CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The previous chapters have elaborated the research objectives and literature review on dividend policy and factors which influence the dividend payments in public listed companies. This chapter will specify research hypotheses which will be used in identifying the corporate dividend behavior in the case of Malaysian companies.

The next sections would describe the research hypotheses followed by selection and justification of the relevant measures, sampling design, data collection and techniques to be used in analyzing the data.

3.2 Development of Hypotheses

Five hypotheses have been developed in order to examine the relationship between the dividend payments behavior and the factors that may influence the dividend payouts.

3.2.1 Agency Cost Hypothesis

As discussed in the previous chapter, the agency problem occurs because agents may invest in projects which will maximize their own welfare. On the other hand, managers may take actions which are unprofitable and costly to the shareholders. The agency cost hypothesis suggests that dividend payments can alleviate the agency problems (Easterbrook, 1984; Jensen, et al., 1992; Rozeff, 1982).

When cash resources are distributed, then size of internally generated funds available to the agents are reduced; this will force them into the capital markets in order to gain external financing (Easterbrook, 1984; Moh'd, Perry, & Rimbey, 1995). Hence by reducing the agency costs associated with monitoring managers, dividend payments would benefit the shareholders.

Moreover, paying dividends also serve to reduce the free cash flow from being invested in unprofitable projects. By paying large amount of dividends to the shareholders, the funds available to the managers would be reduced; accordingly, the conflict between shareholders and managers would be minimized (Jensen, 1986). The above discussion shows that agency costs play an important role in determining a firm's dividend policy.

Based on the above discussions, this study hypothesizes that:

H_1: There is a positive relationship between dividend payments and agency costs.

3.2.2 The Firm Size Hypothesis

Large firms have a better access to the capital markets and they can easily find funds at a lower cost and are less constrained compared to small firms. Based on a study done by Higgings (1972), large firms are more likely to pay higher dividends to shareholders than small firms because they have more flexibility in raising funds from the capital markets.

As discussed in the previous chapter, size of the firm is another important factor to determine a company's dividend policy.

According to past studies, there is a positive relationship between the dividend payouts and size of the firms (Barclay, et al., 1995; Chang & Rhee, 1990; Fama & French, 2002; Holder, et al., 1998; Lloyd, et al., 1985; Redding, 1997).

This study predicts that there is a relationship between the firm size and the dividend payments among Malaysian public listed companies; hence the following hypothesis can be formed:

H_2: There is a positive relationship between dividend payouts and firm size

3.2.3 The Profitability Hypothesis

Since dividends are usually paid out of annual profits, hence it is logical to take profitability into consideration as another factor that may impact the dividend decisions in a company. According to Lintner (1956), a firm's net earnings is a significant determinant of dividend payments. Moreover, several studies have reported a positive relationship between dividend payments and profitability (Fama & French, 2002; Han, et al., 1999; Jensen, et al., 1992).

On the other hand, there are some evidences from emerging markets that support profitability as one of the most important determinants of dividend decisions. Adaoglu (2000) did a survey in Turkey and found that a firm's earnings is the main factor in setting its dividend policy. Additionally, Aivazian et al. (2003) demonstrated profitability as a significant factor in determining dividend decisions in the emerging markets and in US firms.

Based on the above discussions, it is expected that profitability is a key determinant of corporate dividend policy among Malaysia public listed

companies. Therefore the following hypothesis is proposed:

H_3: There is a positive relationship between paying dividends and profitability.

3.2.4 The Financial Leverage Hypothesis

The relationship between a company's financial leverage and its dividend payout is considered in order to have a more comprehensive sight of the dividend policy determinants. The use of debt financing helps the firm to lever up the shareholders' return on equity. By acquiring debt financing, a firm commits itself to pay fixed financial charges in the form of interest payments and the principal amount. This involves risk, as failure to meet the obligations may lead the firm into liquidation.

A high level of financial leverage consists of risks; therefore, a low level of dividend payments would be expected. Firms have to pay their obligations, so they need to maintain their internal cash flow rather than paying dividends to shareholders. Hence, other things being equal, an inverse relationship between dividend payouts and financial leverage seems to be possible. There are lots of studies that conclude with the same results (Agrawal & Jayaraman, 1994; Bradley, Capozza, & Seguin, 1998; Crutchley & Jensen, 1999; Faccio, Lang, & Young, 2001; Gugler & Yurtoglu, 2003; Jensen, et al., 1992; Nakamura, 1989).

This hypothesis examines the relationship between a firm's debt and the dividend payments in Malaysian public listed companies; thus this study hypothesizes that:

H_4: The relation between dividend payments and financial leverage is negative.

