CORPORATE GOVERNANCE IN SIMULTANEOUS MODELLING OF CASH HOLDINGS AND LEVERAGE

ISAM HAMAD SALEH

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CORPORATE GOVERNANCE IN SIMULTANEOUS MODELING OF CASH HOLDINGS AND LEVERAGE

By
ISAM HAMAD SALEH

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ABSTRACT

This study investigates the simultaneity of cash holdings and leverage decisions in the presence of ownership and board structures using all listed companies in the Main Market of Bursa Malaysia over a three-year period from 2008 to 2010. Five measures of ownership structures are identified: family, business group, foreign, private domestic institutional investors, government link investment companies (GLICs), and state. Four characteristics of board of directors are specified: board size, board independence, managerial ownership, and CEO duality. The study opted for two stage least squares (2SLS) to estimate the regression models. This is among the earlier studies in Malaysia to consider simultaneity of cash holdings and leverage decisions using 2SLS as an estimation technique. The result showed cash holdings and leverage affect each other negatively. Business group, foreign ownership, board size and CEO duality affect cash holdings and leverage positively while state affects cash holdings and leverage negatively. However, private domestic institutional investors only affect cash holdings positively while GLICs have a positive relationship with leverage. The results did not change when three stage least squares (3SLS) method was used. The major contributions of this study are one, the consideration of both leverage and cash holdings decisions must be done simultaneously and two, policy makers should focus on improving board independence to better protect minority shareholders as this will enhance investors' confidence to invest in a concentrated ownership environment such as Malaysia.

Keywords: cash holdings, leverage, ownership structure, board of directors, 2SLS.

ABSTRAK

Kajian ini meneliti pemilihan keserentakan pegangan tunai dan laveraj terhadap struktur kepemilikan dan lembaga syarikat-syarikat yang tersenarai dalam Pasaran Utama Bursa Malaysia selama tiga tahun dari 2008 hingga 2010.Lima ukuranstruktur kepemilikan telah dikenal pasti: keluarga, kumpulan perniagaan, pemilikan asing, pelabur institusidomestik sektor swasta, syarikat pelaburan berkaitan kerajaan dan pemilikan negeri.Empat ciritadbir urus lembaga pengarah telah ditentukan: saiz, tahap kebebasan, pemilikan pengurusan dan dwi-jawatan ketua pegawai eksekutif.Kajian ini menggunakan Kaedah Kuasa Dua Terkecil Dua Peringkat (2SLS) bagi penganggaran model regresi.Ini merupakan antara kajian terawal di Malaysia yang melibatkan pemilihankeserentakan pegangan tunai dan laveraj menggunakan 2SLS sebagai kaedah penganggaraan.Dapatan kajian menunjukkan pegangan tunai dan laveraj mempunyai hubungan negatif antara satu sama lain.Kumpulan perniagaan, pemilikan asing, saiz lembaga dan dwi-jawatan ketua pegawai eksekutif mempunyai hubungan positif dengan pegangan tunai dan laveraj manakala pemilikan negeri mempunyai hubungan negatif dengan pegangan tunai dan laveraj.Walau bagaimanapun, pelabur institusi domestik sektor swastahanya mempunyai hubungan positif dengan pegangan tunai manakala syarikat pelaburan berkaitan kerajaan hanya mempunyai hubungan positif degan laveraj.Hasil kajian tidak berubah setelah kaedah Kuasa Dua Terkecil Tiga Peringkat (3SLS) dijalankan.Sumbangan utama kajian ini adalah pertamanya, kedua-dua pemilihan laveraj dan pegangan tunai perlu dipertimbangkan secara seiring, dan keduanya, pihak pembuat dasar perlu lebih fokus dalammenambah baik tahap kebebasan lembaga bagi melindungi pemegang saham minoriti kerana ini akan meningkatkan tahap keyakinan mereka supaya terus melabur dalam persekitaran amalanpemusatan pemilikan seperti Malaysia.

Kata kunci: pegangan tunai, laveraj, struktur kepemilikan, lembaga pengarah, 2SLS.

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LIST OF ABBREVIATIONS

CEO	Chief Executive Officer
GLICs	Government-Linked Institutional Investors
OLS	Ordinary Least Squares
SMEs	Small Medium Enterprises
2SLS	Two Stage least Squares
3SLS	Three Stage least Squares
UAE	United Arab Emirates
UK	United Kingdom
US	United States
VIF	Variance Inflation Facto

CHAPTER ONE
BACKGROUND OF STUDY

1.0 Introduction

This chapter starts with background of corporate finance and corporate governance. Section 1.2 examines the problem statement of the study. Section 1.3 identifies the research questions. Section 1.4 determines the research objectives of this study. Section 1.5 examines the scope of the study. Section 1.6 discusses the significance of this study. Section 1.7 presents structure of the thesis.

1.1 Background

Corporate finance and corporate governance are closely related. Corporate finance deals with investment and financing decisions of a firm while corporate governance is concerned with protecting interests of all parties associated with the firm.

1.1.1 Cash Holdings and Leverage Decisions

In corporate finance, there are three important financial decisions: 1) the capital structure decision (how to acquire the money), 2) the working capital decision (the management of short term assets and liabilities), 3) the capital budgeting decision (where to invest). This study focuses on capital structure (leverage) and working capital (cash holdings).

Cash holdings are one of the major financial decisions made by managers. In occurrence of inflow of cash, a manager must decide whether to distribute the cash

as dividends to shareholders, repurchase shares or invest for future needs. A number of studies examine the determinants of corporate cash holding (Opler, Pinkowitz, Stulz & Williamson, 1999; Dittmar, Mahrt-Smith & Servaes, 2003; Chen & Chuang, 2008).

Three main theories are suggested by theoretical finance literature to explain the reasons for firms to hold cash. Firstly, with regard to the separation of control and ownership, it has long been recognized as a source of agency problems between managers and shareholders in a firm. Jensen and Meckling (1976) and Jensen (1986) state that managers tend to focus on having large cash reserve to pursue their own benefits. On the other hand, the study by La Porta, Lopez-De-Silanes and Shleifer (1999) concludes that because of highly concentrated ownership in Asian firms, controlling shareholder attempts to maximize their own benefits. This creates a conflict between majority and minority shareholders (Shleifer & Vishny, 1997). Secondly, the information asymmetry theory, which is closely related to the pecking order theory, describes cash as a main source for financing. Thirdly, trade off theory weights the benefits and costs of holding cash by identifying optimal level of cash holding (Kim, Mauer & Sherman, 1998). The main benefit related to cash holdings includes reducing the likelihood of financial distress (Keynes, 1936). Moreover, Ferreira and Vilela (2004) declare that holding cash would help reducing the costs of increasing external funds.

