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Recapitalization Effectiveness and Performance of Banks in Malaysia

Etri Ernovianti, Nor Hayati Binti Ahmad, Ahmad Rizal Mazlan
College of Business, Universiti Utara Malaysia, Malaysia
etri_ernovianti@yahoo.com, nor.hayati@uum.edu.my, arizal@uum.edu.my

Abstract: Recapitalization through capital injection is one of the strategies for banks to strengthen their banking system from the possibility of bank failures. Banks cannot deny that capital is one of the most important components to run their business. In spite of that, few studies have been conducted to assess the effectiveness of such strategy on Asian banks. This paper investigates the effectiveness of capital injection in the Malaysian banking sector which was adversely hit by the financial crisis. Panel data from 1997 to 2014 was used. The financial data is obtained from annual reports published in Bank Scope and The World Bank database. The data were processed using Panel Least Square and Random effect model. The empirical analysis reveals that, GDP, CAR, previous year capital injection and loan write-off (LWO) explain 89.6 percent of the variance in capital injection effectiveness. CAR and LWO/TA are significant at 5 percent confidence level. The evidence from the results shows that recapitalization is vital for long term survival of the banking sector. The study recommends that in order to improve the profitability of banking sector, the banks should write off bad loans and ensure they have adequate capital either through capital injection, or growth to withstand financial risks.

Keywords: *Capital Injection, CAR, Loan write-off, economic growth, bank*

1. Introduction

Banking system plays an important role in mobilization and allocation of financial resources or capital in the economy. Banks as financial intermediaries allocate capital from units which have surplus funds to those units who needs or lack funds. According to Elliot (2010), capital is intended to protect the bank or any parties including bank customers, bank counterparties and also depositors from losses. During financial crises, Mehran and Thakor (2009) and Diamond and Rajan (2000) mentioned that capital injection enables banks to reduce the probability of insolvency and closure of the banks. However, capital injection or recapitalization can be a very expensive strategy to the banks affected by financial risks because banks have to provide higher dividends to a larger number of shareholders from the enlarged capital. Therefore, banks have to consider the cost and benefit of capital injection versus profit improvement. Did capital injection bring improvement to the banks? There is no clear evidence on the success of this strategy since study on the effectiveness of capital injection is limited especially on Malaysian banks after the 1997 Asian Financial Crisis (AFC).

Several countries have faced financial difficulties and challenges to undertake recapitalization due to the banking crises. Malaysia was no exception. The 1997 Asian Financial Crisis (AFC) adversely affected Malaysian banks stability. Many banks recorded huge losses due to credit risk and high NPL. This posed serious problem to Malaysian banks survivability, resulting in Malaysian government to take actions to recapitalize the banks which experience acute capital erosion. Rebuilding and restructuring banks from the 1997 crises and 2008 financial crises has been done by many regulators to save the banks from insolvency. Recapitalization is one of the strategies used to survive from the inadequate capital. Giannetti and Simonov's (2013) study on equity injection on Japanese banks from 1998 to 2005 find that recapitalization will help banks to increase their lending to more creditworthy borrowers if the injected capitals are large enough. Although this strategy was widely implemented, only a few empirical studies were done to assess the effectiveness of such strategy. Hence, the objective of this paper is to evaluate the effectiveness of capital injection for Malaysian banks over the 1997 – 2014 periods. This paper is organized as follows: Section 2 briefly outlines the history of Malaysian banking crisis; Section 3 provides critical review of the related

literature, Section 4 describes the methodology used, Section 5 presents the result of the study, and Section 6 concludes the paper.

