

CAMEL RATIO ON PROFITABILITY BANKING PERFORMANCE (MALAYSIA VERSUS INDONESIA)

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ABSTRACT

Purpose: This research analyzed about profitability banks performance based on the CAMEL (Capital Adequacy, Asset Quality, Management, Earnings and Liquidity) on the Bank's profitability. Capital adequacy measured by debt equity ratio (DER) and non-performing loans (NPL), asset quality measured by return on assets (ROA), management will be measured by cost per income, earnings measured by return on equity (ROE) and liquidity measured by interest expense and deposit.

Methodology: The samples were 114 samples (from 10 bank in Malaysia and 9 bank in Indonesia) since 2010-2015. This analysis used descriptive method and multiple regression analysis, the result of this research indicated that banking profitability have a good performance based on CAMEL analysis.

Findings: From the results of regression, the CAMEL analysis has a significant relationship to the bank profitability

Practical Implications: The study demonstrated the use of CAMEL analysis to measure bank profitability. If bank performance declining through the CAMEL analysis so the Bank should make a decision to make a better performance changes of banking.

Social Implications: This study was about the importance of camel analysis measuring the performance banking. CAMEL analysis detected the decrease in performance in any business sector.

Originality/Value: This analysis adapted and adopted the study conducted by [Sahut and Mili](#) (2011), but this study focused only on the comparative performance between conventional and Islamic banking between Malaysia and Indonesia.

Research Limitations/Implications: Comparison of CAMEL analysis focused on two countries between Malaysia and Indonesia (it also involves the comparative analysis of conventional and Islamic bank) to gain the profitability of banking, ROI with short period since 2010 until 2015

Keywords: CAMEL, Profitability Banking, Return on Investment (ROI)

INTRODUCTION

The firm always assess profitability in their business performance ([Becerra](#), 2009), including the assessment of business activity undertaken by banks. In most conventional banking business activities have more priority on business loans, mortgages and consumer loans. Although Islamic banks prefer to give priority to the customer's goals as basic concepts of business activity, Islamic Banks still need the profitability to continue their business activities.

In analyzing the improvement of the banking profitability, there are also some risks that can hamper bank profitability. They will analyze risk like using CAMEL (Capital Adequacy, Asset Quality, Management, Equity and Liquidity) analysis by ALCO (Asset Liability Committee). Bank using CAMEL analysis as testing risk to manage the risk efficiently. According to [Sahut and Mili](#) (2011), when the bank has signs of distress performance, the bank requires a strategic management decision to control the problem of financial distress. Due to changes in business cycles on daily, weekly, monthly and annually give effect the changes in banking performance also. Such as when the Asian crisis happened, [Ito and Hiroshi](#) (2007) identified several banks have indications of financial distress in Malaysia, then Bank Negara Malaysia (BNM) give an injection of funds to institute financial that require financial recapitulation through Danamodal. [Ito and Hiroshi](#) (2007) identified that Danamodal used multiple measures to analyze financial distress on institutions through competitive analysis, consolidation, and analysis of CAMEL. During Asian crisis happened, only Malaysia one of the ASEAN countries refuse the funds of IMF (International Monetary Fund) to restore the financial situation when the crisis. While Indonesia at that time receiving IMF assistance (International Monetary Fund) to help the economic growth of Indonesia on October, 8th 1997. However, the risk analysis carried out by the Indonesian government had been announced during February 1991 by Bank Indonesia by using CAMEL (comprehensive capital, asset management, equity, and liquidity) for quantitative rating system ([Pangestu and Habir](#), 2002).



As mentioned in the Qur'an in Surah Shuaraa, or The Poets (26: 181-182) that has to mean:

181. "Give just measure, and cause no loss [to others by fraud].

182. "And weigh with scales true and upright.

Based on that meanings, CAMEL analysis is part of risk measurement to predict the calculation of financial distress happened in past, present or future time from the annual report (means annual report has scale description of asset and liabilities in banking) to increase the profitability for internal and external management in making decisions on banking performance. [Sahut and Mili](#) (2011) identified several indications of banks distress based on four factors such as 1. Bankruptcy; 2. Dissolved merger; 3. In liquidation; 4. The fourth quartile of loan loss provision (for two successive years).

However, in this research will use a comparison between the performance of state banking Malaysia and Indonesia since 2010-2015. 10 banks from the Malaysia (8 local conventional banks and two local Islamic banks); 9 banks of Indonesia (8 conventional banks and one Islamic bank).

