the average ratio or ROE would rise by 0.0167, holding other variables constant. Also, if the interest rate increased by 1 unit the average value of ROE would decline by 0.1796, holding other variables constant. While in case the board of directors increased by 1 unit the average value of ROE ratio would increase by 0.8292, holding other variables constant. Lastly, if the interbank rate increased by 1 unit the average value would decrease by 0.4573, holding other variables constant.

- NPL

Table 4. 9: ROE summary output:

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.33875652
	7
R Square	0.11475598
	5
	-
Adjusted R Square	0.15762678
	9
Standard Error	0.49609736
	9
Observations	18

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
--	-----------	-----------	-----------	----------	-----------------------

			0.10368825		0.79055541
Regression	4	0.414753008	2	0.42130412	7
Residual	13	3.199463794	0.2461126		
Total	17	3.614216803			

		<i>Standard</i>				
	<i>Coefficients</i>	<i>Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper</i>
	-		-		-	
	12.4627933		1.20344932	0.25026030	34.8353416	9.909
Intercept	4	10.35589376	4	9	3	
	-		-		-	
	0.07783749		0.59498567	0.56206711	0.36046225	0.204
Inflation	3	0.130822467	2	6	1	
	1.40569503			0.30464227	1.43587014	4.247
Interest rate	5	1.315314945	1.06871365	2	5	
			-		-	
			0.09175225	0.92829367	3.85712465	3.542
Board of Director	-0.15714071	1.712663223	3	5	7	
	2.09401996			0.26557072	1.79440305	5.982
interbank-intraday-rates	8	1.799888649	8	9	5	

- The regression

$$NPL = \beta_0 + \beta_1 (IR) + \beta_2 (ir) + \beta_3 (BD) + \beta_4 (ib)$$

$$NPL = -12.46 - \beta_1 (0.0778) + \beta_2 (1.405) - \beta_3 (0.157) + \beta_4 (2.09)$$
- Correlation coefficient, $r = 0.3387$
There is a weak relationship between NPL and the independent variables
- Coefficient of determents, $r^2 = 0.1147$
11.47% of the relation of NPL is explained by IR, ir, BD and ib. while the remaining 88.53% is explained by other variables.
- Hypothesis, test the significance of the overall module at 5% significance level:

- $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ (Model is not significant)
 H_a : at least one $\beta_i \neq 0$ (Model is significant)
- **Significance level** $\alpha = 0.05$
 Reject H_0 if p-value < 0.05
- Test statistics p-value_{ts} = 0.79
- Compare
 $0.79 > 0.05$, do reject H_0

p-value is larger than the significance level indicates that there is sufficient evidence in the sample to conclude that a non-zero correlation do exists. Therefore, there is sufficient evidence to show that model is not significant and that correlation do not exists at 5% significance level.

- Test whether the independent variables are significance at 5% significance level
 - $H_0: \beta_i = 0$ (Independent variables not significant)
 $H_a: \beta_i \neq 0$ (Independent variables significant)
 - **Significance level** $\alpha = 0.05$
 Reject H_0 if p-value < 0.05
 - Test statistics: p-value_{x1} = 0.562067116
 p-value_{x2} = 0.304642272
 p-value_{x3} = 0.928293675
 p-value_{x4} = 0.265570729

 Compare: p-value_{x1} = 0.562067116 > 0.05 do not reject H_0
 p-value_{x2} = 0.304642272 > 0.05 do not reject H_0
 p-value_{x3} = 0.928293675 > 0.05 do not reject H_0
 p-value_{x4} = 0.265570729 > 0.05 do not reject H_0
 - There is sufficient evidence to show that independents variables are not statistically significant due its p-value larger than the usual significance level of 0.05, therefore, there are not significant.

Report:

The initial value of NPL is -12.46 in case of inflation increases by 1 unit the average ratio or NPL would decrease by 0.0778, holding other variables constant. Also, if the interest rate increased by 1 unit the average value of NPL would increase by 1.4056, holding other variables

constant. While in case the board of directors increased by 1 unit the average value of the NPL ratio would decrease by 0.517, holding other variables constant. Lastly, if the interbank rate increased by 1 unit the average value of NPL would increase by 2.094, holding other variables constant.