Capital structure is considered as one of the most studied aspects in modern corporate finance as it is an important decision for management to ensure the

balanced financial condition of any firm (Nadaraja, Zulkafli & Mansron, 2011). Generally, there are three widely held theories as basis for explaining capital structure decision. Firstly, under agency theory, creditors would monitor the actions of majority shareholders and the action of managers. Jensen (1986) suggests that leverage could be used to reduce the agency costs. Secondly, under information asymmetric, Myers and Majluf (1984) state that leverage reduces the problems that are caused by information asymmetry. It could also be used as a signal to outside investors about the future prospects of a debt-issuing firm (Ross, 1977). Thirdly, according to tax saving theory, by raising debt the firm has important advantage as interest payments are treated as tax deductible expenses.

Focusing on the relationship between leverage and cash holdings, leverage has a central impact on shaping firms' cash policies (John, 1993). Opler *et al.* (1999) point out that the variables affecting the cash holdings are similar to those affecting leverage. Guney, Ozkan and Ozkan (2007) declare that firms at high levels of leverage are more likely to face financial distress. Therefore, firms are likely to accumulate large cash holdings, as cash reduces financial distress and the risk of costly bankruptcy. Therefore, it is important to estimate the relationship of these two variables, cash holdings and leverage, simultaneously.

1.1.2 Corporate Governance

Corporate governance has been defined in several ways. It is defined by Morin and Jarrell (2001) as the framework that controls and safeguards the interests of relevant players in the market including managers, shareholders, customers' employees,

board of directors and suppliers in the market. The Organization for Economic Cooperation and Development (OECD, 2004) defined corporate governance as a set of practices and rules which is governing the relationships between the shareholders and managers of any corporation, also the stakeholders for example creditors and employees, which are participating in the financial stability and growth through supporting economic efficiency and financial market integrity, as well as market confidence.

This research considers two main areas that play a crucial role in corporate governance system, which are ownership and board structures. Ownership structures are a part of corporate governance mechanisms commonly found in business organization in the world. In the USA, Anderson and Reeb (2003) reported that one-third of S&P 500 firms can be classified as family controlled. In Europe and East Asia, concentrated ownership in the form of family control or government control of public firms is common. Prior studies have illustrated that the firms in East Asian countries are controlled by families and large shareholders (Claessens, Djankov & Lang 2000; Chang, 2003). As ownership concentration increases, large shareholders play an important role in monitoring the company's manager and this might lead to the increase of type two agency problems between majority and minority shareholders (Shleifer & Vishny, 1997).

Boards of directors play important role such as monitoring managers actions, protect minority shareholders interests and providing strategic direction (Hermalin & Weishbach, 2003; Denis & McConnell, 2003). The primary board structures that

have been focused in past studies are board size, board independence, board insider, and CEO duality (whether the CEO and chairperson positions are held by the same individual).

1.1.3 Corporate Governance, Cash Holdings and Leverage

Prior research examines the effect of corporate governance mechanisms on cash holdings (Ozkan & Ozkan, 2004; Kusnadi, 2011) and capital structure decisions (Gull, 1999; Driffield, Mahambare & Pal, 2007). There are various disadvantages of holding large cash balance. Agency theory suggests that managers tend to increase the cash reserve under their control to pursue their own benefits. Thus, agency problems lead to an erosion of shareholders protection. Harford, Mansi and Mazwell (2008) demonstrate that agency problems indicate poor corporate governance. Hence, corporate governance is very important to explain cash holding. This is demonstrated in the studies of Ozkan and Ozkan (2004) and Ditmar and Mahrt-Smith (2007) who show that corporate governance has an effect on cash holdings.

Corporate governance also has been identified as one of decisive factors that impinge upon the firm's capital structure decision (Delcoure, 2007). Zou and Xiao (2006) conclude that corporate governance has a leading role in capital structure. Based on Malaysia corporate governance scenario, this study focuses on the effects of corporate governance mechanisms (ownership and board structures) on the simultaneous relationship of cash holding and leverage policies.

Many firms around the world are controlled by families (Burkat, Pannunzi & Shleifer, 2003). Malaysia is no exception. Malaysian firms are characterized by high levels of ownership concentration. Claessens and Fan (2002) find that Malaysian firms are characterized by high degree of ownership concentration including families, government, and other institutions such as foreign and domestic investors. According to Abdullah (2006), 36 percent of the shares are held by large shareholders in Malaysian firms. Ngui (2002) finds that more than half of Malaysian firms are controlled by families. Large and concentrated ownership may lead to agency problems between majority and minority shareholders (see La Porta *et al.* 1999; Firth, Fung & Rui, 2007). High concentrated ownership might lead to poor corporate governance as large shareholders might expropriate the minority shareholders.

Furthermore, families could extend their control through business group, in which case firms affiliated with a business group are linked by common ownership. This group of firms which is controlled by a single family is known as family business group (Almeida & Wolfenzon, 2006). Scrutinizing firm ownership in twenty seven countries, La Porta *et al.* (1999) conclude that various firms are usually controlled by families using pyramid structures. Some of the popular corporations which are counted as a part of family business group are: Hutchison Whampoa (Hong Kong), Fiat (Italy), News Corp (Australia), Samsung (South Korea), Ford (United States) and Overseas Chinese Banking Corp (Singapore). These firms are among the largest fifteen firms in their markets, in terms of total assets. In Malaysia, families might own several related companies. As an example, Yeoh Tiong Lay's family is a

majority owner in YTL, YTL Power, YTL Cement, YTL Industries, YTL Land and Development, and YTL E-solution. Figure 1 show the pyramidal structure for Yeoh Tiong Lay's family ownership. In this case, YTL family could have more than 50% control of the company, or what is commonly known as control rights, while cash flow rights is less than 50%. As an example, YTL Corporation Berhad control rights in YTL E-solution Berhad is 74.12% while its cash flow rights is 39.07%. Since there are many family related business groups in Malaysia, a study to look at their effect on cash holding and leverage is warranted.

Concentrated ownership in the form of government control is highly common in Asia. According to Xu and Wang (1999), the ownership of many listed Chinese companies is heavily controlled by the Chinese government. The same situation exists in Malaysia as the government has a central role in corporate monitoring by creating seven companies under its control known as government linked investment companies (GLICs). GLICs include Permodalan Nasional Bhd (PNB), Employees Provident Fund (EPF), Khazanah Nasional Berhad (KNB), Lembaga Tabung Haji (LTH), Lembaga Tabung Angkatan Tentera (LTAT), Kumpulan Wang Amanah Pencen (KWAP), and Menteri Kewangan Diperbadankan (MKD). GLICs are monitored by agencies or ministries under the federal government. Since GLICs play a major role in monitoring firms, the effects of their ownership on cash holdings and leverage decisions could be significant.