3.2.5 The Growth and Investment Opportunities Hypothesis

As stated in the previous chapter, according to Miller and Modigilani (1961) with the presence of market imperfections, dividend payments and investment opportunities might be related to each other. As firms with higher growth and investment opportunities need to generate funds to invest, they would prefer to pay low dividends. By contrast, there are firms with slower growth which are likely to pay more dividends.

The discussion above is consistent with the free cash flow hypothesis. The free cash flow hypothesis implies that when a company has low investment opportunities, they will have an overinvestment problem. Therefore, they may limit the managers' over investing policy by paying dividends (Jensen, 1986; Lang & Litzenberger, 1989)

In addition, the inverse relationship between growth opportunities and dividend payments is supported by the pecking order theory, as explained in chapter two. The effect of investment opportunity on dividend decisions is affirmed by recent studies. Hypothesis five will examine the relationship between growth and dividend payouts among Malaysian public listed companies, which is as follows:

H_5: There is a negative relationship between dividend payments and growth opportunities.

3.3 Selecting Measures

3.3.1 Dependent Variable

There are different ways to measure dividend payments, namely cash dividends, dividend payout ratio and dividend yield. The cash dividend is the amount of cash distributed to the investors annually. The dividend payout ratio indicates how well is the firm's earning to support the dividend payments. Lastly, dividend yield (DYLD) is the dividend per share (DPS) to market value per share (MPS), i.e.

$$\text{Dividend Yield} = \frac{\text{Dividend per Share}}{\text{Market Value per Share}}$$

$$\text{DYLD} = \frac{\text{DPS}}{\text{MPS}}$$

In this study dividend yield is used rather than dividend payout ratio for two reasons. First, the advantage of using dividend yield is that share price (a market measure) is used as the denominator compared to the net income (an accounting measure). Secondly, dividend yield is preferred to use as a proxy of dividend payments to prevent the problem of negative payout ratio caused by negative earnings and high amount of payout ratios resulting from a small amount of net income (close to zero). There is a large number of researches that employed dividend yield as a measure of dividend policy i.e. (Gaver & Gaver, 1993; Gul, 1999; Han, et al., 1999; S. S. M. Ho, Lam, & Sami, 2004; Redding, 1997)

3.3.2 Independent Variables

3.3.2.1 Agency Cost

As explained in chapter 2, there are three proxies for agency cost based on different studies. First is the dispersion of ownership, which has been used widely in prior studies. The second proxy for agency cost is insider ownership which is the fraction of firm's common stock held by insiders. This measure is commonly used by large number of documents as a proxy of agency cost (Al-Malkawi, 2008; Alli, et al., 1993; Deshmukh, 2005; Holder, et al., 1998; Jensen, et al., 1992; Mollah, Keasey, & Short, 2000).

To generate this variable, the percentage of common stocks held by the general manager or the directors of the company should be calculated.

Since data related to these two proxies was not available in the Bloomberg data base for Malaysian public listed companies from 2005 to 2009, the amount of free cash flow is used to measure agency cost in this study. This proxy is used in studies done previously by Holder (1998) and Henry (2006).

Free cash flow (FCF) is calculated as operating cash flow minus capital expenditures.

FCF= EBIT(1-Tax Rate) + Depreciation & Amortization - Change in NWC -Capex
The amount of free cash flow for a firm was extracted from the Bloomberg terminal.

3.3.2.2 Size

Different measures can be used for firm size such as the number of employees (Ariffin, Poon, & Ainuddin, 1992), sales (Aivazian, Booth, & Cleary, 2003b), total assets (Al-Malkawi, 2008; Alli, et al., 1993; Dhaliwal, Erickson, & Trezevant, 1999; Gaver & Gaver, 1993) and market capitalization (Deshmukh, 2005; Isa, 2000; Mozes & Rapaccioli, 1995). In this research, the natural logarithm of market capitalization (MCAP) was chosen as an indicator for the firm size which is commonly used in prior researches.

Market capitalization (MCAP) is calculated by multiplying a company's shares outstanding (NOSH) by the current market price of one share (MPS), i.e.

$$MCAP = NOSH \times MPS$$

3.3.2.3 Profitability

In this study, earnings per share ratio (EPS) is used to measure the profitability. This had been widely used in other studies as a proxy for a firm's profitability (Al-Malkawi, 2008; Kaufmann, Gordon, & Owers, 2000; R. Kumar & Sopariwala, 1992).

In addition, calculating earnings per share is easy and the concept is familiar to market participants and it is considered as "the market preeminent measure of performance" (Kaufmann et al., 2000, p.219).