Malaysian banking sector crisis period: In 1997-98, Malaysia was hit by the pressure of AFC with depreciation of Ringgit from RM2.50 per US Dollar to RM4.88 in 1998. At the same time, the average capital adequacy ratio (CAR) of Malaysian banks was 10 percent, the highest in Southeast Asian countries. However, the asset quality of Malaysian banks deteriorated seriously when borrowers faced difficulties to meet their obligation, resulting in a very huge non-performing loan (NPL). In 1998, the economic growth declined to -7.4 percent, while NPLs of the banking system worsened from 4.1% in 1997 to 13.6% in 1998. In 1999, it improved slightly to 11.0% but still in the double digit level. Many banks suffered severe financial losses causing them to be merged in order to survive. This situation demanded serious attention from the government to strategize effective recovery plan. The Central Bank, however, instructed bank mergers across the banking sectors together with capital restructuring and consolidations exercise over the 1999 – 2000 period. Since then, Malaysian banks experienced several capital injections, to which no empirical research has been conducted to assess the effectiveness of the exercise.

Berger and Bouwman (2009) argue that the importance of capital to banking organization and also to other financial institutions is elevated during banking crises. This is because during the crises, banks need to have fresh or additional capital being injected, in order to absorb their losses and continue their lending operation. However, capital injections may not take place during the banking crises only, but also in normal situation where banks need capital injections to expand their lending investment and asset acquisition activities. Their argument is further supported by Mehran and Anjan (2009) and Diamond and Rajan (2000). The 1997 situation unveiled the weaknesses in the Malaysian banking system as one with weak risk management, banks undercapitalized, and heavy lending concentration in high risk sector such as broad property sector. The rescue plan started with a capital injection by the Central Bank to Bank Bumiputera, followed by several capital injections and acquisitions of weaker banks by stronger banks. This massive recapitalization exercise resulted in the downsizing of banks from 58 to 10 domestic anchor banking groups. The banks are Affin Bank Berhad Group, Alliance Bank Berhad Group, Arab-Malaysian Bank Berhad Group, Bumiputra-Commerce Bank Berhad Group, Eon Bank berhad Group, Hong Leong Bank Berhad Group, Malayan Banking Berhad Group, Public Bank Berhad group, RHB Bank Berhad Group, and Southern Bank Berhad.

Subsequently, the 10 anchor banks were reduced to 8 through merger and acquisitions with the acquisition of Southern Banks by CIMB Bank and EON Bank by Hong Leong Banking Group. To date, the assets of the Malaysian banking system is RM 440,568 million in 2015 from RM 427,617 million in 2014 and RM 181.4 billion in 1997. Several factors influenced capital injections in the Malaysian banks, such as capital regulation and loan write offs by individual banks. In other instances, strong recovery efforts and good risk management practices were in place. Nonetheless, there are conflicting opinions as to which factors are more effective to bring about performance improvement. This motivates us to search for empirical evidences and underpinning theories from reviews of the literatures and empirical analysis.

2. Literature Review

Related Theories: Theories which have been identified to be relevant in this study are theory of financial intermediation, theory of survival and theory of bank capital. The theory of the financial intermediation was developed by Diamond (1984) based on resolving incentive problems between borrowers and lenders. This theory explained about financial institutions' role in the flow of fund system; from fund provider, investor or depositors to borrowers or customers. In this discussion, the bank acts as a third party by receiving money from depositors or an investor and invest the money or giving loans to customers. The developments of financial intermediaries tend to lead the development of financial markets. This development has provided a distinct long term increase in market capitalization relative to GDP. Although greater bank capital reduces the probability of financial distress, it also reduces liquidity creation. Diamond and Rajan (2000) find that optimal bank capital structure trades off effects on liquidity creation, costs of bank distress and the ability to force borrowers' repayment. In contrast, Theory of Survival suggests that capital helps the banks to enhance the

probabilities of survival and increase in the market share of small banks at all time (Berger and Bouwman, 2013).