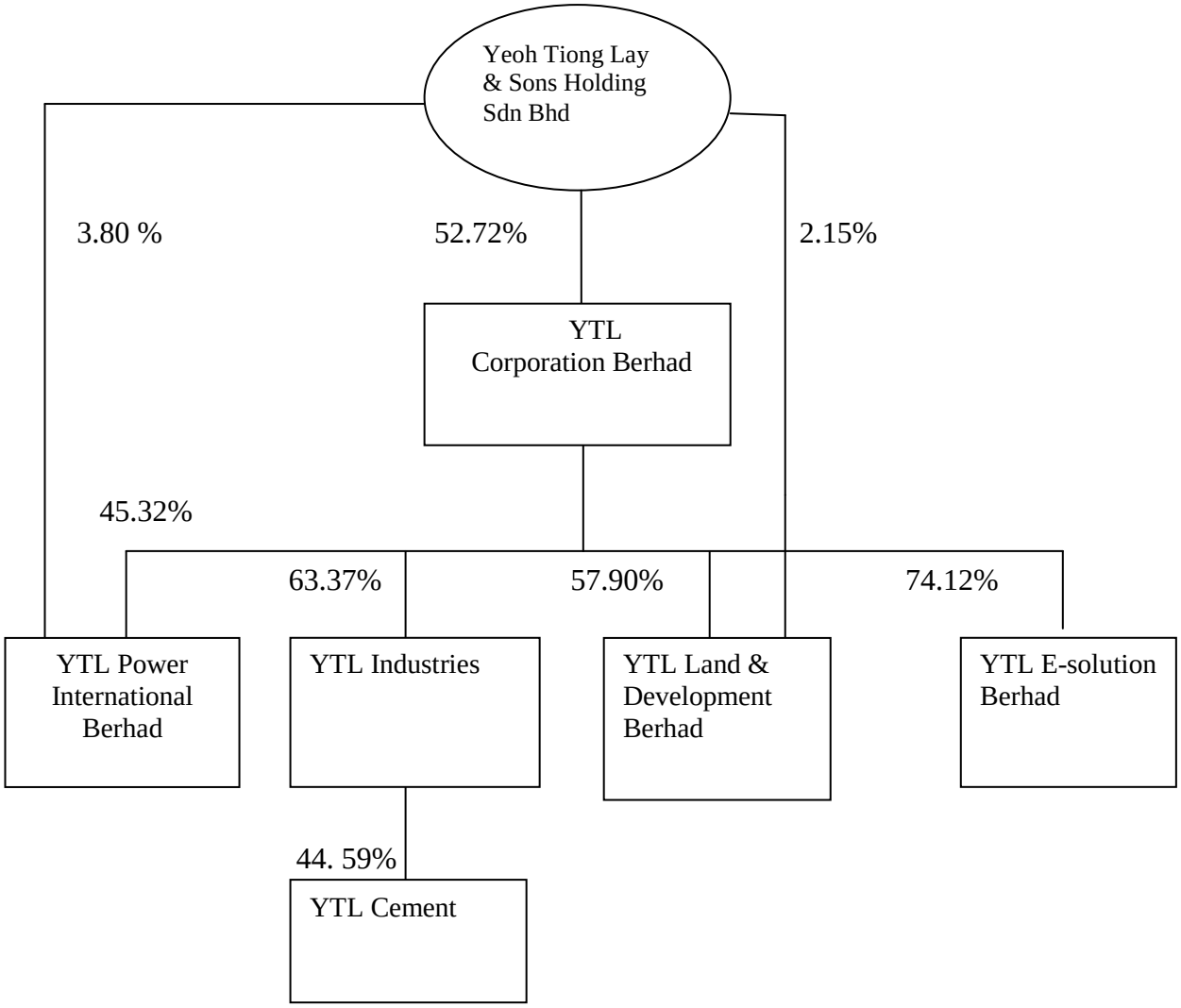

Figure 1.1

Control Via Pyramidal Structure for Yeoh's Family Ownership.

Furthermore, board of directors has a clear role within the corporate governance mechanism in Malaysia. It plays a very important role in managing the firm and its operation strategies. It is also responsible for financial decisions like cash holdings and leverage. However as most firms in Asia is controlled by families and large

shareholders, this creates the agency problem between majority and minority shareholders (Claessens *et al.*, 2000). Therefore, board of directors could influence cash holding and leverage through board structure.

1.2 Problem Statement

Most of the literature concludes that the study of cash holdings are needed when a company holds huge amounts of cash relative to its assets. Mikkelson and Partch (2002) and Dittmar *et al.* (2003) argue that the important benefit of holding cash is to improve the firm's value by increasing its abilities to undertake valuable investments. Moreover, holding cash help to avoid excessive cost of external financing. However, managers try to pursue their own interests by holding large amount of cash that are not in their shareholders' best interest. In Malaysia, many listed firms tend to hold large amount of cash (Malaysia Business, 2009) which might increase agency problems. Myers and Rajan (1998) declare that managers can turn cash into private benefits at a lower cost compared to any other asset.

In prior studies of cash holdings, researchers use leverage as one of the determinants in influencing of the level of cash holdings. Leverage could reduce the conflict between managers and shareholders. According to John (1993), as leverage acts as a proxy for their ability to issue debt, firms can use leverage as a substitute for holding cash. Hence, leverage has a distinctive impact in shaping a firm's cash policies (Guney *et al.*, 2007).

Agency cost theory suggests that leverage could be used to reduce agency problems that linked with cash holdings. On the other hand, information asymmetric theory suggests that holding cash could help managers to avoid the high cost of external financing. Graham and Harvey (2001) find that cash holdings affect leverage negatively as holding higher cash would reduce the financial distress. These theories presume that cash and leverage are simultaneously determined. Therefore, it is worthwhile to study the relationship between cash holding and leverage simultaneously.

Opler *et al.* (1999, p.44) admit that an important limitation in their study by stating that:

> *''…because the determinants of cash are so closely related to the determinants of debt in our analysis, it is important in future work to figure out, both theoretically and empirically, to what extent cash holdings and debt are two faces of the same coin…''.*

This statement shows that cash holding and leverage are interrelated, and a firm may determine the level of cash holdings and leverage simultaneously.

During 1997 and 1998 financial crises of East Asian countries, weak corporate governance is repeatedly have been reported as one of the major reasons. After that, corporate governance has become an important policy matter in various Asian countries including Malaysia. Several studies have found that corporate governance

mechanisms, which include ownership and board structures, affect cash holding and leverage policies (Abor 2007; Chen, 2008; Kusnadi, 2011 & Delcoure, 2007). Therefore, it is relevant to focus on large or concentrated ownership and board structures, as they represent the characteristics of Malaysian corporate governance system (Claessens & Fan, 2002; Suto, 2003; Abdullah, 2006).

