

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 Data and Sample Selection**

Data for this study are obtained from individual banks' annual reports from the Kuala Lumpur Stock Exchange and Bank Negara Malaysia. The period of study covers 1990-1999. All the selected banks in this analysis are locally owned commercial banks. Where both consolidated and non-consolidated accounts are shown in the annual reports, the non-consolidated results are used.<sup>7</sup>

In this section, a comparative analysis of BIMB and the commercial banking sector will be carried out. This analysis will be divided into two parts. The first part involves performance comparison between BIMB and seven commercial banks for the period 1989-1999. The seven banks selected range from small to medium in size, having total assets between RM 0.2 - 1.8 b (1989) and RM 2.8 - 10.2 b (1999). As for BIMB, its size in terms of total assets stand at RM 1.3b (1989) and RM 6.8b (1999). The sample size for this period was small because of unavailable data.

The second part seeks to highlight the performance of BIMB and commercial banks on the whole before and after the financial crisis. This analysis consists of a sample of fifteen commercial banks and BIMB for the period 1997-1999. Since there are

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<sup>7</sup> Some commercial banks belong to a holding company, which also has other businesses under its control. In some annual reports therefore, two sets of published accounts are found; the *consolidated* accounts which report the group's performance as a whole and the *non-consolidated* accounts, which report the performance of the specific commercial bank concerned.

twenty locally owned commercial banks in Malaysia, fifteen banks represent three quarters of the locally owned commercial banking industry. These fifteen banks are chosen based on suitability and availability of data. Certain banks e.g. Bumiputera-Commerce Bank and RHB Bank have been purportedly left out due to extraordinary occurrences like mergers and takeovers during that period. Other banks were left out because data were not available.

### **3.2 Method of Analysis**

Most of the analysis will be done using financial ratios as this method is widely accepted and practised by bank regulators, rating agencies and investment analysts. One advantage of financial ratios is that comparisons across companies can be made even though the scale of operations may differ. Also, since this analysis involves only banks in Malaysia, the use of financial ratios for inter-firm comparison is appropriate, as banks will not face differing accounting procedures in the preparation of financial information.

Seven criteria will be used to evaluate the performance of banks :

#### **3.2.1 *Growth of Assets and Deposits***

The growth of the banks will be analysed based on growth of total deposits and total assets over the years.

### 3.2.2 Profitability

Profitability is reflected in the earnings of the bank. The earnings level, trend and stability will be examined. For this criteria, the following measures will be used :

a. Return on Equity (ROE)

ROE is defined as 
$$\frac{\text{Profit After Tax}}{\text{Equity Capital}}$$

ROE measures how much banks earn on each ringgit of shareholders' capital. This information is of particularly interest to shareholders who would want to see how effective their investment is used.

b. Return on Assets (ROA)

ROA is defined as 
$$\frac{\text{Profit After Tax}}{\text{Total Assets}}$$

ROA measures how efficiently a bank is being run because it indicates how much profits are generated on average by each ringgit of assets.

### 3.2.3 Solvency

Capital adequacy is an important indicator for the solvency of a bank. Banks need to maintain sufficient capital to cushion against unexpected loss. Otherwise, the bank may find itself in a position where it is unable to meet obligations to its depositors and creditors.

Two capital adequacy ratios will be used :

a. Core capital ratio

Core capital ratio is defined as 
$$\frac{\text{Capital Base}}{\text{Total Assets}}$$

b. Risk Weighted Capital Ratio (RWCR)<sup>8</sup>

RWCR is defined as 
$$\frac{\text{Capital Base}}{\text{Total Weighted Assets}}$$

The calculations for both the core capital ratio and the RWCR have been pre-determined and can be read off the balance sheets of the banks.

The higher the capital adequacy ratios, the higher is the cushion the bank has against the risk of becoming insolvent. By comparison of the two ratios, RWCR's advantage over the conventional core capital ratio is, it shows the level of riskiness of the assets relative to its capital and indicates to the bank how much capital must be increased to cushion against risks pertaining to the holding of these assets.

Another measure which can be used for analysing the solvency of the bank is the :

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<sup>8</sup> The RWCR is an international standard for capital adequacy under the Basle Accord. Under the RWCR, different portfolios of assets are accorded differing weights based on the degree of perceived risks.

c. Equity Multiplier (EM)

This is defined as 
$$\frac{\text{Total assets}}{\text{Total equity capital}}$$

The equity multiplier (EM) is a direct measure of a bank's degree of financial leverage. It shows the amount of equity capital needed to support each ringgit of assets. This therefore, indicates to what extent the bank's resources rely on debt. Because equity must absorb losses on the bank's assets, banks with high EM are more prone to failure.

#### 3.2.4 *Liquidity*

In times of a bank crisis or economic distress, the public may lose confidence in the bank leading to panic withdrawal of deposits. Sufficient liquidity refers to a situation where banks have sufficient reserves to meet these unexpected or sudden withdrawal demands by depositors.

However, in today's banking environment, the option of borrowing from the inter-bank market has eased the liquidity risk of commercial banks. The drawback is that banks will have to borrow at excessively high cost in exchange for emergency funds. In the case of Islamic banking, this option of interbank borrowing does not yet exist in Malaysia.