4.1.3 Correlation

Table 4. 10: correlation of Conventional banks

	<i>ROA in %</i>	<i>ROE</i>	<i>NPL</i>	<i>Inflation</i>	<i>Interest rate</i>	<i>Board of Director</i>	<i>Interbank intraday-rates</i>
<i>ROA in %</i>	1						
	-						
	0.874910						
<i>ROE</i>	694	1					
	-						
	0.235647	0.309573					
<i>NPL</i>	996	256	1				
	0.087439	0.006709	0.073365				
<i>Inflation</i>	647	795	317	1			
	0.184698	0.014418	0.046290	0.280584			
<i>Interest rate</i>	577	722	484	492	1		
	-						
	0.636390	0.500164	0.120205	0.037825	0.230958		
<i>Board of Director</i>	856	396	192	136	974	1	
	-						
	0.187284	0.035825	0.185237	0.240708	0.684038	0.458754	
<i>interbank-intraday-rates</i>	275	751	808	946	433	248	1

Interpretation:

The correlation relationship between variables revealed that when one variable changes the other tend to change in a particular direction. ROE and ROA have a correlation of 0.8749% which is the highest. The interbank in relation to interest rate correlation is the next highest valued at 0.684%. The lowest are NPL in relation to ROE. The correlation is 0.006709.

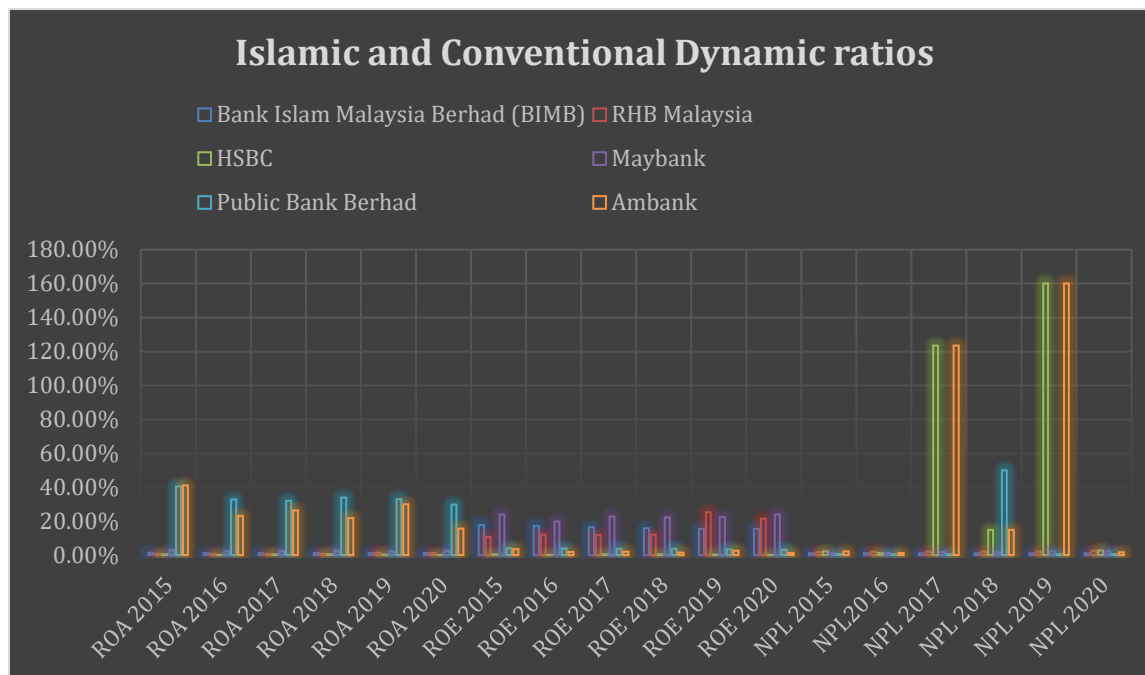


Figure 4. 3: Islamic and conventional dynamic ratios

Table 4 11: Islamic and conventional performance ratio

	Bank Islam Malaysia Berhad (BIMB)	RHB Malaysia	HSBC	Maybank	Public Bank Berhad	Ambank
ROA 2015	1.43%	0.69%	0.50%	3.06%	0.405	0.411
ROA 2016	1.37%	0.64%	0.10%	2.30%	0.327	0.232
ROA 2017	1.35%	0.71%	0.50%	2.42%	0.32	0.264
ROA 2018	1.33%	0.72%	0.60%	2.57%	0.339	0.219
ROA 2019	1.28%	1.56%	0.30%	2.31%	0.329	0.299
ROA 2020	1.28%	1.27%	0.20%	2.63%	0.297	0.157