According to Rachagan (2006), due to highly concentrated ownership in Malaysia, the agency conflicts between majority and minority shareholders are more relevant and highly concentrated ownership structures could lead to a weakness in corporate governance (Hashim & Devi, 2008). Corporate governance in Malaysian companies is traditionally influenced by families' ownership. Rachagan and Satkunasingam (2009) state that 72 percent of the companies in Malaysia are under family control while Himmelberg, Hubbard and Love (2004) state that 60 percent of the Malaysian firms have ownership concentration.

Jensen and Meckling (1976) argue that family controlled firms hold excess cash in their firms. Kuan, Li and Chu (2010) state that agency problems are high in family control firms as they tend to use their power to pursue their own benefits. On the other hand, Driffield, Mahambare and Pal (2007) investigate whether ownership concentration impinged on the capital structure decision and find that family ownership affects the firm's leverage positively in four Asian countries including Malaysia. In contrast, Daily and Dollinger (1992) state that family firms are more risk averse and thus are more reluctant to employ debt and they find that family ownership affects negatively on leverage.

Additionally, as a part of family pattern, business groups are one of the major ownership features of private sector of several emerging and developed markets. Almeida and Wolfenzon (2006) suggest that several companies are usually controlled by families via business group structure. La Porta *et al.* (1999) and Jong, Dejong, Hege and Mertens (2010) state that business groups are most commonly formed through family or large shareholder. Johnson, La Porta, Lopez-De-Silanes and Shleifer (2000) state that large shareholders tend to increase their wealth by using tunneling, where resources are transferred out of their controlled firms. Consequently, tunneling would increase agency problem between majority and minority shareholders by increasing the ultimate control rights of large shareholders through business group (Baek, Kang & Lee, 2006). This creates a problem in Malaysian firms since these structures give a chance for the families or the large shareholders to maximize their private benefits of control (Thillainathan, 1999). Accordingly, it allows majority shareholders to exploit the minority, creating conflict between them. Therefore, the issue of weak corporate governance may create agency problems and lead to large cash holdings and low leverage.

Kusnadi (2007) examines the relationship between corporate governance mechanisms and cash holdings. He finds that family ownership and business group affect negatively on cash holdings. Deloof (2001) shows that business group affects cash holdings negatively. In addition, Pinkowitz and Williamson (2001) examine the effects of bank power on the amount of cash held and report that Keiretsu membership affects negatively on cash holdings. Hoshi, Kashyap and Scharfstein (1990) and Manos, Murind and Green (2007) examine the relationship between

leverage and business group and conclude that the optimal leverage in business groups are higher than that in stand-alone firms. They find that business group is positively related to leverage.

Government ownership, state and institutional investors such as foreign and domestic institutional investors play a crucial role in corporate governance system by monitoring managerial actions and reducing the agency problems. The findings of empirical evidence on the effect of government ownership and state on cash holdings and leverage such as studies by Paskelian, Bell and Nguyen (2010) and Sun and Wang (2011) find that government and state ownerships are related to higher cash holdings. On the other hand, Megginson and Wei (2010) and Chen, Li, Xiao and Zou (2012) find that government and state ownerships lead to lower cash holdings. Gul (1999) finds that government and state ownerships affect leverage positively while Su (2010) finds that there is no relationship between government ownership and leverage. Meanwhile, empirical evidence suggests that foreign and domestic institutional investors have mixed effects on cash holdings (Mian & Nagata, 2013; Brown, Chen & Shekhar, 2012; Al-Najjar & BinSaddig, 2013) and leverage (Zou & Xiao, 2006; Ezeoha & Okafor, 2010).

In such an environment, good corporate governance mechanisms could alleviate the problems created by the conflict of interest between the majority and the minority shareholders. Hermalin and Weisbach (2003) regard the board as a part of the effective solution to the contract problem between minority shareholders and managers. To mitigate agency problems, corporate governance mechanisms such as

board of directors play an important role over corporate cash holdings (see for example, Dittmar & Marht-Smith, 2007). This study focuses on four variables for board structures. Lee and Lee (2008) investigate the relationship between cash holdings and corporate governance structures in five ASEAN countries (Philippines, Malaysia, Thailand, Indonesia and Singapore). They find that the firms which are having larger boards, high board independence, and lower expected managerial entrenchment have lower cash holdings.

Ozkan and Ozkan (2011) state that the independent directors could reduce information asymmetric problems between firms and other investors, and thus, increase the firm's ability to acquire funds externally. Desai, Kroll and Wright (2005) argue that independent board monitoring control can offer improve shareholder protection and enhance family business performance. Harford *et al.* (2008) find negative relationship between board compositions such as board independence and board size on corporate cash holdings.

Jensen and Meckling (1976) state that managerial ownership minimizes the benefits for value devastating actions; their results suggest managerial ownership affect cash holdings negatively. Meanwhile, Ozkan and Ozkan (2004) document that the relationship between managerial ownership and cash holdings are non-monotonic. In the US, Papaioannou, Strock and Travlos (1992) find that managerial ownership is not significantly related to cash holdings.

Kusnadi (2007) examines cash holdings of Malaysian firms and suggests that board size, independent directors, and CEO duality affect cash holdings. He finds that board size and CEO duality are positively related to cash holdings, and independent directors have negative relationship with cash holdings.

Board structure also has been found to influence financial leverage decisions of firms in different studies. Liang and Zheng (2005) show that board characteristics have significant impacts on capital structure. Pfeffer and Salancick (1978) find that board size is positively related with leverage. Berger *et al.* (1997) and Ahmadpour (2011) conclude that larger board size is related with low leverage. Further, Jensen (1986) finds that independent directors affect negatively on leverage. Brailsford, Oliver and Pua (2002) find a positive relation between outside blockholders and debt levels in Australia. Kumar (2005) finds that firms in India with higher independent directors or lower institutional investors will have lower debt level.

Bokpin and Arko (2009) find that managerial ownership, foreign ownership and board size are positively related with leverage. However, the authors find the relationship between independent directors and CEO duality is not significantly related to leverage. In Pakistan, Hasan and Butt (2009) review effects of corporate governance on leverage using fifty eight non financial firms from 2002 to 2005. Their measure of corporate governance consists of board size, board independence, CEO duality, managerial shareholding and institutional shareholding. The results show that corporate governance variables play an important role in determining leverage**.**

Friend and Lang (1988) argue that managerial self-interest affects capital structure decisions, which suggest that insider shareholding affect leverage negatively. Moreover, Kumar (2005) finds no significant relationship between managerial ownership and capital structure. Ahmadpour (2011) finds the relationships between non-executive directors and CEO duality on leverage is insignificant.