Earnings per share (EPS) ratio, is the net income after tax (NIAT) divided by the number of outstanding shares (NOSH), i.e.

$$\text{Earnings per share} = \frac{\text{Net income after tax}}{\text{Number of outstanding shares}}$$

$$\text{EPS} = \frac{\text{NIAT}}{\text{NOSH}}$$

3.3.2.4 Financial Leverage

A large numbers of studies had used debt to equity ratio (DER) as a proxy for financial leverage (Al-Malkawi, 2008). Debt to equity ratio indicates what proportion of equity and debt a firm has used to finance its assets. It is the total debt (TD) or the sum of short term and long term debts, divided by total shareholder's equity, i.e.

$$\text{DER} = \frac{\text{TD}}{\text{Shareholder Equity}}$$

3.3.2.5 Growth and Investment Opportunities

As noted in chapter 2, growth is another key factor that may affects the dividend decisions of a firm. According to prior studies, there are two common proxies to measure the growth and investment opportunities in a firm, i.e. the firm's market to book value ratio (MBR) and price- earning ratio. Here in this study, the market to book value ratio has been chosen as a good proxy of growth because if a firm's market value is greater that its book value, then this company has large growth opportunities. In other words, the higher the market to book ratio, the

greater the growth options, and subsequently, the less likely the firms would pay dividends to finance its growth. This proxy has also been used extensively in other studies (Aivazian, Booth, & Cleary, 2003a; Al-Malkawi, 2008; Barclay, et al., 1995; Cleary, 1999; Deshmukh, 2005; Travlos, Trigeorgis, & Vafeas, 2001).

MBR is the ratio of a firm's market value per share (MPS) to its book value per share (BV), where BV is the ratio of total shareholders' equity to the number of shares outstanding, i.e.

$$\text{Market to book value ratio} = \frac{\text{Market value per share}}{\text{Book value per share}}$$

$$\text{MBR} = \frac{\text{MPS}}{\text{BV}}$$

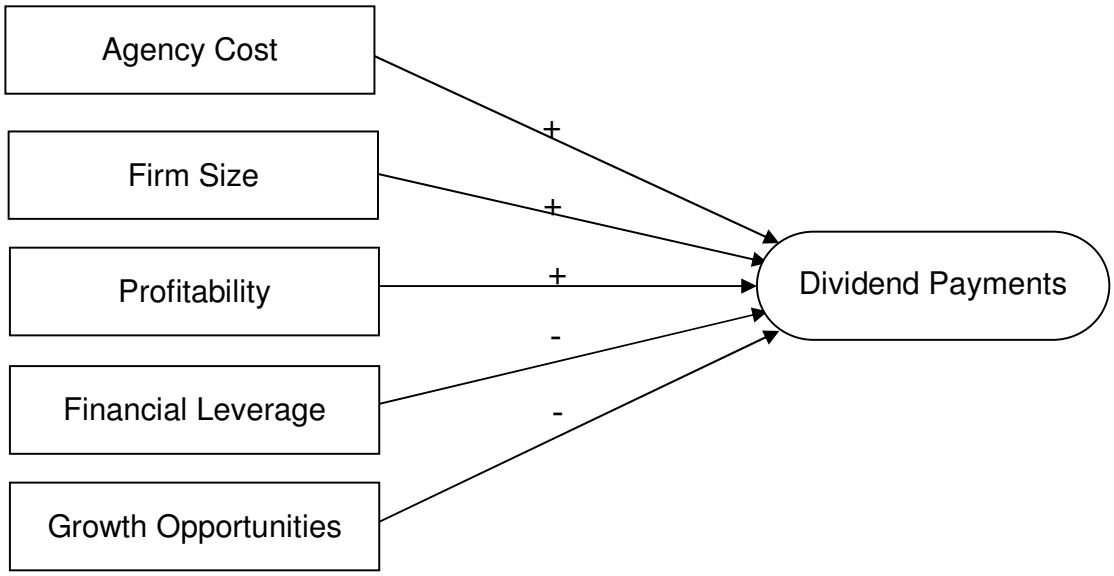
The summary of the hypotheses and proxies for each variable is presented in Table 3.1 below.

Table 3. 1:

Summary of research hypotheses and proxy variables

Hypothesis	Proxy	Expected Sign
H1: Agency Cost	Free Cash Flow (FCF)	Positive
H2: Firm Size	Natural logarithm of market capitalization (MCAP)	Positive
H3: Profitability	Earnings per share (EPS)	Positive
H4:Financial Leverage	Debt to equity ratio (DER)	Negative
H5:Growth Opportunities	Market to book value ratio (MBR)	Negative

3.4 Research Framework



3.5 Sampling Design

The population of this study is public listed companies on the Bursa Malaysia for the years 2005-2009. A five year period was chosen to smooth out any short term variations in variables and to get a representative value for the variables.

As there are different subgroups within the population the stratified random sampling has been used to select companies based on industries.

Stratified random sampling involves the process of stratification, followed by simple random selection of subjects from each stratum.

