

## **Factors Affecting Credit Risks of Malaysian Financial Institutions Post 2008-2009 Financial Crisis**

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**Abstract:** *This study investigates the factors that affect the credit risk in banking and finance companies in Malaysia post 2008-2009 financial crisis. Since the nature of banking business relies on the process of lending, the credit risk becomes an essential risk of the business. Results of panel data multiple regression analysis conducted over a sample of 53 banks for a period of 2 years (2010-2011), indicates that the credit risk is affected by ratio of net loans to total asset (positively), liquid assets (positively), cost to income ratio (negatively), and total capital ratio (negatively). Regulators may use these measures to monitor or control the credit risk level of banks.*

**Keywords:** *Credit Risk, Banks, Risk Management, Net Loans to Total Asset Ratio, Liquid Assets, Cost To Income Ratio, And Total Capital Ratio, Malaysia*

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### **1. INTRODUCTION**

Banks, as an integral part of the economic system of each country, facilitate the transfer of funds between those with surplus and those with deficit. This is done, in a general, when surplus funds are deposited in banks, and when deficit units receive loans. Although the concept might be simple, the actual transactions are designed, structured, and governed in a way to ensure the benefits of parties, especially the depositors' ultimate ownership on the funds. Banks, in most cases, are required to guarantee the repayment of deposits. However, repayment of loans sometimes becomes impossible. Some of the borrowers, although bounded by their loan contract, do not repay the loans to banks. Hence, there is a potential loss for banks in their loan business. As a result, banks prefer to give loans to those borrowers whom are creditworthy. Those borrowers with better credit are offered lower interest rates; while low credit borrowers should repay with higher interest rates (Avery and Berger, 1991; Biggs, Raturi, and Srivastava, 2002; Flannery, 1989; Kashyap and Stein, 1997; Rajan, 1998).

Therefore, analysis of credit risk becomes essentially important and requires a robust procedure that empowers banks with a proactive management facility to analyze their loan portfolios in order to reduce and minimize potential losses due to non-performing loans and on the other hand to generate a proper amount of return for banks shareholders. Banks have already recognized the importance of credit risk management. Credit risk management can establish process standards and duties and responsibilities segregation (Di Renzo et al., 2007; Humphreys, 2008). Credit risk is basically dependent on the possible risks caused by borrowers' ability to pay back the funds borrowed. Credit risk generally may be caused in two cases. In the first case, the borrower defaults his financial contract with the bank and declines to pay back the amount that borrowed. Another cause of credit risk is the broader market when the present value of future cash flows of the amounts lend by bank changes due to some changes in the financial market or the general

economy of the country. Hence, considerations of credit risk underlie requirements of capital adequacy regulation which financial institutions are obliged to meet (Blum and Hellwig, 1995; Goodhart, 2005; Hellwig, 1995; Koehn and Santomero, 1980).

This study aims to investigate the factors affecting the credit risk of banks and finance companies. Credit risk management is an essential part of enterprise risk management conducted by banks and finance companies (Treacy and Mark, 1998). Majority of former studies focused on the importance of credit risk management in general and identified a direct relationship between credit risk and performance of banks (Altman and Sabato, 2007; Pasiouras, 2008; Treacy and Mark, 1998 and 2000). However, one of the less investigated areas pertaining to the credit risk of banks and finance companies is identification of factors that influence the credit risk. This study aims to bridge this gap.

Credit risk management is a critical issue in performance of banks and finance companies. Various experiences in recent years have showed that failure in credit risk management can turn into massive problems in banks, which in turn can cause a systematic risk in the whole economy of the country. This is due to the fact that banks and finance companies are tend to have lots of inter-bank businesses and lend and borrow from each other in order to meet their capital deficit or surpluses. Hence, if a bank faces credit problems itself; such credit risk will propagate into the whole banking system and may cause collapses. Therefore, all banks need to consistently work on improving their measures of risks and risk management techniques and processes. Failure to monitor credit risk by a bank may cause severe risk in the whole banking system of a country. The lack of knowledge of importance of credit risk management on performance of banking and finance companies in an economy will cause the banks not to work extensively on managing their credit risk. Regulatory bodies also required to know the magnitude of importance and significance of credit risk on the performance of the banks. It is vital to know the magnitude of dependency of performance of banks to credit risk management in a country.