According to [Song and Oosthuizen](#) (2014), CAMEL analysis can be used both in conventional or Islamic banking. However, some research stated that CAMEL analysis in risk measurement for Islamic banking needs adjustment because of Islamic Banking adherence to sharia value. [Salem](#) (2013) said the purpose of CAMEL analysis on banking performance is to analyze and supervise both external and internal risks of the unit business or the entire management in banking. Then this research use a comparative research with title is CAMEL ratio profitability on banking performance: Malaysia versus Indonesia

RESEARCH QUESTION

The question of this research was: does CAMEL analysis influence simultaneously and partially on banking profitability performance?

RESEARCH OBJECTIVE

The objective of this research was to find and examine the effect CAMEL analysis on the banking profitability partially and simultaneously.

RESEARCH ORIGINALITY

The originality of this research is a replicate of previous research by [Sahut and Mili](#) (2011) with the title is Determinants of Banking distress and Mergers as Strategic Policy to Resolve Distress. The differences of this research with previous research are:

Variables of Research: [Sahut and Mili](#) (2011) use analysis CAMEL consisting of Capital adequacy, Asset quality, Management, Earnings, and Liquidity with CAMEL-type traditional variables including capital to loan loss reserves, loan growth, net interest income to total revenue, return on assets, and loan loss provision. [Sahut and Mili](#) (2011) also use macroeconomic indicators such as Gross Domestic Product, Consumer Price Index, and Exchange rate.

While this research have the dependent variable is profitability, measured by return on investment, and the independent variables by using analysis of CAMEL (Capital adequacy, Asset quality, Management, Earnings, and Liquidity)

Period of Research: [Sahut and Mili](#) (2011) did observation between 2000-2007 whereas this research had done this observation between 2010-2015

The object of Research: [Sahut and Mili](#) (2011) have the classification sample on distressed and non-distressed banks in the MENA (The Middle East and North Africa) countries with the number of 330 banks. On the other hand, this research using local banks as comparison performance between Malaysia and Indonesia with 19 banks.

RESEARCH METHODOLOGY

According to [Kothari](#) (2004), research methodology is the systematic way in solving research problems using a variety of measurement and logic. This research use type of quantitative research with data collection method by documentation. Quantitative research is a systematic research using a model to answer the hypothesis by analyzing relationships and related phenomena. Documentation method is data collection techniques by taking several publications bank annual report from Indonesia and Malaysia through the website since 2010-2015. This research uses quantitative data or data contains numbers. This research use pooling data consisting of 19 banks from Malaysia and Indonesia and the time series data is six years since

2010-2015. The objective research is the bank profitability by using return on investment (ROI) then total observational data is 114 sample.

REVIEW OF LITERATURE

[Sahut and Mili](#) (2011) wrote some previous research about early warning system finances as an examination of the bank financial difficulties by [Meyer and Pifer](#) (1970), [Sinkey](#) (1975), [Altman](#) (1977; 1981), [Martin](#) (1977) and [Pettaway and Sinkey](#) (1980). [Sahut and Mili](#) (2011) noticed that the CAMEL rating system has a different dimension of financial ratios in analyzing the potentially financially-troubled and sound financial institutions by certain prediction. But some research use [Altman](#) (2000) measurement as the first method for calculating the sign distress conducted by the Z-Score which the method of bankruptcy indication of a company. In the measurement of Z-score measuring on profitability, leverage, liquidity, capitalization ratios, earnings variability and few miscellaneous measures.

According to [Worrell](#) (2004), the stress test is to estimate the failure of financial institutions could be used by financial variables estimation or assumptions in the assessment information model macroeconomic. Therefore this research wanted to see the role of CAMEL analysis as an indicator of financial distress detection on banking profitability. According to [Bonaccorsi](#) in [Patti and Kashyap](#) (2009), the changes of bank distress caused by the changes in profitability. They saw that the lower profitability changes can cause high non-performing loan so the banks identify the financial distress.