Definition of Variables

Loan Write Off: Previous studies demonstrate that banks which are inadequate to capitalize are more likely to keep non-performing loans on their books than the healthy banks. However, for banks which can source new capital, the effectiveness of the capital injections encourage banks to write offs their non-performing loans. The main objective of the capital injection program was to mitigate the tendency of bad loan (Peek and Rosengren, 2005). Regulators also encouraged the banks to write offs their non-performing loans that have been left their books for years. However, according to Montgomery and Satoshi (2009), few banks which suffered from bad loans would write off their bad loans and having to write-off more bad loans is negative shock to bank capital. Bank will reveal their bad loans if their numbers are larger than a certain threshold. The research gap is the less attention in the previous studies to undertake research on loan write offs. According to Peek and Rosengren (2005), when the depressed banks are not recapitalizing, it will lead banks to give less lending which might result in depressed growth for banks.

Capital Injection: There are evidences to support the usage of capital in banks to protect for losses, for example in the case of Indonesian Islamic banking system (Abusharba, Triwuyono, Ismail & Rahman, 2013). They found that non-performing loan is significantly but negatively related to the capital adequacy. This proves that capital would be used by banks to meet their obligations and cover their non-performing loan to protect the owners of the capital from further losses. This is supported by Berger and Bouwman (2013), which argue that capital can helps banks profitability to become stronger in terms of survival and market shares; whether it is during the crises or normal times. According to Philippon and Schnabl (2013), efficient recapitalization programs inject equity capital against preferred stock plus warrants and conditions implementation on sufficient bank participation from existing and new shareholder (bank debt holders). Efficient recapitalization is profitable if the benefits of lower aggregate credit risk exceed the cost of implicit transfers to bank debt holders.

GDP: The downturn in the economic environment can cause losses for banks which decrease a bank's capital; which consequently require the banks to increase regulatory capital ratios in order to provide adequate coverage for higher risk assets in their balance sheet. This situation requires the banks to inject new capital or to curtail lending. However, there is still an ambiguous impact of the effectiveness of capital injection on the banking performance related to the macroeconomic factors namely GDP and Inflation. From the previous studies (Berger and Bouwman, 2013; Takashi and Montgomery, 2011; Adegbaju & Olokoyo, 2008), GDP has not been discussed in terms of its influence on the effectiveness of capital injection.

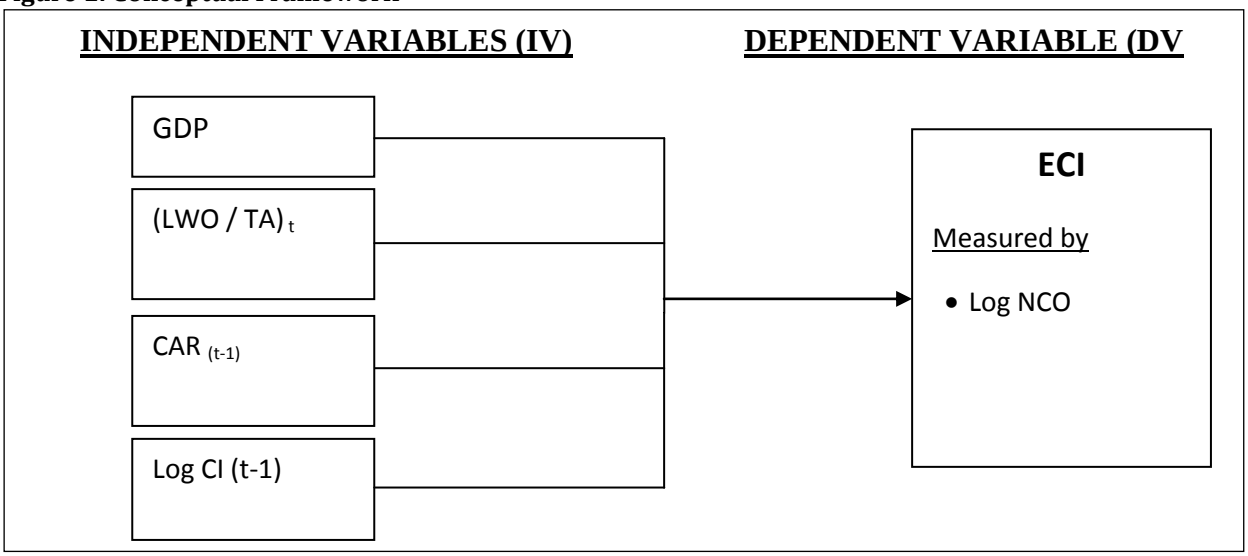
Capital Ratio: Strengthening capital ratios is a key priority in the outcome of the global financial crisis. Increasing the quantity, quality, and transparency of capital is of paramount importance to restore the banking sector to health. When the banks have higher capital ratio, it is found that the banks tend to have stronger loan growth over the years (Carlson, Shan & Warusawitharana, 2013). However, such effects need further investigation to ascertain whether Malaysian banks curtail their lending or inject new capital to restore the banking healthy. This presents another research gap for this study as no recent empirical research was carried out on the effect of capital ratios on loan growth of Malaysian banks. According to Onji, Vera and Corbett (2012), which study on 81 banking group of regional banks with a panel dataset, shuffling of personnel to subsidiaries was a common response among banks that receive large capital injections. The personnel needs to assume new jobs and this require re-training in new areas, new job system as the enlarged banks (from the capital injection) venture into new activities for higher profitability. This finding was supported by Mariathasan and Merrouche (2012), which study on the characteristics of public recapitalizations of banks and their relationship with bank lending. The analysis covers 15 OECD countries whose banking sectors were most severely hit by the crisis and the countries d the largest public bailouts of the banks relative to their national gross domestic product (GDP). Larger and higher loss-absorbing capital injections were found targeted at weaker banks and at those banks of 'systemically relevant' size, allowed by