ROE 2015	17.67%	10.73%	0.50 %	0.24	4.17%	3.60%
ROE 2016	17.12%	11.97%	0.10 %	0.197	3.95%	1.85%
ROE 2017	16.42%	11.77%	0.50 %	0.228	3.65%	2.10%
ROE 2018	15.83%	12%	0.60 %	0.223	3.74%	1.54%
ROE 2019	15.35%	25.14%	0.30 %	0.224	3.44%	2.60%
ROE 2020	15.35%	21.55%	0.20 %	0.2383	3.07%	1.33%
NPL 2015	1.09%	1.90%	2.30 %	1.01%	0.63%	2.30%
NPL201 6	1.09%	2%	1.29 %	1.35%	0.60%	1.29%
NPL 2017	1.09%	2%	1.235	1.77%	0.50%	1.235
NPL 2018	1.09%	2%	0.148	1.74%	0.5	0.148
NPL 2019	1.09%	2.01%	1.6	2.20%	0.49%	1.6
NPL 2020	1.09%	2.56%	2.70 %	2.20%	0.46%	1.57%

❖ Chapter 5: Discussion and conclusion

Since the beginning of the pandemic, the economic crisis and the financial crisis of covid-19 many countries had reduced the interest rate to a lower interest rate, even, thus this report examine the lowering of the interest rate of 6 banks. However, the lowering process of the interest rate may enhance the performance of banks' financial sheet statements through the financial assistance of asset price and lowering the percentage of NPL.

Continuously, lower interest rates expressing the possibility of eroding banks' profitability as the lower interest rate is linked to lower net interest margin. Net interest margin, NIM, is defined as net income divided by the interest-earning asset. However, the profitability of banks weighted by ROA, even, thus, banks in Malaysia ratios of ROA show that it recovered from the harshest of the global financial crisis. However, it still low and banks' still in this crisis and tackling profitability challenges to low NIM. Also, banks facing the problem of low and soft loans and close to zero, non-interest income growth.

However, the impact of low interest rate fluctuations on the banks depends on the ability of the manager of the banks to manage the change of interest rate to customers both depositor and borrower. Furthermore, through NIM it is clear that banks' affected negatively by this crisis and the low interest rate.

Likewise, banks' profitability is affected negatively by lowering the interest rate, also, it depends on banks' size. Hence, larger banks could hedge interest rate risk more effectively than small size banks that effect by low interest rates. For example, changes in short-term interest would impact banks in the short run for larger banks, unlike small size banks that may also affect its long run. To be more specific, large banks client could changes banks which indicate that larger banks forced to keep low interest rate for the seek of its client while small banks will rely on retail deposit that low interest rate will impact their expenses, even, though it is less beneficial for the banks. Nevertheless, it is ambiguous, the impact on the overall bank profitability and capital structure. For instance, when the demand for a loan is low during the crisis, even, thus, lower interest rate environment. Also, the effect of NPL, even, thus the payment of the loan is much less.

Similarly, the immediate impacts on banks' profitability, banks might as well modify and adjust their events in reactions to fluctuations in interest rates. If short-term interest rates are not high enough to allow banks to achieve their income objectives and targets, banks might shift out of offering opportunities to gain non-interest income, for instance, fee revenue from asset management. This capability to participate in other events will differ throughout nations depending on financial method structures and regulations. It might as well differ throughout banks in methods associated with bank size. For illustration, larger size banks are further expected to have the opportunities to involve in the non-interest earning unlike smaller banks from activities similar wealth management and investment activities (Claessens, et al., 2016).

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