This research is aims to identify the factors affecting the credit risk in Malaysian banking and finance companies. In other words, this research identifies influential factors on credit risk of banks and finance companies by examining the relationship between various factors and their significance in determining the credit risk of banks and finance companies in Malaysia. The rest of paper is as follow. After reviewing relevant literature in Section 2, data and methods are discussed in Section 3; only after that, results of analysis is discussed; paper concludes with a summary in Section 5.

## **2. LITERATURE REVIEW**

Firms apply risk management techniques for one major reason: to hedge or mitigate the risks associated to them as much as possible. The risk management becomes more vital to firms that are exposed to higher amount of risks. Different firms may be exposed to different amounts and types of risks. Some forms of risks arise if only certain activities are conducted by the firm. Mozumdar (2001) argued that hedging may decrease potential financial distress in firm and hence bankruptcy costs associated to the firm. He concluded that “While fully diversified equity investors may not pay much attention to the unique risks associated with price, currency and interest rate volatility, other stakeholders take a different view of the situation. These other stakeholders include creditors, customers and suppliers and they could suffer substantial costs should a company find itself in financial difficulty. “

Lopez and Saidenberg (2000) define credit risk as “the degree of value fluctuations in debt instruments and derivatives due to changes in the underlying credit quality of borrowers and counterparties”. Franke, Härdle and Hafner (2011) argue that the primary goal of risk management models is to help credit analysts define whether a loan should be issued, how much risk premium is required, and how much adjustment in loss reserve account should be made. Didier, Cossin and PirotteHugues (2000) suggest that due to increasing sophistication of financial instruments, especially OTC products, has demonstrated that traditional methods of evaluation of risk are no longer adequate. They suggest that advanced methodologies to be used in common practice now.

Treacy and Carey (1998) investigate the internal mechanism of credit risk assessment of major US banks and show that large banks tend to have an in-house risk assessment procedure and do

not solely rely on the ratings provided by the public rating agencies. They claim that US banks assess borrowers' credit rating mostly for major commercial loans and not for individuals or small amount loans. They, however, highlight that there is no standard or universal method used by banks and rating assessment is still heavily rely on human-based assessment, and not figure based.

Credit risk management would have an impact on the performance of the firm. However, this hypothetical influence has not been tested empirically. In other words, it is not empirically tested that conducting risk management to mitigate the credit risk can improve the performance of the firm. Therefore, it is suggested that the relationship between credit risk and performance indicators of the banks and finance companies to be tested empirically. Banks and finance companies have a large exposure to credit risk, as their business is largely includes loans to clients. Thus Credit risk is the dependent variable and performance is independent variable. In other words, credit risk is expected to be influenced by the performance of the banks or finance companies.

Cebenoyan and Strahan (2004) and Hoshi, Kashyap and Scharfstein (1991) worked on the risk management in banking industry and identified a significant relationship between liquid assets and risks associated to the bank. Hence, first hypothesis is that there is a relationship between liquid assets and credit risk. Keeley (1990) identified the ratio of net loans to total asset as a potential factor contributing to the risk level of a bank. Hence, it is hypothesized that the net loans to total assets has a relation with credit risk. James and Hatten, (1995) Fung and Hsieh (2004) examined the relationship between performance and risk of banks and identified that return on average equity has a statistically significant relation with risk of banks. Cebenoyan and Strahan (2004) and Berger and DeYoung (1997) identified the loan loss reserve as a contributing factor to the risk level of a bank. Bhat (1996) and Hannan and Hanweck (1988) examined the relationship between deposits and short term funding and risks of banks and found a direct relationship.