Concentrated ownership is prevalent characteristics of the Malaysian corporate governance system (Abdullah, 2006). Furthermore, concentrated ownership will raise potential agency problems as these large shareholders have incentive to expropriate wealth from their firms especially during economic downturn. Literature to date report mixed results on the relationship between cash holdings and leverage. Furthermore, the relationships between the corporate governance mechanisms (ownership and board structures) and cash holdings and leverage are not clear. Therefore, this study attempts to fill in the gap by examining the relationships between corporate governance mechanisms and cash holdings and leverage using simultaneous equation modelling.

1.3 Research Questions

In order to achieve the research objectives, the following research questions are investigated:

1) Is there any simultaneous relationship between cash holdings and leverage?

2) Is there any relationship between ownership structures and cash holdings?

3) Is there any relationship between ownership structures and leverage?

4) Is there any relationship between board characteristics and cash holdings?

5) Is there any relationship between board characteristics and leverage?

1.4 Research Objectives

The main objective of this study is to determine if the corporate governance mechanisms (ownership structures: family ownership, business group, foreign investor, private domestic institutional investor, state ownership, and government link investment companies (GLICs); and board structures: board size, board independence, managerial ownership and CEO duality) have an impact on cash holdings and leverage policies for a sample of public listed companies in Malaysia. In order to investigate these relationships, the following specific objectives are examined:

1) To examine the effects of cash holdings and leverage on each other.

2) To examine the relationship between ownership structures and cash holdings.

3) To examine the relationship between ownership structures and leverage.

4) To examine the relationship between board characteristics and cash holdings.

5) To examine the relationship between board characteristics and leverage.

1.5 Scope of the Study

The scope of this study is to examine the impact of corporate governance on corporate cash holdings and leverage simultaneously on Malaysian listed companies.

This study examines the data of 674 companies listed on Bursa Malaysia over the period from 2008 to 2010. The period from 2008 to 2010 is selected because it comes after issuing the revised Malaysian Code on Corporate Governance (MCCG 2007). In addition, this period covers the period of global financial crises. The focus of this study is to investigate the effect of corporate governance mechanisms, which include ownership and board structures, on cash holdings and leverage policies in Malaysia. Ownership is measured by using different types of ownership structures, i.e., family, business group, foreign investors, private domestic institutional investors and government link investment companies (GLICs) and state. The board structures are measured by using four types of board structures, which are board size, board independence, managerial ownership and CEO duality. Furthermore, the study seeks to provide an empirical analysis of significant variables in determining corporate cash holding and leverage in Malaysia.

1.6 Significance of the Study

The current paper contributes to extend the scope of finance and accounting literature. It provides an additional insight into the influence of corporate governance mechanisms on cash holdings and financial leverage decisions on Malaysian listed companies.

This research investigates the simultaneous effect of leverage on cash holdings, as large amount of cash leads to higher agency cost and lower return and one way to reduce agency cost is through optimal amount of leverage. However holding large amount of debt might increase the risk of costly bankruptcy. This problem could be mitigated by using optimal amount of cash. Therefore, the first major contribution of

the study is to examine the relationship between cash holding and leverage simultaneously as it could help firms to improve their value and meet investor's expectations.

In general, it has been shown that corporate governance has an important role in explaining the financial decision such as corporate cash holding and leverage. The second main contribution of this research is to investigate the role of concentrated ownership on cash holdings and leverage policies. Since most Malaysian firms are traditionally governed by families, this might increase the agency cost and serve the families' interests. Thus, it is important to study the effect of family ownership on cash holdings and leverage policies in Malaysian firms. Besides, in Malaysia's business environment, families or large shareholders tend to control their firms via business group. This structure allows the families or the large shareholders to choose strategies that would fulfill their own benefit at the expense of minority shareholders. This study extends the previous studies by examining the effect of business group on cash holdings and leverage policies.

Additionally, many Malaysian firms are controlled by large shareholders such as GLICs, state, foreign investors, and private domestic institutional investors. A distinct feature of Malaysian's capital market is the prevalence of GLICs and state ownership, which have emerged as powerful institutions that play a very significant role in corporate governance. They are also considered as an important force in protecting minority shareholder's interest. The seven GLICs are among the largest institutional funds in Malaysia. This study attempts to examine the effect of the

GLICs and state ownership on cash holdings and leverage policies. Javid and Iqbal (2008) state that strong institutional framework such as domestic and foreign investors would help in better management of corporations and development of capital markets. Thus, in Malaysia, Hashim and Devi (2008) acknowledge that there is of lack of evidence which describes the role of institutional investors on corporate decisions. Therefore, by conducting such a study in Malaysia with its unique institutional settings would add to the understanding of leverage and cash holdings polices in an emerging market.

The third major contribution of this study is to examine the influence of board structures on financial decisions, specifically cash holding and leverage. Board of directors has the duty to protect the benefits of minority shareholders by monitoring the actions of top management. Such a need for further research is emphasized by Kusnadi (2007) who calls for more studies to identify the relationship between board characteristics and institutional ownership with cash holdings. The same need is also stressed by Abur (2007) who examines the relationship between capital structure and corporate governance variables such as ownership structure and board characteristic.

Finally, to the best of the author's knowledge, limited studies have been done to investigate the relationship between cash holdings and leverage simultaneously after controlling for the effects of ownership structure and board characteristics.

1.7 Structure of the Thesis

The remainder of this thesis is organized as follow. Chapter one consists of the introduction, corporate finance and corporate governance overview, problem statement, research questions, research objectives, scope of study, significant of the study, and structure of the thesis.

Chapter two presents the theories of cash holdings and leverage. It also introduces corporate governance in Malaysia, and the simultaneous relationship between cash holdings and leverage. Next the chapter reviews previous studies on the effects of corporate governance on cash holdings and leverage.

Chapter three presents the theoretical framework, hypothesis development, measurement of the variables, model specification and sample selection. Chapter four presents the descriptive analysis and main findings. Chapter five provide the conclusions, recommendations for future research and limitations of the study.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter integrates various strands of literature on corporate governance and corporate finance and examines the effects of corporate governance mechanisms on cash holdings and leverage decisions. Section 2.1 discusses the theoretical background of the study followed by previous empirical evidence on cash holdings and firms leverage policies. Section 2.2 explains the simultaneous relationship between cash holding and leverage. Section 2.3 provides an overview of corporate governance in Malaysia.

Section 2.4 examines the impact of corporate governance mechanisms on cash holdings and leverage decisions. Section 2.4.1 describes ownership variables represented by family ownership, business group and pyramidal structure, government link investment companies and state ownership, foreign ownership, and domestic institutional ownership. Section 2.4.2 discusses board structure variables represented by board size, board independence, managerial or insider ownership, and CEO duality. Section 2.4.3 discusses other factors that affect cash holdings and leverage policies. These factors are potential instrumental variables and will be used in Chapter Three. The instrumental variables are corporate tax rate, non-debt tax shield, non-liquid assets and inventory. Section 2.4.4 discusses control variables that are commonly used such as firm size, growth opportunity, and profitability. Section 2.5 shows the summary of the chapter.