Liquidity is measured using the following ratios :

a. Current ratio

This is defined as

$$\frac{\text{Cash and short-term funds} + \text{Deposits and placements with other banks}}{\text{Total customer deposits} + \text{Deposits and placements of other financial}}$$

institutions with the bank

This indicator shows the ratio of liquid assets to liquid liabilities. If the current ratio is high, this would indicate that the proportion of liquid assets is higher than liquid liabilities thereby indicating that the bank is in a secure position to meet sudden demands for withdrawals.

b. Loan deposit ratio

This is defined as

$$\frac{\text{Total Loans}}{\text{Total deposits}}$$

Loans constitute a large portion of a bank's assets while its principal obligations (liabilities) are deposits on demand. If the loan deposit ratio is high, this means that the bank is not very liquid and may not be able to respond to sudden demands for withdrawals.

c. Loan asset ratio

This is defined as

$$\frac{\text{Total Loans}}{\text{Total Assets}}$$

This ratio shows the proportion of assets used for loans.

A high loan asset ratio will indicate that the bank is stuck with illiquid assets which it will not be able to dispose of immediately when it needs cash.

### 3.2.5 Credit Risk

Credit risk is the largest source of risk for a bank. This is because loans make up the largest portion of the bank's assets. The loan market faces problems of adverse selection (bad credit risks) and moral hazard (borrowers involving in excessively risky projects). Because banks hold little owners' capital relative to their assets, a relatively small percentage of bad loans can push a bank to the brink of failure. Therefore, part of the prudential management of a bank is judged by how it manages its credit risk.

Credit risk can be determined based on the following ratios :

#### a. Non-Performing Loans (NPLs) to Total Loans

This is defined as 
$$\frac{\text{Net Non-performing Loans and Financing}^9}{\text{Total Loans (less SP and IIS)}^{10}}$$

The higher the amount of net NPLs relative to total loans indicates the higher the risk of default by its borrowers. Therefore, by examining the changes and trends of NPLs for a particular bank gives insight into the quality of the bank's assets. The higher the ratio, the higher is the banks' exposure to credit risk.

<sup>9</sup> Loans and Financing refer to all types of lending a bank gives out to its customers. The term financing, sometimes used interchangeably with loans, refers more to business credit.

<sup>10</sup> SP stands for specific provision and IIS stands for interest(income) in suspense

b. Loan Loss Provision (LLP) to Total Loans

This is defined as 
$$\frac{\text{General Loan Loss Provision}}{\text{Total Loans (less SP and IIS)}}$$

This ratio reveals the extent to which a bank is preparing for loan losses. A high ratio would indicate that the bank expects a significant portion of its loans to be bad.

c. Amount of NPLs sold to Danaharta

This is a useful indicator of the credit risk faced by banks during the financial crisis of 1997-98.

d. Standard deviation of percentage of non-performing loans to total loans over the years ( $\sigma_{\text{NPL}}$ )

$$\sigma_{\text{NPL}} = \sqrt{\frac{\sum (\text{NPL}_t - \bar{\text{NPL}})^2}{n - 1}}$$

where  $\text{NPL}_t$  = % of NPLs to Total Loans in year t

$\bar{\text{NPL}}$  = Average NPLs to Total Loans over the years

n = Number of years



The standard deviation of NPLs to Total Loans (%) over the years shows the variability of a banks' non-performing loans over the years. A high  $\sigma_{\text{NPL}}$  will imply that a bank has high credit risk. However, data for non-performing loans was only made available from 1996 or 1997 onwards. Therefore, comparisons before 1997 cannot be carried out.

### 3.2.6 *Earnings Risk*

Earnings risk refers to the variability in the firms' income over the years.

Earnings may rise or decline unexpectedly due to factors inside a bank or due to external factors.

Three measures are used :

- a. Standard deviation of the Net Income After Tax ( $\sigma_{\text{NI}}$ )

$$\sigma_{\text{NI}} = \sqrt{\frac{\sum (\text{NI}_t - \bar{\text{NI}})^2}{n - 1}}$$

where  $\text{NI}_t$  = Net income after tax in year t

$\bar{\text{NI}}$  = Average net income after tax over the years

n = Number of years

- b. Standard deviation of the ROE ( $\sigma_{ROE}$ )

$$\sigma_{NI} = \sqrt{\frac{\sum (ROE_t - \overline{ROE})^2}{n - 1}}$$

where  $\underline{ROE}_t$  = Return on equity in year t

$\overline{ROE}$  = Average return on equity over the years

n = Number of years

- c. Standard deviation of the ROA ( $\sigma_{ROA}$ )

$$\sigma_{NI} = \sqrt{\frac{\sum (ROA_t - \overline{ROA})^2}{n - 1}}$$

where  $\underline{ROA}_t$  = Return on assets in year t

$\overline{ROA}$  = Average return on assets over the years

n = Number of years

The higher the values of  $\sigma$ , the more risky the bank's earnings.

### 3.2.7 *Sectoral Contribution to the Economy*

Finally, the BIMB's sectoral contribution to the economy in terms of lending will be compared with the commercial banks in this sample and with the entire commercial banking sector. As an Islamic bank, one of BIMB's objectives is to contribute toward a more equitable distribution of income in the economy. The agriculture, mining and quarrying are regarded as the poorer sectors of the economy where people in the lower income group are found. In fulfilling its objectives as an Islamic bank, it is expected that BIMB's contribution toward this sector would be higher than that by conventional banks. The data for the breakdown of loans by sector was only available in annual reports from 1996 or 1997 onwards. Therefore, comparisons before 1997 cannot be made.