CHAPTER THREE
METHODOLOGY AND METHODS

3.1. Introduction

The next chapter of this chapter briefly outlines the theory underlying the formulation of the hypotheses based on the accounting literature reviewed in Chapter two and develops the hypotheses to be tested. Subsequent sections provide a description of the sample selection, data collection procedures, variable measurement and the method employed to test the hypotheses.

3.2. Hypotheses Development

To accomplish one of the objectives of the study, which is to investigate the relationship between voluntary cash flow disclosures and eight firm-specific characteristics that may, or may not, have some influence over the level of disclosure, eight sets of null and alternate hypotheses have been developed. The eight sets of null and alternate hypotheses are derived from agency theory and will include variables such as firm size, listing status, leverage, assets-in-place, type of audit firm, ownership diffusion, industry membership and NACRA awards. In addition, voluntary cash flow information will be classified into three categories, namely:

1. any form of restrictions on cash and cash equivalent balances
2. information on short-term and long-term borrowings and capital commitments
3. increases in operating cash flow that is separated for operating capacity and maintenance capital

3.2.1. The Size Hypothesis

Most empirical studies support the notion that firm size influences corporate disclosure [(e.g Lang and Lundholm (1993), Chow and Wong-Boren (1982), Ashbaugh et al. (1999), Bradbury, (1992)]. These studies also indicate that there may be a positive relationship between the firm's size and disclosure. Hence the hypothesis is:

H_{0Size}: There is no significant difference between the company size and the extent of voluntary disclosure.

H_{1Size}: There is significant difference between the company size and the extent of voluntary disclosure.

As size can be measured in a number of different ways, listing status is used as an additional specification of the size hypothesis. No previous overseas studies could be quoted as reference as this type of listing is only peculiar to Malaysia. However, a recent study by Chow (2001) reports significant relationship between disclosure of segmental information and listing status. The size hypothesis is therefore restated as follows:

$H_{0Listing}$: There is no significant difference between listing status and the extent of voluntary disclosure.

$H_{1Listing}$: There is significant difference between listing status and the extent of voluntary disclosure.

3.2.2. The Financial Leverage Hypothesis

Jensen and Meckling (1976) note that agency costs tend to increase with financial leverage hence a positive relation is expected between voluntary financial disclosure and leverage. Further, the evidence of positive relationship between leverage and voluntary financial disclosure was proved in the empirical studies of Schipper (1981) and Bradbury (1992).
However, Chow and Wong-Boren (1987) and Hossain and Adams (1995) reported no significant relationship. To examine whether financial leverage is a predictor of voluntary financial disclosure, the following set of hypotheses are stated as follows:

$H_{0Leverage}$: There is no significant difference between financial leverage of the company and the extent of voluntary disclosure.

$H_{1Leverage}$: There is significant difference between financial leverage of the company and the extent of voluntary disclosure.

3.2.3. The Proportion Of Assets-In-Place Hypothesis

The Proportion Of Assets-in-Place Hypothesis is developed based on the study of Myers (1977) who considers the value of a firm comprises of two

components, namely, assets-in-place and growth opportunities. His analysis implies that firms with more assets-in-place are likely to have high leverage. Hence, increasing the disclosure of corporate performance will reduce the incentive conflicts between managers and shareholders. Voluntary disclosure is therefore inversely related to assets-in-place.

However, the empirical evidence reported in most previous disclosure studies (e.g. Leftwich et al 1981, Chow and Wong-Boren 1987, Bradbury 1992) does not support this notion. To test empirically the relation between voluntary disclosure and assets-in-place, the third hypothesis is a follows:

$H_{0Assets\text{-}in\text{-}place}$: There is no significant difference between proportion of assets-in-place and the extent of voluntary disclosure.

$H_{1Assets\text{-}in\text{-}place}$: There is significant difference between proportion of assets-in-place and the extent of voluntary disclosure.

3.2.4. The Auditor Hypothesis

Singhvi and Desai (1971) found that larger firms were significantly associated with greater levels of disclosure. DeAngelo (1981) argues that larger firms have incentives to provide high-quality audit services in order to enhance their public reputation as credible monitors and therefore encourage their clients to disclose comprehensive information voluntarily. Empirical evidence supporting the positive relationship between audit firm and voluntary disclosure includes findings from studies such as Singhvi and Desai (1971), Craswell and Taylor (1992), and Hossain and Adams (1995). However, Firth (1979) does not find any significant association between these two variables. To test empirically the influence of audit firm on voluntary disclosure, the fourth hypothesis is as follows:

$H_{0Auditor}$: There is no significant difference between size of audit firm and the extent of voluntary disclosure.

$H_{1Auditor}$: There is significant difference between size of audit firm and the extent of voluntary disclosure.