Maudos and Guevara (2004) and Salas and Saurina (2002) investigated the net interest margin in banking industry. James and Hatten, (1995) Fung and Hsieh (2004) examined the relationship between performance and risk of banks and identified that return on average asset has a statistically significant relation with risk of banks. Shrieves (1992) examined the capital adequacy of banks and found that the total capital ratio is affecting the risk of bank. Campbell and Dietrich (1983) and Calem and Mester (1995) investigated the performance of banks and finance companies and found that the cost to income ratio is significant.

All the variables of the study are grouped into five constructs, namely Asset Efficiency, Capital Efficiency, Investment Efficiency, and Loan Efficiency. The first construct, Asset Efficiency, contains Return on Average Asset (ROAA), Net Loans to Total Asset, and Liquid Assets. The next construct, which is Capital Efficiency, includes Cost to Income Ratio, Return on Average Equity (ROAE), Total Capital Ratio, and Deposit and Short Term Funding. The other two constructs are Investment Efficiency and Loan Efficiency that contains Net Interest Margin and Loan Loss Reserve to Gross Loans respectively.

### 3. DATA AND METHODOLOGY

In this quantitative research, we use one dependent variable and seven independent variables and examine their relationships. These variables are:

- **Credit Risk:** The dependent variable is the credit risk. Credit risk (risk weighted assets – credit risk) is recorded by banks and finance companies as a regulatory capital as risk weighted assets of the firms.
- **Cost to Income Ratio:** Cost to income ratio is the ratio of the total costs of the bank to the income of the bank. Lower figures reflect the ability of bank to perform at a lower cost.
- **Return on Average Asset (ROAA):** Return on average asset (ROAA) is the net income of the firm in respect to its average assets in a period of time. This ratio reflects the ability of the bank to generate income out of its assets. The higher the ratio is, the better the bank performs.
- **Return on Average Equity (ROAE):** Return on average equity (ROAE) is the ratio of net income of the firm to the average total equity of the bank or finance company in a period of

time. This ratio reflects the banks power and ability to generate income out of its equity capital. The higher the ratio is, the better the bank performs.

- Net Interest Margin: Net interest margin is the ratio of the interest income of the bank to its overall income. This ratio reflects the proportion of the banks business that is based on the interest based activities and transactions. The higher that this ratio is, the more that bank's income is more sensitive to changes in interest rate.
- Net Loans to Total Assets: Net loans to total assets ratio is the ratio of total loans of a bank or finance company to its total assets. The higher that this ratio is, the more significant is the lending business of the bank. Moreover, this ratio suggests the sensitivity of a bank to credit risk.
- Loan Loss Reserve to Gross Loans: Loan loss reserve to gross loans ratio is the ratio of reserve that banks keep for handling non-performing loans that become loss for banks to the total amount of bank loans. Banks need to reserve a portion of their capital for loans that are subject to default by the borrowers. The lower this ratio is, the lower the non-performing loans that bank has.

Samples of continuously traded firms from various sectors of Bursa Malaysia (formerly known as Kuala Lumpur Stock Exchange, or KLSE) are selected. The period of study will be from 2010 to 2011. This period is set with respect to availability of data. There are 138 banks and finance companies active in Malaysia. However, availability of data for credit risk is available for a limited number of them. There is no data available prior to 2009 for credit risk. This will limit the period of study. By choosing the period of 2010-2011, largest panel is achievable. Data is collected from Bank Scope Database (a product of Bureau Van Dijk). Since the data of this study contains 53 banks for two years (2010 and 2011), Panel Regression will be carried out. Following multiple regression modelis used to test whether there is a relationship between independent and dependent variables. These models will be tested:

$$CR_{it} = \alpha + \beta_1 CI_{it} + \beta_2 ROAA_{it} + \beta_3 ROAE_{it} + \beta_4 NIM_{it} + \beta_5 NLTA_{it} + \beta_6 LLRGL_{it} + \beta_7 DSTF_{it} + \beta_8 LA_{it} + \beta_9 TCR_{it} + \varepsilon_t \quad (1)$$