the state of public finances. The recapitalization had resulted in significant increase in bank lending for the OECD countries.

3. Methodology

The data from this study was collected from Bank Scope database and the Central Banks, while the economic data was extracted from the World Bank website. The analysis period is from year 1997 until 2014. This unbalanced data requires Panel Least Square, Breusch-Pagan test or Panel data test to be conducted to decide whether fixed effect or random effect is the appropriate method of analysis. The population of this study consists of 8 conventional banks in Malaysia. The conceptual framework in which the relationships were tested is as in Figure 1.

Figure 1: Conceptual Framework



Empirical Specification: To conduct the investigation of the effectiveness of capital injection, the model for this study is expressed in the following terms.

$Y = \beta_0 + \beta_{x1} + \beta_{x2} + \beta_{x3} + \pi$…… (1)

Where: Y= Effectiveness of capital injection
X= Independent variables
β= Coefficient of capital injection
π= Error term

Hence, the actual model investigating the independent variables is formulated as below:

$ECI = \beta_0 + \beta_1 (LWO/TA)_{t-1} + \beta_2 (CAR)_{t-1} + \beta_3 \text{ Log CI}_{(t-1)} - \beta_8 \text{ GDP} + e_{it}$....(2)

Where:
ECI= Effectiveness of Capital Injection
CI= Capital Injection
LWO/TA= Loan Write Offs to Total Asset
CAR= Capital Ratio
GDP= Gross Domestic Product
The operational definition and measurement of variables is per Table 1.

The period of analysis was chosen from 1997 to 2014. The reason for the choice of this length period (17 years) is because these periods witnessed major capital injection and recapitalization of the banks in Malaysia. Hence, we used 5 years (1997 – 2001) as pre capital injection period and 12 years (2002 – 2014) as post period in order to assess the effectiveness of capital injection exercise.

Table 1: Operational Definition

Variables	Variables name	Measurement
ECI	Effectiveness of capital injection	Net charge offs
$LOGCI_{(t-1)}$	Capital Injection	Capital injection in previous year
LWO/TA	Loan write offs/ total asset	Loan write offs/ total asset
CAR	Capital ratio	Tier 1/ RWA
GDP	Gross Domestic Product	Percentage growth in Domestic Product

4. Results

Table 2 present the pre and post 2002 capital injection performance of Malaysian banks. Table 3 presents the descriptive result of the variables for Malaysia banks used in this study. Meanwhile, Table 4 presents the Random effect statistics.