3.2.5. The Ownership Diffusion Hypothesis

Jensen & Meckling (1976) and Leftwich et al. (1981) note that the increase in agency costs is associated with the increasing level of non-owner management in the firm. The agency costs arise from the separation of the principals (shareholders) from the decision-making function of the firm.

Schipper (1981), Bradbury (1991), Craswell and Taylor (1992) stressed that where a firm's shares are widely held, there is greater separation between the firm's decision-making function and its principals than where the firm's held by relatively small number of shareholders. Hence it is expected that the agency costs of equity will be higher where a firm's shares are widely held and to reduce this agency costs will be through voluntary disclosure. As there is incentive for management of widely held firms to disclose voluntary information, therefore the fifth hypothesis is:

$H_{0Shareholdings}$: There is no significant difference between companies of widely held shareholdings and the extent of voluntary disclosure.

$H_{1Shareholdings}$: There is significant difference between companies of widely held shareholdings and the extent of voluntary disclosure.

3.2.6. The Industry Membership Hypothesis

Watts and Zimmerman (1986), in their study, suggest that a firm's accounting policy choice may be influenced by the sensitivity of the industry to which a firm belongs. Resource-based industry (e.g., oil and gas and mining) is commonly used in prior overseas research as an industry membership hypothesis (Mckinnon and Dalimunthe, 1993; Mitchell et. al, 1995). The development of the industry membership hypothesis in this study is based on that of Tan and Ngan (1991) in which companies were classified according to the sectors they were listed on the KLSE. The industry membership hypothesis is stated as follows:

$H_{0Industry}$: There is no significant difference between industry membership and the extent of voluntary disclosure.

$H_{1Industry}$: There is significant difference between industry membership and the extent of voluntary disclosure.

3.2.7. The NACRA AWARD

The only prior research that, have empirically tested whether corporate reporting by companies commended with awards differed from those not commended was by Low, Koh and Yeo (1995) in Singapore. Low *et al.*, concluded that commended companies have a higher standard of corporate reporting than the non-recommended companies. Further, Tan *et al.*, (1990) agreed that corporate reporting is enhanced with the emergence of the annual corporate report awards. The NACRA Award hypothesis is as follows:

H_{0NACRA}: There is no significant difference in the extent of voluntary cash flow information between companies of NACRA winners and non- NACRA winners.

H_{1NACRA}: There is significant difference in the extent of voluntary cash flow information between companies of NACRA winners and non- NACRA winners.

3.3. Sample Design and Data Collection

The study is basically divided into two main areas, namely the descriptive study on cash flow statement and the determinants of voluntary cash flow information. The second part of the analysis is to ascertain the relationship between voluntary cash flow disclosures and eight firm-specific characteristics such as size, listing status, financial leverage, proportion of assets-in-place, type of audit firm, ownership diffusion, industry membership and NACRA Awards.

3.4. Sample Design and Data Collection – Top 250 KLSE Companies.

The companies covered by this study were selected based on market capitalization ranking as at 31 December 2000. For the descriptive statistics analysis, top 250 companies were used as they represent 92% of the total market capitalisation. Of the top 250 market capitalisation ranking companies, 4 financial institutions were excluded from the sample because they have merged with other financial institutions. Another 3 companies whose shares were suspended from trading were also excluded from sample. Companies that were excluded are subsequently replaced with another 3 companies that

won the Nacra awards and another 11 randomly selected companies from the market capitalisation listing. Hence a final total of 257 companies were used for this purpose.

As an initial step, the annual reports of companies representing the sample size was scrutinized to find out if these companies use direct or indirect method to present their cash flow statements. 2000 year-end annual reports are used as they would be the latest available at the time of study and that would be in compliance with MASB 5.

For the purpose of this descriptive study, voluntary cash flow information are classified into three categories, namely:

1. any form of restrictions on cash and cash equivalent balances
2. information on short-term and long-term borrowings and capital commitments
3. increases in operating cash flow that is separated for operating capacity and maintenance capital

It would be deemed **Partial Disclosure** sample of firms disclosing at least one category of item in the notes to the accounts and **Full Disclosure** sample of firms, which, disclosed all three category of information. As all public listed companies disclose some form of cash flow information apart from the mandatory requirements there was no need for a No Disclosure category. Hence, a comparison can only be made between Partial Disclosure and the Full Disclosure sample of firms.

Whilst a substantial amount of the data required was extracted from the annual accounts that were sourced from the KLSE website, the remaining was sourced from the KLSE library.

3.5. Independent Variables

The cash flow statement which is a mandatory statement for all companies will be observed from the annual reports to ascertain which format was used whether the direct or indirect method. For the purpose of this study, companies using direct method to present the cash flow statements will be coded as 1 and indirect method as 0.