Where

$CR_{it}$	:	Credit Risk for company i in time t
$CI_{it}$	:	Cost to income ratio for i <sup>th</sup> company in period t
$ROAA_{it}$	:	Return on average asset (ROAA) for i <sup>th</sup> company in period t
$ROAE_{it}$	:	Return on average equity (ROAE) for i <sup>th</sup> company in period t
$NIM_{it}$	:	Net interest margin for i <sup>th</sup> company in period t
$NLTA_{it}$	:	Net loans to total assets ratio for i <sup>th</sup> company in period t
$LLRGL_{it}$	:	Loan loss reserve to gross loans ratio for i <sup>th</sup> company in period t
$DSTF_{it}$	:	Deposit and Short Term Funding for i <sup>th</sup> company in period t
$LA_{it}$	:	Liquid Assets for i <sup>th</sup> company in period t
$TCR_{it}$	:	Total Capital Ratio for i <sup>th</sup> company in period t
$\alpha$	:	intercept
$\beta_1 \dots \beta_7$	:	coefficients of the regression
$\varepsilon_t$	:	error term

To test the normality of residual error term Jarque-Bera test is carried out. Multicollinearity test is conducted to inspect the relationship among the independent variables before conducting the regression test. As the data of this research includes several crosses, heteroskedasticity test is conducted to make sure that the variance of the error term is constant in crosses.

## 4. ANALYSIS AND DISCUSSION

### 4.1 Diagnostic Tests

Prior to conducting multiple regression analysis and hypotheses testing, diagnostic tests are performed to test the existence and validity of assumptions pertaining to the regression analysis. This identifies potential deviations from the general assumptions of the regression analysis and in

cases such deviation exists, remedial actions should be conducted. These diagnostic tests include normality of residual error term, Multi-Collinearity, and Heteroskedasticity. Since the time span of this research is only two years (2010 and 2011), unit root and autocorrelation tests are not applicable.

Jarque-Bera test is conducted to inspect the normality of error term of residuals. This test examines the potential existence of non-normality of error term of the regression. The null hypothesis is that the error term is normally distributed. Therefore, if the result indicates that the null hypothesis is rejected, it means that there is a problem of normality with error term. Results of Jarque-Bera test indicate the value of JarqueBera is 0.5662 and its associated p-value is 0.7534. This implies that the null hypothesis cannot be refuted at any significance level. Therefore, one may not infer that the error term has normality problem. Hence, one can assume that results of regression analysis are free from normality error.

**Table 1.** Result of Multicollinearity Test for Variables

Variable	VIF	1/VIF
ROAE	6.62	0.150999
ROAA	5.11	0.19561
Liquid Assets	3.66	0.273114
Net Loans Total Assets	3.31	0.30206
Deposits And Short Term	2.54	0.393791
Cost To Income Ratio	2.49	0.401009
Total Capital Ratio	2.25	0.444597
Net Interest Margin	1.62	0.617258
Loan Loss Res Gross Loan	1.61	0.622985
Mean VIF	3.19	

Since this study covers several number of exogenous variables (six independent and three control variables), there is a strong need for Multicollinearity test. In other words, there is a possibility that some of variables are correlated with each other and therefore, may influence the results of the analysis. Table 1 demonstrates the results of Multicollinearity test. Multicollinearity test conducted first for independent and then for control variables. The Variance Inflation Factor (VIF) is a variable ranging from 1 to infinity, where 1 is the case of absence of any multicollinearity and values greater than one indicate presence of multicollinearity. However, there is no consensus among scholars and practitioner on the cutoff threshold for VIF. Some argue that VIF above 5 is the evidence of multicollinearity while others accept up to the value of 10 for VIF (Cervantes-Godoy and Dewbre, 2010; Fredriksson *et al.*, 2006; Gunst, 1983; Hair *et al.*, 2011). For the purpose of this study and following Hair *et al.* (2011), we choose the cutoff point of seven. There were totally six variables with VIF greater than seven and there were omitted accordingly including Impaired Loan to Gross Loan, Total Asset, Equity, Net Income, and Net Interest Revenue. Table 4.2 indicates the final set of variables after Multicollinearity test.