Historically, CAMEL analysis was used to analyze the performance of banking failure in the U.S. after the global financial crisis. The results of research indicate there is high impact on CAMEL analysis in predicting the U.S. banking failure. According to [Sahut and Mili](#) (2011), analysis of CAMEL (Capital adequacy, Asset quality, Management quality, Earnings, and Liquidity) is a micro-level measurement on the bank's financial health by regulators. [Sahut and Mili](#) (2011) also explained the meaning of CAMEL, such as:

1. Capital Adequacy is the measure of the capital to manage the risk based on the value of the assets owned by banks
2. Asset quality is the instability of the solvency banking caused by the disrupted bank assets impacted by high non-performing loans
3. Managerial quality is the level of the efficiency bank managing distress factor on banking activities.
4. Earning is the bank's ability to obtain a refund of assets and capital for the expansion benefit of banking business
5. Liquidity is the ability of banks to pay short-term obligations.

According to [Peltonen et al.](#) (2015) there are some explanation about CAMEL analysis, such as:

1. Capital Adequacy is the capital measurement to protect the banking solvency that is expected to reduce the probability of bank failures
2. Asset quality is a measure of the increase in return on assets (ROA) relating to decline non-performing loans
3. Management is measuring the efficiency level of company to minimize costs and increase profits for prevention the possibility of bank failures
4. Earnings is a measurement of profitability by a return on equity ratings
5. Liquidity is a measure of short-term deposits as a source of stable funding to manage liabilities and net short-term borrowing

Analysis of CAMELS (Capital, Asset quality, Management, Earnings, Liquidity, and Sensitivity to market risk) is great for the measurement of the comparative financial statements for the past, present, and future of business activity. CAMELS analysis is usually performed by ALCO (Asset Liability Committee) in the reporting ALM (Asset Liability Management) to determine the position of the bank ALM. There are several research choose the financial distress analysis between the CAMELS or CAMEL because it is the addition of variable S, namely sensitivity to market risk measuring the sensitivity interest rate. [Hays et al.](#) (2009) said that the indicator S stands for sensitivity to market to evaluate interest rate risk or other factors in the market.

According to [Betz et al](#) (2013), CAMEL rating firstly introduced in 1979 by US regulators that the assessment system of Capital adequacy, Asset quality, Management quality, Earnings, Liquidity. Then in 1996, the addition of measurement rating system, the sensitivity to market risk into CAMEL become CAMELS analysis. [Betz et al](#) (2013) said CAMELS analysis is an internal measurement tool to evaluate and identify the health of financial institutions in bad performance. [Hays et al](#) (2009) said CAMELS analysis is the most common and easily approachable in the analysis risk of commercial banking. [Jan and Marimuthu](#) (2015) said there is less information about sustainability Islamic Bank to bankruptcy. But [Jan and Marimuthu](#) (2015) said the Altman Z-score model is the most appropriate model to evaluate the declining economic in the Islamic banking industry. But

in this research did not measure the sensitivity to market risk because this research wants to focus more on CAMEL rating which is related to an internal assessment with banking management strategy decisions on profitability.

Jarmila et al (2011) said the simple measurements between profitability and investment using return on investment measurement. Jarmila et al (2011) said the return on investment is very important especially in maintaining firm growth by the evaluation of short-term budgets and medium-term plans firm. Kabajeh et al (2012) measured the profitability by using return on assets (ROA), return on equity (ROE) and return on investment (ROI) to measure the company's efficiency using the capital company that showed the strong and positive impact on the share price. Jarmila et al (2011) said about some advantage of ROI measurement that as a part of planning, making the decision, evaluating the investment opportunities, managing the performance by operation and concerning the changing market based on profitability and cost.

So based on figure 1 is a conceptual framework for this research explaining this study have five independent variables and one dependent variable

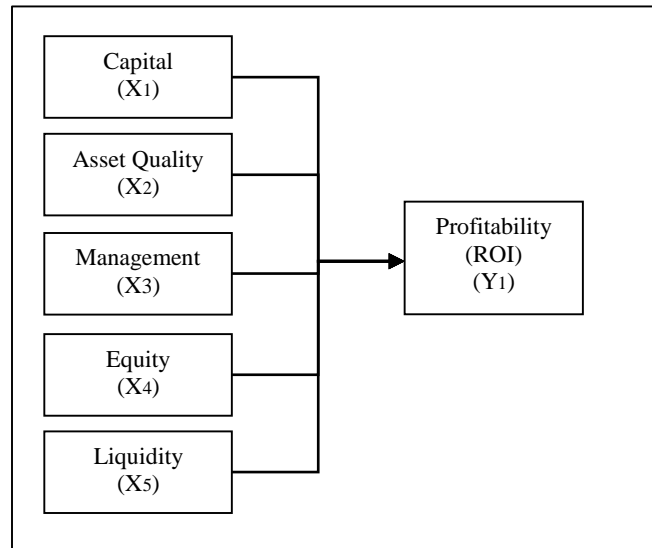


Figure 1. Conceptual Framework

The hypothesis of this research is the CAMEL analysis has influence simultaneously and partially on the profitability banking performance

FINDINGS

Based on table 1, there is list of bank shows the details of sample banks in this study, and Table 2 show the descriptive analysis of this study.