Several hypotheses using the economic incentive approach to determine the characteristics of firms that voluntarily disclose financial information have been put forward in previous empirical researches. The commonly tested characteristics are firm size and financial leverage [Singhvi and Desai (1971), Firth (1979), Chow and Wong-Boren (1987), Hossain and Adams (1995)]. Other variables that have been used include assets-in-place, type of audit firm, ownership diffusion and industry membership to name a few. Measurements of these variables, however, vary across the studies.

3.5.1. Firm Size

Size can be measured in a number of different ways. Variables such as turnover, total assets, number of employees and market value have been used in numerous studies [Firth (1979), Chow and Wong-Boren (1987), Cooke (1989)]. However, only market capitalization is tested positive as an indicator of firm size. Hence, market capitalization is used as a firm size measure and from the study by Tan and Ngan (1991), the dividing line between large and small firms was set at RM 100 million. Large companies (market capitalization exceeds RM100 million) are represented by a dummy variable of 1, and 0 otherwise.

In addition, listing status is also used as an alternative specification of the size hypothesis. Hence, companies listed on the main board of KLSE are coded as 1, and 0 otherwise.

3.5.2. Financial Leverage

Measures used to test the financial leverage hypothesis were varied across overseas studies. Chow and Wong-Boren (1987) used book value of the debt divided by firm size as financial leverage measure. Hossain and Adams (1995) considered the long-term debt to the book value of the owners' equity. A recent study by Chow (2001) quoted Susela's (1998) definition of financial leverage measure which is book value of total debt including provisions for liabilities and charges divided by total shareholders funds.
Thus, the financial leverage variable used for this study follows Susela's (1998) overall debt-equity ratio for Malaysian companies, which, is 66.7%.

Since the dividing line between high- and low-levered firms is set at 66.7%, accordingly leverage is represented by a dummy variable of 1 for companies with high financial leverage, and 0 for companies with low leverage.

3.5.3. Assets-in-Place

The commonly used measure for assets-in-place in prior studies e.g. [Chow and Wong-Boren (1987), Hossain and Adams (1995)] is represented by the ratio of book value of fixed assets (net of depreciation) to the book value of total assets. Hence, the same measure to compute assets-in-place is used in the hypothesis testing purpose.

3.5.4. Type of Auditor

Following the study by Hossain and Adams (1995), a dichotomous variable of 1 and 0 is used to distinguish between companies that employ a big-five audit firm as opposed to companies that do not. The big-five, comprise of Arthur Andersen, Ernst & Young, Kassim Chan, KPMG Peat Marwick, and Price WaterhouseCooper, while the non-big five refers to any other audit firm.

3.5.5. Ownership Diffusion.

Ownership diffusion, is measured using the variable chosen by McKinnon and Dalimunthe (1993) namely the percentage of ordinary shares not held by the top twenty, shareholders. As the percentage of top 20 shareholders is available from the annual report they are deducted from 100 percent to derive the percentage of ordinary shares not held by the top twenty shareholders. For the purpose of this study, the natural logarithm of percentage of the ordinary shares not held by top 20 shareholders is used to evaluate financial disclosure.

3.5.6. Industry Membership

Finally, the development of the industry membership hypothesis is based on Tan and Ngan's (1991) classification into sectors as per KLSE listing. However, due to small observations in certain sectors they have combined related sectors. Following Tan and Ngan, the sampled companies are disaggregated into industry membership according to the sectors they were listed on the KLSE and certain related sectors are also combined for similar reason. Consequently, the final classifications are reduced to seven sectors. They are Consumer Product, Industrial Product, Construction/Infrastructure Project Companies, Trading and Services, Finance, Property/Hotel, and Plantation/Mining

3.5.7. NACRA AWARDS

For the purpose of this study, companies, which won the NACRA Awards, will be coded as 1 and Non-NACRA winners as 0.

3.6. Statistical Tests

The study used both univariate and multivariate tests to examine the hypotheses.

The univariate test was simple Chi-square test conducted to examine whether categorical independent variables, namely type of audit firm and listing status had an impact on the overall level of voluntary disclosure. A dichotomous dummy variable, which, identifies "Partial Disclosure" as 1 and "Full Disclosure" as 0 was used for the dependent variable.

Pearson product-moment correlation coefficients (r) were used to ascertain the correlation between the voluntary disclosure categories and continuous independent variables, namely firm size, financial leverage, assets-in-place, ownership diffusion and industry membership.

A linear regression analysis was used for multivariate test. The multivariate serves to supplement the univariate test and provide an appropriate means of considering the combined effects of independent variables on the extent of voluntary financial disclosure.

For the purpose of statistical analysis, statistical package for Social Sciences (SPSS) is used to test the association of the various independent variables and the dependent variable as outline in this chapter.

3.7. Conclusion

This chapter justifies the methodological framework adopted in this study.The next chapter will present and discuss the results of the statistical tests described in this chapter.