2.1 Overview on Theories

This section examines the theories related cash holdings and leverage. Section 2.1.1 discusses two theories that could explain both leverage and cash holding decisions by managers. Section 2.1.2 discusses the trade off theory that is related to cash holdings and the motives of cash holdings. Section 2.1.3 examines the tax saving theory that explains capital structure.

2.1.1 Theories Related to Cash Holdings and Leverage

There are two main theories related to cash holdings and leverage which are based on agency problems and information asymmetry.

2.1.1.1 Agency Theory

The emergence of agency theory dated back to 1776 by Adam Smith in his book "Wealth of Nations" where he opined that economic firms controlled by individuals who are different from the owners are not likely to be fully protected. This view was later extended by Jensen and Meckling (1976). According to Jensen and Meckling (1976), company owners sell part or all of their ownership right to outsider but still manage the firm along with other professionals' mangers. This contractual relationship between the owners and managers is described as agency relationship, where a principal establishes controls to monitor an agent, who performs certain actions on behalf of the principal (Bergen, Dutta & Walker, 1992). Fama and Jensen (1983) mention that the separation of control from ownership create agency problem. Agency problem arises when agent engages in actions not consistent with the risk preference of the owners and this subsequently reduces firm's value. Further,

Johnson *et al.* (2000) argue that managers can exploit the owners by engaging in related party transactions length such as selling goods, assets or services to companies where their interest is tied or obtain loans on preferential terms. In extreme case, managers dilute the interest of minority shareholders by obtaining shares at preferential price. Therefore, agency theory in corporate governance highlights problems arising from agent-principal relation and finds a way to solve this problem in order to increase firm value.

There are two types of agency cost that can be directly related to financing decision, which are agency cost of managerial discretion and agency cost between majority and minority shareholders.

The agency cost of managerial discretion arises mainly when managers tend to increase their welfare at the expense of other shareholders' interests. Hence managers prefer to hold cash to have more flexibility to pursue their own objectives (Jensen, 1986). In addition, they have incentive to retain cash so that they can invest in more projects as their compensation and exposure to risk are related to the size of their firms. Myers and Rajan (1998) argued that more cash in a firm will lead to increased agency problems. Similarly, Harford (1999) documents that cash rich firms often spend the excess cash on acquisitions rather than return it to the shareholders. This gives the managers a tendency to use the excess cash to pursue their own benefits. The agency problem between majority and minority shareholders occurs in firms with concentrated ownership structure as the interests between these two groups do not always coincide. According to La Porta *et al.* (1999), large or

controlling shareholders are particularly common for East Asian corporations. Mitton (2002) and Haniffa and Hudaib (2006) state that agency problem between majority and minority shareholders is more apparent in emerging market, such as in Malaysia, where high ownership concentration is prevalent. The problem appears when the majority shareholders act on their own interests at the expense of minority shareholders interests. An example is when the majority shareholders use their controlling position and try to capture advantages of the business for themselves at the expense of minority shareholders (La Porta *et al.*, 2000). These are commonly referred to as private benefit of control (Burkart, Panunzi & Shleifer, 2003).

2.1.1.2 Information Asymmetries

The information asymmetric theory asserts that managers possess certain inside information about the company which remain unknown to outsiders as managers are better informed about the future return and the chance of company's survival while investors do not (Ross, 1977). Since managers are better informed about their firms' prospects, the choice of capital structure can be used as a signal to express information to outside investors. In his model, managers of a high value firm is motivated to use higher leverage level as a good signal to outside investors while low value firms which are more likely to experience bankruptcy would not issue debt.

Consistent with the assumption that managers are better informed about their firms, pecking order theory predicts financing choices for firms. The pecking order theory was proposed by Donaldson (1961) who states that managers prefer internal finance rather than issuing common stocks. Myers and Majluf (1984) improve the pecking

theory by offering clarification about the reasons why companies are reluctant to issue external equity. Managers would take advantage of private information about the value of the company, where investors have less knowledge about the true value of the company. If this persisted to be true, then new investors would want to be compensated for extra risk premium for the new capital/equity, which could lead to the issuance of undervalued shares to encourage new investment in the company.

In line with this, Myers (1984) argues that when the market undervalued a firm's shares, raising capital through shares issuance transfer the firm's wealth to new shareholders, thereby resulting in net loss to existing shareholders. Therefore, managers would use debt financing to convey private information because high debt level is assumed to be a good signal that company is performing well. As a result, firm prioritized internal to external financing; in case where external financing is required, managers will prefer to finance the firm first through debt and external equity as a last source (Myers & Majluf, 1984).

2.1.2 Trade off Theory for Cash Holdings

Trade-off theory weights the benefits and costs of holding cash by identifying optimal cash holding level (Opler *et al.*, 1999). This means that cash holding is very important for financing the firm. The principal benefit of holding cash is that it constitutes a safety buffer. In the presence of unexpected losses or external financing constraints, a firm might have difficulties in servicing its obligatory debt payments, resulting in financial distress costs. Therefore, holding cash can decrease the chance of incurring financial distress costs, as they act like a buffer against unexpected cash shortages (Faulkender & Wang, 2006).

2.1.3 Tax Saving Theory for leverage

MacKie-Mason (1990) and Graham (1996) believe that tax benefits of debt affect financing decisions. According to tax saving theory, when firms use higher leverage, they should consider two things: tax and bankruptcy cost. Kester (1986) and Titman and Wessels (1988) state that by raising debt the firm has important advantage as interest payments are treated as a tax deductible expense. Fama and French (2002) state that the benefits of debt include the reduction of taxes and decreased agency problem. On the other hand, Michaelas, Chittenden and Poutziouris (1999) argue that companies should consider the point at which the probability of financial distress becomes significant when they decide to use debt.

2.2 The Simultaneous Relationship between Cash Holdings and Leverage

Myers and Majluf (1984) argue that firms hold excess cash balances because cash offers lower financing costs for firms and it permits them to undertake valuable investment opportunities when arise. Shleifer and Vishny (1992) state that when firms hold higher cash level this could reduce the financial distress cost. Moreover, Faulkender (2004) argue that high information asymmetric make cash holdings necessary for the firms to avoid the high cost of external financing. Graham and Harvey (2001) find that leverage affect cash holding negatively implying that firms could reach the financial flexibility by holding large amount of cash and low leverage. Ozkan and Ozkan (2004) and Al-Najjar (2013) also find the effect of cash holding is negative on leverage. Therefore holding appropriate cash level is an important decision for managers to ensure survivability of the firm. In this case, the amount of cash holdings helps to explain leverage levels.