Table 2: Pre and Post bank performance

Name	Pre-recapitalization				Post-recapitalization			
	1997	1998	1999	2001	2002	2004	2008	2014
Net Interest Margin (NIM- %)	3.94	3.82	2.91	3.72	3.38	3.07	3.28	2.60
Return on Asset (ROA- %)	1.18	0.26	0.38	0.29	0.89	0.93	1.13	1.42
Return on Equity (ROE - %)	17.3	3.31	2.41	2.22	11.29	11.87	16.06	17.02

Table 3: Descriptive Statistics of Variables for Banks in Malaysia

Variables	Mean	Std. Deviation
LogNCO	2.524	0.410
GDP	4.528	3.861
CAR	3.35	0.441
LWoTA	56.161	98.062
Logcit1	3.309	0.393

Table 3 shows the descriptive statistics of the variables for the banks in the study. It is observed form Table 3 that LWOTA has the highest mean that is 56.161, while the mean for LogLWO is 32.524, GDP is 4.528 percent, and CAR is 3.35 times while Logcit1 is 3.309. The highest mean shows that banks in Malaysia have higher loan write off to total asset. The mean value for GDP is 4.528 percent but standard deviation (SD) is at 3.861 percent. The large SD is due to fluctuation in GDP growth where the lowest GDP was -7.14 in 1998. There has been no evidence of multicollinearity problem exists in the model for Malaysia since all variables have VIF value less than 10. Variance Inflation Factor (VIF) is used to examine the existence of multicollinearity issue among the variables of the study. According to Hair et al. (2010) when VIF values are above 10 or tolerance values are less than 0.10, it shows that multicollinearity problem exist. Further, Pallant (2010) suggested that the correlation matrix should be checked in order to identify the existence multicollinearity in the model.

Table 4: Result of Random Effect model

Dependent Variable: LOGNCO
Method: Panel EGLS (Cross-section random effects)

Sample: 1 132
Periods included: 13
Cross-sections included: 8

Total panel (unbalanced) observations: 71

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.428508	0.389778	-1.099364	0.2758
GDP	-0.001553	0.005391	-0.287977	0.7743
CAR	-0.070901	0.027754	-2.554656	0.0131
LOGCIT1	-0.119792	0.089827	-1.333578	0.1871
LWOTA	0.004446	0.000329	13.53323	0.0000

R-squared	0.895821	Mean dependent var	2.507606
Adjusted R-squared	0.884245	S.D. dependent var	0.418898
S.E. of regression	0.142521	Sum squared resid	1.279665
F-statistic	77.38954	Durbin-Watson stat	1.464327
Prob(F-statistic)	0.000000		

The result shows that out of four variables tested, two variables namely capital ratio and LwoTA were significant in reducing the loan write offs for banks resulting in stronger performance. The F-statistic that explains the overall significance of the model is found to be significant at 0.000 levels with adjusted R-squared of 0.8958. It shows that the regression model consisting of GDP, CAR, LOGCit1, LWo/TA could explain 89.58 percent changes in the effectiveness of recapitalization measured by logNCO.

5. Conclusion

This study evaluates the effectiveness of capital injection in Malaysian banks as a result of recapitalization policy made by the Malaysian central bank to strengthen the country's banking sector. Using a panel data of individual bank, we empirically estimate the effectiveness of bank recapitalization or injections. Overall, the result shows that the capital injections have had an effective and significant impact on the Malaysian banks. Out of four variables tested, two variables namely, Capital Ratio and Previous Capital Injection were significant in reducing the loan write offs for banks resulting in stronger bank performance. The result implies that the Malaysian banks benefited significantly from the capital injection policy. Notwithstanding that, future research should extend this framework to include new financial variables such as operating profit to total asset, bigger sample comprising local and international banks from selected countries for comparative evaluation and use a new methodological approach.

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