One of the key assumptions of Ordinary Least Squares (OLS) is that the variance of the error term should be constant. Presence of Heteroskedasticity violates the above-mentioned assumption. However, Heteroskedasticity does not change the coefficients of the regression results, though it causes the variance and consequently the standard error of the coefficients to be biased. Biased standard error will lead to biased standard inference. Therefore, the results of hypothesis might be wrong (Hayes and Cai, 2007; Gujarati and Porter, 2009). Results of Breusch-Pagan and Cook-Weisberg test for Heteroskedasticity indicates that the chi-square and its associated P-value are 5.47 and 0.0194, respectively. This implies that the null hypothesis of homoskedasticity is refuted. Therefore, the presence of Heteroskedasticity in the data set should be assumed. In other words, the variance of error term is not constant. Consequently, remedial actions should be executed to solve the issue of heteroskedasticity. After that, one may assume the results of regression analysis

are free from the problem of heteroskedasticity. Robust Cluster code is a useful tool in STATA software package to control for Heteroskedasticity problem.

#### 4.2 Regression Results

Multiple regression method on panel data was carried out to investigate the impact of the independent variables on Credit Risk of Malaysian banks and finance companies. Table 2 presents the regression results after controlling for Heteroskedasticity. Results of multiple regression analysis show that the F-statistic and P-value of the model is 42.45 and 0.000, respectively. Therefore, the model fit is good. In other words, one may assume that the independent variables put all together, can explain the changes in dependent variable. If the model is fit, then, the changes in independent variables explain the changes in dependent variable. In addition to that, R-squared is 0.89, which means that 89 per cent of changes in Credit Risk could be explained by changes in independent variables. This indicates the explanatory power of the model which is good.

Table 2 presents the coefficients of the independent variables as well as the constant of regression. In order to examine each individual variable and determine whether it has any statistically significant relation with the credit risk (*i.e.* dependent variable) or not, one should investigate its associated t statistic or p value. The p-value indicates the acceptance level of error. Results indicate that not all of the independent variables have statistically significant relation with the dependent variable, individually. Table 2 suggests that the p-value of 0.00 (or t-stat of 6.63) for the liquid assets. Hence, one may infer that the liquid asset has a statistically significant relation with credit risk at 0.01 acceptance level. Moreover, positive coefficient (0.8021) indicates that the relationship is direct. Similarly, p value of 0.00 or t-statistic of 5.25 confirms that the net loans to total asset ratio has a statistically significant relation with credit risk at 0.01 acceptance level. Moreover, positive coefficient (0.5596) indicates that the relationship is direct.

**Table 2.** Regression Results after Controlling For Heteroskedasticity

	Coefficient	Std. Error	t-Statistic	Prob.
Cost To Income Ratio	-0.5832192	0.305313	-1.91	0.0620
ROAA	-0.1827438	0.1916163	-0.95	0.3450
ROAE	0.0205772	0.0298933	0.69	0.4940
Net Interest Margin	-0.0049535	0.060927	-0.08	0.9360
Net Loans/Total Asset	0.5596072	0.1065828	5.25	0.0000
Loan Loss Res/Gross Loan	0.0308955	0.020284	1.52	0.1340
Liquid Assets	0.8021484	0.1208973	6.63	0.0000
Total Capital Ratio	-0.0088334	0.0046643	-1.89	0.0640
Deposits And Short	0.0063727	0.0689614	0.09	0.9270
Constant	3.819614	1.856142	2.06	0.0450

As the p value of 0.06 (or t-stat of -1.91) indicates, the cost to income ratio has a statistically significant relation with the credit risk only at 0.10 acceptance level. Moreover, the negative sign of the pertaining coefficient (-0.5832) suggests that the relationship is inverse. Similarly, the p value of 0.06 (or t-stat of -1.89) indicates, the total capital ratio has a statistically significant relation with the credit risk only at 0.10 acceptance level. Moreover, the negative sign of the pertaining coefficient (-0.0088) suggests that the relationship is inverse.