According to Jensen and Meckling (1976) and Jensen (1986) managers have incentive to hold excess cash to pursue their own interests. Myers and Rajan (1998) also argue that the holding excess cash by a company help managers to pursue their own interests more conveniently. Therefore, debt is valuable as debt's covenant limits manager's freedom (Harris & Raviv, 1990). Thus, leverage could reduce the agency problems. In addition, Opler *et al.* (1999) state that financial flexibility is achievable by spare debt capacity or substantial cash balances. According to Lubatkin and Chatterjee (1994) higher leverage level would ensure that managers are running the business more efficiently. These arguments show that leverage plays a crucial role in determining a firm's cash level. John (1993) and Ferreira and Vilela (2004) state that leverage could reduce the amount of cash holdings level in the firms, which leads to a negative relationship. The interactions between leverage and cash show that there is a simultaneous relationship between cash holdings and leverage.

2.3 Corporate Governance Reforms in Malaysia

The Asian financial crisis of 1997 highlighted the weaknesses of corporate governance in Malaysia. Since then, Malaysia has taken several active steps in the effort to improve and overhaul the whole corporate sector and improving its corporate governance system. A high level finance committee was established by the Malaysian government in 1998 to consider the establishment of framework for the corporate governance and develop an optimum approach and policy for the corporate sector in Malaysia.

In March 2000, Malaysia reached an important milestone for the reforms in the corporate governance through the issuance of the Malaysian Code on Corporate Governance. In October 2007, the revised Malaysian Code on Corporate Governance (MCCG) was issued. This revision describes the basics and best practices for corporate governance. According to Malaysia's fifth Prime Minister, Dato' Seri Abdullah Ahmad Badawi (2008):

> *"…The Code is being reviewed to improve the quality of the board of public listed companies (PLCs) by putting in place the criteria for qualification of directors and strengthening the audit committee…".*

Among other things, MCCG 2007 focuses on the importance of board structure and board composition; thus, recognizing the function of the directors as dynamic and active. They are having the responsibility for the effective custodian and authority of firm, not only making direction strategically and looking after the business of company. They also ensure that the firm's business conduct follow laws and ethical matters to enables an effective governance structure of the organization for ensuring specific management of the risks and management of internal controls.

MCCG 2007 does not mention about the numbers of directors serving on board of directors. The MCCG 2007 urges that one third of the board must be comprised of independent and non-executive directors. The independent director is defined as a person who is independent from the management and does not have any business relationship with the company. The requirement for the listing specified that at least

two directors or one third of the board, whichever is higher, must be independent. In addition, MCCG 2007 recommends that the roles of CEO and chairman to be separated. This separation will allow for the fundamental check and balance over the performance of management.

2.4 The Determinant of Cash Holdings and Leverage

This section examines the firm characteristics which influence cash holdings and leverage decisions. Sections 2.4.1 and 2.4.2 discuss ownership structures and board characteristics respectively. Section 2.4.3 discusses the instrumental variables while section 2.4.4 discusses the control variables.

2.4.1 Ownership Structure

Highly concentrated ownership was a contributing factor to the financial crisis in 1997 and remains a problem today. Ownership might lead to greater entrenchment of managers if substantial shareholders serve as managers. According to Jensen (1993), higher managerial agency costs would lead to increase ownership concentration.

Singam (2003) argues that concentration of ownership and control in Malaysia is achieved through high ownership levels by families, government, and other institutions. In concentrated ownership environment, large shareholders are playing a vital role in the monitoring of the management of the firms. Therefore, concentrated ownership could lead to the expropriation of minority shareholders rights by the controlling shareholders. Another ownership structure in Malaysia is the prevalence of cross holdings and pyramid structures (Thillainathan, 1999). This gives the

incentives for large shareholders to maximize their own benefits of control (Thillainathan, 1999).

There are five features of ownership structure that are discussed and those are family ownership, business group ownership, government link investment companies and state ownership, foreign ownership and domestic institutional ownership.

2.4.1.1 Family Ownership

Jensen and Meckling (1976) argue that families have the incentive to hold large amount of cash in their firms and to take up senior management positions. The expected benefit of managers has large ownership stake is that it provides them which strong enough financial incentives for the improvement of firm value. On the other hand, Kuan *et al.* (2010) state that a family controlled firms can implement policies that satisfy the family's personal benefits instead of focusing on all shareholders' interests. This might increase the agency problem between majority and minority shareholders (Chrisman *et al.*, 2007). Accordingly they find that agency cost is high in family controlled firms, because the high partition of the control rights and cash flow rights which leads to more expropriation on the wealth of the minority shareholders. Thus, family controlled companies are holding more cash reserves as compare to non-family controlled companies. Agency theory might lead to the positive relationship between cash holdings and family ownership. Ozkan and Ozkan (2004) find that family ownership positively and significantly influences cash holdings, suggesting that family ownership tends to hold excess cash in their control in order to serve their interests. In addition, Brockman, Martin, Wang and Zhang

(2009) and Kusnadi (2011) find that family affect cash holding positively. On the other hand, Fama and Jensen (1983) argue that family ownership could reduce the agency problem between managers and shareholders. Chen and Wang (2014) examine family ownership effect on cash holdings. Their data consists of 22567 Taiwanese publicly listed companies-years observations during the period from 1990 to 2011. The authors find that family ownership and cash holdings are negatively related. Their result suggests that family ownership could monitor the firms cash holding effectively, thus reducing agency problem.

The effect of family ownership on leverage is not clear. According to Stulz (1988), family firms utilize more debt to keep control in their hands and hence prevent possible acquisitions from external shareholders. Harijono and George (2004) find that family firms use around twenty percent more debt as compare to non-family firms. Driffield *et al.* (2007) argue that firms using higher leverage could reduce the agency problem between majority and minority shareholders. They find that family ownership affects leverage negatively. Céspedes, González and Molina (2010) examine that family ownership effect on leverage, by using a sample of family control firms in Latin America. The authors find that leverage is positively and significantly to family controlled firms which suggest that families use debt financing in place of issuing equity to avoid sharing ownership.

On the other hand, Anderson and Reeb (2003) and Gallo, Tapies and Cappuyns (2004) report that family may be more risk averse and may mitigate firm risk by using less debt in a firm. This might result in leverage being negatively related to

family ownership. Mishra and McConaughy (1999) find that family firms use lower leverage level than non-family firms. Finally, Nadaraja *et al.* (2011) use a sample of 152 Malaysian firm-year observations between 2001 and 2006. Their results show that family ownership is not related to leverage. In summary, there is inconclusive evidence as to the relationship between family ownership and cash holdings and leverage. Table 2.1 and 2.2 summarize the relationship between family ownership and cash holdings and leverage respectively.