Table 1: List of banks in Malaysia and Indonesia 2010-2015

Conventional Bank	Conventional Bank	Islamic Bank
Affin Bank	Bank Central Asia	Bank Islam
Alliance Bank	Bank CIMB Niaga	Bank Muamalat
AmBank	Bank Danamon	Bank Muamalat Indonesia
CIMB Bank	Bank Negara Indonesia	
HongLeong Bank	Bank Panin	
Malayan Banking	Bank Permata	
Public Bank	Bank Rakyat Indonesia	
RHB Bank	Bank Tabungan Negara	

Table 2. Descriptive Research

Descriptive Statistics			
	Mean	Std. Deviation	N
ROI	1.716857	2.0846744	114
C1	8.1033	3.53362	114
C2	4.7075	22.65142	114
A	3.0315	2.52746	114
M	1.9958	1.48006	114
E	.2531	.13801	114
L1	3.9341	5.35910	114
L2	1.0736	.99718	114

Source: Secondary data from annual report banks (2010-2015)

HYPOTHESIS TEST

1. Partial Test (T-test)

Based on table 3, there is a result on t-test

Table 3. T-test

Model	Coefficients ^a				Sig.
	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	
	B		Beta		
1 (Const.)	.371	.283		1.311	.193
C1	.042	.027	.071	1.532	.128
C2	-.002	.002	-.024	-.937	.351
A	.832	.033	1.009	25.572	.000
M	-.030	.043	-.021	-.692	.490
E	-4.716	.650	-.312	-7.251	.000
L1	.121	.033	.311	3.704	.000
L2	-.678	.152	-.324	-4.451	.000

a. Dependent Variable: ROI

Source: Secondary data from annual report banks (2010-2015)

Based on Table 3, the partial effect of the independent variables on the dependent variable can be mentioned as follows:

1. From the independent variables of capital and management shows the numbers of 0.128, 0.351 and 0.490 greater than 0.05. It is explained that capital and management variables have a positive value, but not partially significant on return on investment.
2. For asset quality, equity and liquidity have positive and the significant partially on return on investment because they get numbers significant 0.00 smaller than 0.05.

Then the regression model in this research is:

$$ROI = 0.371 + 0.042C_1 - 0.002C_2 + 0.832A^* - 0.030M - 4.716E^* + 0.121L_1^* - 0.678L_2^*$$

Note: *significant α : 5%

2. Simultaneous Test (F-Test)

Based on table 4, there are a numbers of simultaneous statistical analysis:

Table 4: F-Test

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	459.171	7	65.596	217.887	.000 ^b
Residual	31.912	106	.301		
Total	491.083	113			

a. Dependent Variable: ROI

b. Predictors: (Constant), L2, C2, C1, M, A, E, L1

Source: Secondary data from annual report banks (2010-2015)

Based on table 4, the result of F test shows each independent variable of CAMEL analysis have the simultaneously significant effect on the bank's profitability with 0.00 significantly smaller than 0.05.

3. Determination Coefficient (R²)

According to [Ghozali](#) (2009), analysis adjusted R-square is a test for eligibility in the regression model using more than two variables. Based on Table 5, the number of adjusted R-square is 0.931, or 93.1%, describing banks profitability explained by independent variables based on CAMEL analysis, while the remaining 6.9% is affected and explained by other variables that not included in this multiple regression model.

Table 5: Determination Coefficient

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.967 ^a	.935	.931	.5486846	1.136

a. Predictors: (Constant), C1,C2, A, M, E, L1, L2

b. Dependent Variable: ROI

Source: Secondary data from annual report banks (2010-2015)

COMPARATIVE ANALYSIS

Based on table 6, there is a decomposition between comparison between conventional and Islamic banking performance between Malaysia and Indonesia since 2010-2015 by total samples, mean, standard deviation and standard error of the mean for each variable such as profitability and CAMEL analysis.