Finally, the p value of 0.34 or the t statistic of -0.95 suggests that the ROAA has no statistically significant relation with credit risk. Similarly, the p value of 0.49 or the t statistic of 0.69 suggests that the ROAE has no statistically significant relation with credit risk. Moreover, the p value of 0.93 or the t statistic of -0.08 suggests that the net interest margin has no statistically significant relation with credit risk. In a similar fashion, the p value of 0.13 or the t statistic of 1.52 suggests that the net loans to total assets ratio has no statistically significant relation with credit risk.

Finally, the p value of 0.92 or the t statistic of 0.09 suggests that the deposits and short term funding has no statistically significant relation with credit risk.

Among the six independent variables in this study, four of them have p value higher than 0.1 namely Loan Loss Reserve to Gross Loan, ROAA, ROAE, and Net Interest Margin. Only two of the independent variables statistically affect the Credit Risk including Net Loans to Total Asset (p value 0.000 and t-statistic of 5.25) and Cost to Income Ratio (p value 0.062 and t-statistic of -1.91). The Standardized Betas of Net Loans to Total Asset and Cost to Income Ratio are 0.35 and -0.14, respectively. Hence, Net Loans to Total Asset has severer effect on Credit Risk in comparison with Cost to Income Ratio.

Among the three control variables, Deposit and Short-Term Funding is not significant even at 10 percent significance level (p value of 0.927 and t-statistic of 0.09). Liquid Asset (p value 0.00 and t-statistic of 6.63) and Total Capital Ratio (p value of 0.064 and t-statistic of -1.89) significantly affect the Credit Risk. Unlike Liquid Asset that positively influence the Credit Risk (Standardized Beta 0.604), Total Capital Ratio negatively have impact on Credit Risk (Standardized Beta -0.127). However, the absolute value of Standardized Beta of Liquid Asset is larger than the one of Total Capital Ratio. Thus, Liquid Asset affects Credit Risk more severely than Total Capital Ratio.

### 5. GENERAL FINDINGS AND CONCLUSION

This study investigated the influential effect of nine factors (*i.e.* six independent variables and three control variables) on the credit risk in Malaysian banks and finance companies post crisis of 2008. The examined influential factors are Liquid Assets, Net Loans to Total Asset Ratio, ROAE, Loan Loss Reserve to Gross Loan Ratio, Deposits and Short Term Funding, Net Interest Margin, ROAA, Total Capital Ratio, and Cost to Income Ratio. It is hypothesized that these variables have influential relationship with the credit risk of the banks and finance companies active in Malaysia. Using the statistical method of multiple regression analysis, these hypothetical relations were examined. Results indicate that the model is statistically fit. In other words, change in these variables can cause change in the credit risk of the bank or finance company. However at the individual variable level, results of the multiple regression analysis conducted in this study do not support an influential relationship for each and every independent variable. Results support statistically significant relationship between credit risk and only some of the variables.

Among the six independent variables in this study, two of them have statistically significant relationship with credit risk. These variables are Net Loans to Total Asset and Cost to Income Ratio. They have a statistically significant relationship at 0.01 and 0.10 acceptance levels, respectively. Net Loans to Total Asset has a positive relation with credit risk, which means if the Net Loans to Total Asset ratio increases in a bank or finance company, the credit risk of the firm will increase. In contrast to that, Cost to Income Ratio has a negative relation with the credit risk, which means that if the Cost to Income Ratio increases in a bank, it can be anticipated that the credit risk will decline. These findings have important implications. Furthermore, statistical results do not support the hypothetical relation between Loan Loss Reserve to Gross Loan, ROAA, ROAE, and Net Interest Margin and credit risk.