First the percentage of members from each stratum should be calculated by

dividing the sample size to the total number of population, and then the subjects are selected in proportion to their original numbers in the population using simple random sampling (Saunders, Lewis, & Thornhill, 2009; Sekaran, 2006).

Simple random sampling is basic technique of selecting data. In this method each element of population is selected randomly and has an equal chance to be chosen (Saunders, et al., 2009; Sekaran, 2006).

The total number of public listed companies in Bursa Malaysia is currently 978. The criteria for selecting samples is as follows: finance related companies (banks, insurance companies, unit trusts closed-end funds) are excluded since these companies are governed by different rules and their financial reporting standards are different, and utility corporations (electricity, gas and water) have also been excluded because they have regulated payout policies (Adaoglu, 2000; Pandey, 2001; Zunaidah & Fauzias, 2008). As the purpose of this study is to identify factors that influence dividend decisions, therefore a firm must have paid dividends at least once during the financial year 2005-2009, to be included in the sample (Appannan & Sim, 2001; Baker, Veit, & Powell, 2001).

Finally, 821 public listed companies remain as a population of this study. Based on Krejcie and Morgan's (1970) table for determining adequate sample size (this table is reported in appendix A), for a given population of 821, a sample size of 263 will be needed at a 95 confidence level (Saunders, et al., 2009; Sekaran, 2006).

3.6 Data Collection

After determining the sample size, data was extracted from the Bloomberg terminal. Bloomberg Industry Classification System (BICS) has been used in this study as it has named all the tickers.

Based on the BICS classification and referring to the criteria for selecting the samples, eight industries were studied, namely basic materials, communication, consumer cyclical, consumer non- cyclical, diversified, energy, industrial and technology.

According to the stratified random sampling method, the proportion needed from each of these industries is as follows:

$$\text{Percentage from each industry} = \frac{\text{Sample Size}}{\text{Total Population}}$$

$$= \frac{263}{821} \approx 32\%$$

Table 3.2 below indicates the number of firms chosen from each industry based on the BICS classification.

By using simple random sampling, the required number of firms from each industry has been chosen to reach to the desire number of samples.

Table 3. 2

Number of samples from each industry

Industry	Number of Elements	Number of Samples (32% of the elements)
Basic Materials	73	23
Communication	36	12
Consumer Cyclical	137	44
Consumer Non Cyclical	159	51
Diversified	25	8
Energy	23	7
Industrial	300	96
Technology	68	22
Total	**821**	**263**

3.7 Data Analysis Techniques

There are 263 cases available and the data base would generate including all financial data for each firm. The sample includes 263 companies from the different industries; therefore the number of observations for each industry is different. Rather than applying a pure time series or cross section method, pooled time series- cross-section (TSCS) panel data is used in order to have maximum possible observations. The panel data have N×T observations, where N is cross sectional number of firms in the sample and T is time period.

The general regression model in panel data is as follows:

$$Y_{i,t} = \alpha_i + \beta x_{i,t} + e_{i,t}$$

where: β are parameters to be estimated, $x_{i,t}$ are explanatory variables and α_i is the firm effect which is constant over time and specific to cross sectional units in fixed effect model, while it is disturbance in random effect model to individual cross sectional. $e_{i,t}$ is a error term with zero mean and constant variance.

Pindyck and Rubinfeld (1998) stated that panel data are more proficient to identify and measure effects that cannot be distinguished in pure cross-section or pure time- series data. Besides, panel data give more informative data, more variability and also it helps to reduce collinearity among the variables, as well as providing more degrees of freedom and more efficiency (Baltagi, 1995).

The merit of a panel data over cross section data is the flexibility of modeling the differences in behavior across individuals (Greene & Zhang, 2003).

Moreover, the measurement biases resulting from omitted variables can thus be diminished by using panel data.

The panel data techniques have been used frequently in prior studies to examine corporate dividend policy. For example it has been used by (Adaoglu, 2000; Al-Malkawi, 2008; Benito & Young, 2003; Gugler & Yurtoglu, 2003; H. Ho, 2003; Omet, 2004; Pandey, 2001; Trojanowski, 2004).

The sample included 1315 firm-year observation (263 firms multiple by the 5 year period and the panel data is presented in appendix D). The number of firm-year observations is not the same for all variables, meaning that the panel data is unbalanced due to missing data for some variables.

The model of the panel data that will be evaluated in this study is as follows:

$$Dividend\ Yield_{it} = \alpha + \beta_1 (Agency\ costs_{it}) + \beta_2 (Firm\ size_{it}) + \beta_3 (Profitability_{it}) + \beta_4 (Financial\ leverage_{it}) + \beta_5 (Growth\ opportunity_{it}) + e_{it}$$

where: α is intercept term and e_{it} is a error term for firm i in period t.

As stated earlier, in this study *EViews version 7* is used to perform all statistical analyses.