Table 6: Comparative Analysis

Group Statistics					
	Categorical	N	Mean	Std. Deviation	Std. Error Mean
ROI	Conventional Banking	96	1.908255	2.2149529	.2260627
	Islamic Banking	18	.696067	.4013525	.0945997
C1	Conventional Banking	96	8.0088	3.37196	.34415
	Islamic Banking	18	8.6072	4.37493	1.03118
C2	Conventional Banking	96	4.8534	24.68575	2.51948
	Islamic Banking	18	3.9289	2.08850	.49226
A	Conventional Banking	96	3.1900	2.66955	.27246
	Islamic Banking	18	2.1863	1.31872	.31083
M	Conventional Banking	96	2.0818	1.35376	.13817
	Islamic Banking	18	1.5370	2.01370	.47463
E	Conventional Banking	96	.2533	.12763	.01303
	Islamic Banking	18	.2517	.18859	.04445
L1	Conventional Banking	96	3.0719	1.44819	.14780
	Islamic Banking	18	8.5321	12.35317	2.91167
L2	Conventional Banking	96	.8331	.22676	.02314
	Islamic Banking	18	2.3563	2.06240	.48611

Source: Secondary data from annual report banks (2010-2015)

Based on Table 6, conventional banking have better performance in return on investment value, capital (C2) (measured by non-performing loans), asset quality and management rather than Islamic Bank.

On another hand Islamic banks better in the assessment of capital (C1) (measured by debt-equity ratio) and liquidity. But for equity assessment ratings, both of banks has slightly difference which is conventional bank has slightly higher rather than Islamic banks.

In the next table, there is an analysis that can show the difference between each performance (from each variables) of conventional and Islamic Bank in Malaysia and Indonesia using Post Hoc analysis.



**Table 7 Comparative between conventional and Islamic Banking (between Malaysia vs Indonesia)
 Post Hoc Tests / Multiple Test (Tukey HSD)**

Dependent Variable	I Category	J Category	Sig.	Status
Return on Investment	CBM	CBI	1.000	-
		IBM	.390	-
		IBI	.287	-
	CBI	CBM	1.000	-
		IBM	.430	-
		IBI	.312	-
	IBM	CBM	.390	-
		CBI	.430	-
		IBI	.954	-
	IBI	CBM	.287	-
		CBI	.312	-
		IBM	.954	-
Debt Equity Ratio (Capital Adequacy)	CBM	CBI	.000	√
		IBM	.075	-
		IBI	.000	√
	CBI	CBM	.000	√
		IBM	.000	√
		IBI	.010	√
	IBM	CBM	.075	-
		CBI	.000	√
		IBI	.000	√
	IBI	CBM	.000	√
		CBI	.010	√
		IBM	.000	√
Non-Performing Loan or Non-Performing Financing (Capital Adequacy)	CBM	CBI	.643	-
		IBM	.999	-
		IBI	.984	-
	CBI	CBM	.643	-
		IBM	.927	-
		IBI	.997	-
	IBM	CBM	.999	-
		CBI	.927	-
		IBI	.996	-
	IBI	CBM	.984	-
		CBI	.997	-
		IBM	.996	-
Return on Asset (Asset Quality)	CBM	CBI	.968	-
		IBM	.981	-
		IBI	.059	-
	CBI	CBM	.968	-
		IBM	1.000	-
		IBI	.098	-
	IBM	CBM	.981	-
		CBI	1.000	-
		IBI	.211	-
	IBI	CBM	.059	-
		CBI	.098	-
		IBM	.211	-
Cost/Income (Management)	CBM	CBI	.000	√
		IBM	.008	√
		IBI	.000	√