As mentioned above, the ratio of net loans to total asset has a positive impact on the credit risk. In other words, if the proportion of the loans increases in accordance to total asset of a bank, it's credit risk increase. This is in line with the definition of credit risk as an increase in amount of bank loans will provide a room for more default possibilities. It means that the amount of loans of the bank to borrowers has increased. Consequently, there is more potential defaulter among borrowers. Hence, the amount of credit risk will increase as a result of increase in the ratio of net loans to total asset. Bank should wisely provide loans to their customers and always consider that there are negative points in lending excessively, as their associated credit risk will increase.

Results also indicate that the cost to income ratio has a negative statistically significant relationship with credit risk. Therefore, if the cost to income ratio increases, the credit risk will decline. The rationale is based on the implications of the corporate governance theory in banks and finance companies. If the cost to income ratio increases, it means that the performance of the bank is declining. Hence, the bank managers try to improve this performance by two means: first they refuse risky loans which will add significantly to the amount of credit risk of the bank;

alternatively, bank managers attempt to improve the performance by toughening the loan assessment procedure and requirements. This also reduces the possibility of bad loans and decreases the credit risk. As a result, if the banks cost to income ratio increases, the bank managers understand that their performance is declining and they are required to boost the performance. They will initiate measures to improve the cost to income ratio and since credit risk will eventually turn into non-performing loans and considered as an expense for the bank, they will try to minimize the credit risk as a mean to improve the performance of the bank. Here, reduction of the credit risk might be a byproduct of this activity of bank managers. Their main intention might be to improve the performance by reducing the cost to income ratio; however, their actions require that the credit risk to be reduced. Although an increase in the cost to income ratio is not favorable by banks, they should take this opportunity to reduce their credit risk exposure by improving their credit risk assessment and management techniques.

Liquid assets have statistically significant positive relationship with credit risk. Hence, if the liquid assets of a bank increase, its associated credit risk will increase. Liquid assets typically consists short term notes and securities which can easily be liquidated. These notes are either issued by government (or central banks or government agencies) or by corporate issues (either public or private). However, they are supposed to earn a minimal return for the bank. Notes, even issued by credible issuers, are certificate of debt. Similar to the credit risk associated to loans (another form of debt), the notes and bonds also have embedded default risk. Hence, holding large number of notes and such securities (liquid assets) will increase the credit risk of the bank or finance company. Banks should invest in liquid assets wisely and not consider them free from default risk.

Total capital ratio has a statistically significant negative relationship with credit risk. Total capital ratio, or capital adequacy ratio, is expressed as ratio of bank's capital to its assets. Total capital ratio indicates the bank's ability to meet its liabilities and other risks such as credit risk. If the total capital ratio is less than the statutory level, the bank is not capable of expanding its operations. This ratio, monitored by central banks, ensures that the banks do not expand their business without having adequate capital. So, if the total capital ratio decreases, there is an indication for higher credit risk. Hence, bank should closely monitor their capital adequacy ratio as a mean for monitoring their credit risk.

As a result, this study identified and confirmed four factors that have influential relationship with credit risk in Malaysian banks and finance companies post 2008 financial crisis. These factors are Net Loans to Total Asset, Cost to Income Ratio, Liquid Asset, and Total Capital Ratio. Hence, one may expect that a change in one of these variables can cause the credit risk change in Malaysian banks or finance companies. Net Loans to Total Asset ratio and Liquid Asset have positive relation with credit risk. Thus, if a positive (negative) change occurs in Net Loans to Total Asset ratio or Liquid Asset of a bank, its credit risk will increase (decrease) accordingly. One the other hand, Cost to Income Ratio and Total Capital Ratio have negative relation with credit risk in Malaysian banks and finance companies. As a result, if there is a positive (negative) change in Cost to Income Ratio or Total Capital Ratio, the credit risk will decrease (increase).

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