	CBI	CBM	.000	√
		IBM	.000	√
		IBI	.033	√
	IBM	CBM	.008	√
		CBI	.000	√
		IBI	.000	√
	IBI	CBM	.000	√
		CBI	.033	√
		IBM	.000	√
Return on Equity	CBM	CBI	.926	-
(Earnings)		IBM	.023	√
		IBI	.000	√
	CBI	CBM	.926	-
		IBM	.007	√
		IBI	.000	√
	IBM	CBM	.023	√
		CBI	.007	√
		IBI	.000	√
	IBI	CBM	.000	√
		CBI	.000	√
		IBM	.000	√
Interest Expense	CBM	CBI	.000	√
(Liquidity)		IBM	.003	√
		IBI	.000	√
	CBI	CBM	.000	√
		IBM	.000	√
		IBI	.000	√
	IBM	CBM	.003	√
		CBI	.000	√
		IBI	.000	√
	IBI	CBM	.000	√
		CBI	.000	√
		IBM	.000	√
Deposit	CBM	CBI	.654	-
(Liquidity)		IBM	.215	-
		IBI	.000	√
	CBI	CBM	.654	-
		IBM	.620	-
		IBI	.000	√
	IBM	CBM	.215	-
		CBI	.620	-
		IBI	.000	√
	IBI	CBM	.000	√
		CBI	.000	√
		IBM	.000	√

Note: CBM: Conventional Bank Malaysia; CBI: Conventional Bank Indonesia; IBM: Islamic Bank Malaysia; IBI: Islamic Bank Indonesia √ : The mean difference is significant at the 0.05 level.

So the next table no 8, by using Levene's test will show the differences all categories banking performance between Malaysia and Indonesia from each variables. For further explanation is more detail about the difference of both conventional and Islamic of each countries. [Refer table 9]

SUMMARY OF FINDINGS

There are some conclusion about this research, such as:

1. The variables of each factor analysis of banking distress by CAMEL have simultaneously affected on banking profitability.

2. From CAMEL variables analysis, only capital and management had no significant partially affected on banking profitability.
3. Conventional Bank has good performance on return on investment, capital measured by non-performing loan, asset quality, management and equity. And Islamic banks has good performance in liquidity.

Table 8: The difference performance banking between Indonesia and Malaysia

Dependent Variable	Levene's Test for Equality of Variances (Sig.)	Status
Return on Investment	.082	-
Debt Equity Ratio (Capital Adequacy)	.750	-
Non-Performing Loan or Non-Performing Financing (Capital Adequacy)	.058	-
Return on Asset (Asset Quality)	.494	-
Cost/Income (Management)	.001	√
Return on Equity (Earnings)	.027	√
Interest Expense (Liquidity)	.000	√
Deposit (Liquidity)	.000	√

Note: The difference significant at the 0.05 level.

Table 9: Detail Comparative Performance between Malaysia and Indonesia (Conventional versus Islamic).

Dependent Variable	Levene's Test for Equality of Variances (Sig.)	Status	Levene's Test for Equality of Variances (Sig.)	Status
	Comparative Performance in Conventional Banks between Malaysia vs Indonesia		Comparative Performance in Islamic Banks between Malaysia vs Indonesia	
Return on Investment	.012	√	.642	-
Debt Equity Ratio (Capital Adequacy)	.143	-	.789	-
Non-Performing Loan or Non-Performing Financing (Capital Adequacy)	.063	-	.135	-
Return on Asset (Asset Quality)	.904	-	.404	-
Cost/Income (Management)	.000	√	.000	√
Return on Equity (Earnings)	.078	-	.060	-
Interest Expense (Liquidity)	.078	-	.000	√
Deposit (Liquidity)	.000	√	.000	√

Note: The difference significant at the 0.05 level.

CONCLUSION

The conclusion about this research about CAMEL analysis (consisted of capital adequacy, asset quality, management, earnings, and liquidity) can be used significantly in assessing the performance of banking profitability measured by CAMEL. Both of

each comparative performance of each variable differ greatly from both conventional and Islamic banks located between Malaysia and Indonesia.

From an overall performance of each variable can be concluded, such as:

1. From overall both Malaysian and Indonesian banks have significant differences in management, earning and liquidity.
2. But based on specific analysis, the comparison of conventional banks performance between Malaysia and Indonesia, there are significant changes, such as return on investment, management, and liquidity.
3. In the comparison of Islamic performance between Malaysia and Indonesia, there are significant changes in management and liquidity.

SUGGESTIONS

This research has limitation because its only uses a comparative analysis between Malaysia and Indonesia in the short period since 2010-2015. This research analysis also only use risk analysis CAMEL impact on banking profitability that for next research could be used to measure the another performance on banks such as on risk management banking, liquidity, cash flow, or other activity banking business. For further research hopefully can increase the number of samples by adding time series or total bank samples, and also adding the sensitivity to market analysis for measuring market analysis in CAMELS analysis

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