Table 2.1

Summary of the Literature on the Relationship between Family Ownership and Cash Holdings

Author (s)	**Country**	Sample (Period)	Methodology	Key Findings
Ozkan and Ozkan (2004)	UK	A sample of 1029 publicly listed companies (1984 to 1999).	GMM	Cash holdings are positively related to family ownership.
Brockman, Martin, Wang and Zhang (2009)	US	A sample of 542 publicly listed companies (1994 to 2002).	OLS	Cash holdings are positively related to family ownership.
Kusnadi (2011)	Malaysia and Singapore	A sample of 455 publicly listed companies (1999 to 2000).	OLS/2SLS	Cash holdings are positively related to family ownership.
Chen and Wang (2014)	Taiwan	A sample of 22567 publicly listed companies (1990 to 2011).	OLS	A negative relationship between family ownership and cash holdings.

Table 2.2

Summary of the Literature on the Relationship between Family Ownership and Leverage

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
Harijono and George (2004)	Australia	A sample of 542 publicly listed companies (1998 to 2002).	Pooled OLS	Leverage is positively related to family ownership.
Driffield and Pal (2007)	Four East Asian countries	A sample of all non-financial firms (1994 to 1998).	3SLS	A positive relationship between family ownership and leverage.
Céspedes, González and Molina (2010)	Latin American	A sample of all Latin American companies (1996 to 2005).	OLS	Leverage is positively related to family ownership.
Gallo, Tapies and Cappuyns (2004)	Spain	A sample of 305 publicly listed companies (1998 to 2002).	OLS	Leverage is negatively related to family ownership.
Nadaraja *et al.* (2011)	Malaysia	A sample of 152 publicly listed companies (1998 to 2002).	Pooled OLS	Leverage is not related to family ownership.

2.4.1.2 Business Group and Pyramid Structures

Khanna and Rivkin (2001) explain a business group as a combination of individual companies that, as affiliated companies, are linked through ownership, economic manner (such as inter-firm transactions), and social relations to achieve mutual objectives and goals. La Porta *et al.* (1999) argue that a large fraction of companies all over the globe are family controlled. Family controlled firms commonly use pyramid ownership structures to exercise control on wide network of companies. Business group affiliation has several advantages. Almeida and Wolfenzon (2006) argue that with business group structure, family uses the original firm that it has already controlled to establish a new company which provides the family to have access to the whole stock of retained earnings of the new company.

Claessens *et al.* (2000) state that family control plays a dominant role in East Asian firms. According to La Porta *et al.* (1999), families own a large portion of business groups in East Asian countries including Malaysia. As an example, Yeoh Tiong Lay and his sons owns 52.72% of YTL Corporation Berhad, and YTL Corporation Berhad in turn has a 45.32% of the shares of YTL Power International Corporation, 63.37% of the shares of YTL Industries, 57.90% of the shares of YTL Land and Development Berhad, and 74.12% of the share of YTL E-Solution Berhad. This gives Yeoh Tiong Lay and his sons effective control of YTL Power, YTL Industries, YTL Land and Development, YTL E-Solution through YTL Corporation.

Under agency theory, Wolfenzon (1999) argue that group structures in emerging market countries with poor investor protection can be used by controlling owners to gain private benefits from minority shareholders. Thus, increase the agency problem between majority and minority shareholders through tunnelling model (Bae, Kang & Kim, 2002). This could lead to the business group has a positive influence on cash holdings. Tsai (2012) investigates the impact of business group on firms' cash holdings in Taiwan. The author finds that cash holdings affect business group positively.

Chang and Hong (2000) report that business group affiliations lead to lower information asymmetries among member firms. Dewaelheyns, Locorotondo, Hulle (2010) examine the effect of business group on cash holdings and their result indicates that business group companies hold lower amounts of cash than those of stand-alone firms. In the same line, Kusnadi (2011) and Chen and Wang (2014) also find that business group is positively influenced by cash holdings.

Du and Dai (2005) find leverage is positively related to business group. Their finding suggests that control owners tend to use debt rather than equity financing, because debt does not affect their controlling position in firm's group structure. In addition, controlling owners use debt as a signal to investors that corporate governance in business group firms is good.

In India Manos, Murinde and Green (2007) examine the effect of business group on leverage by using sample of 1652 firms. Their results show that business group has a

positive influence on leverage, suggesting that business group prefers debt to external equity, as debt allows family to keep control of the firms. They also report that having more debt mitigates the agency problems caused by the conflict between majority and minority shareholders. Table 2.3 and Table 2.4 show a summary of the literature on the relationship between family ownership with cash handling and leverage respectively.

Table 2.3

Summary of the Literature on the Relationship between Business Group Ownership and Cash Holdings

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
Tsai (2012)	Taiwan	A sample of 4,983 firm-year observations for Taiwan listed firms (2005 to 2009).	OLS	Cash holding is positively related to business group.
Kusnadi (2011)	Malaysia and Singapore	A sample of 276 publicly listed companies (2000 to 2005).	OLS/2SLS	Cash holding is negatively related to business group.
Dewaelheyns, Locorotondo, Hulle (2010)	Belgium	A sample of 3126 firms from Belgian listed firms (1998 to 2007).	Pooled OLS	Cash holding is negatively related to business group.
Chen and Wang (2014)	Taiwan	A sample of 22567 publicly listed companies (1990 to 2011).	OLS	A negative relationship between business group and cash holdings

Table 2.4

Summary of the Literature on the Relationship between Business Group Ownership and Leverage

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
Du and Dai (2005)	Nine East Asian countries	A sample of 1473 non-financial firms (1994 to 1996).	OLS	Leverage is positively related to business group.
Manos, Murinde and Green (2007)	India	A sample of 1652 non-financial firms in India (2000).	OLS/2SLS	Leverage is positively related to business group.

2.4.1.3 Government Linked Investment Companies (GLICs) and State Ownership

In Malaysia, government ownership by both federal and state governments in listed companies is common. Federal government investments are made through government-linked investment companies (GLICs) while state government investments are carried out through their economic subsidiaries. There are two types of GLICs: one manages government funds while the other manages depositors or unit holders funds. GLICs that manage government funds are Khazanah Nasional Berhad (KNB), Ministry of Finance, Inc (MFI) and Kumpulan Wang Amanah Pencen (KWAP) while GLICs that manage depositors funds are Permodalan Nasional Berhad (PNB), Lembaga Tabung Haji (LTH), Lembaga Tabung Angkatan Tentera (LTAT), and Employee Provident Fund (EPF).

Investments made by KNB and MFI include in firms that have strategic national interests such as Malaysia Airlines. Figure 2 shows the investments made by KNB in 2010. Even though KWAP receives funds from the federal government, the objective of KWAP is different from KNB and MFI as KWAP would invest the funds in assets that give returns, which will be used to pay for pensions to retired government employees. Thus, the higher is the return generated; the lower would be the government liabilities. Meanwhile, the performance of depositor-managed funds is monitored both by the federal government and depositors. These funds then have a greater incentive to perform better as lower returns could lead to depositors' dissatisfaction and government intervention, which might include replacing the

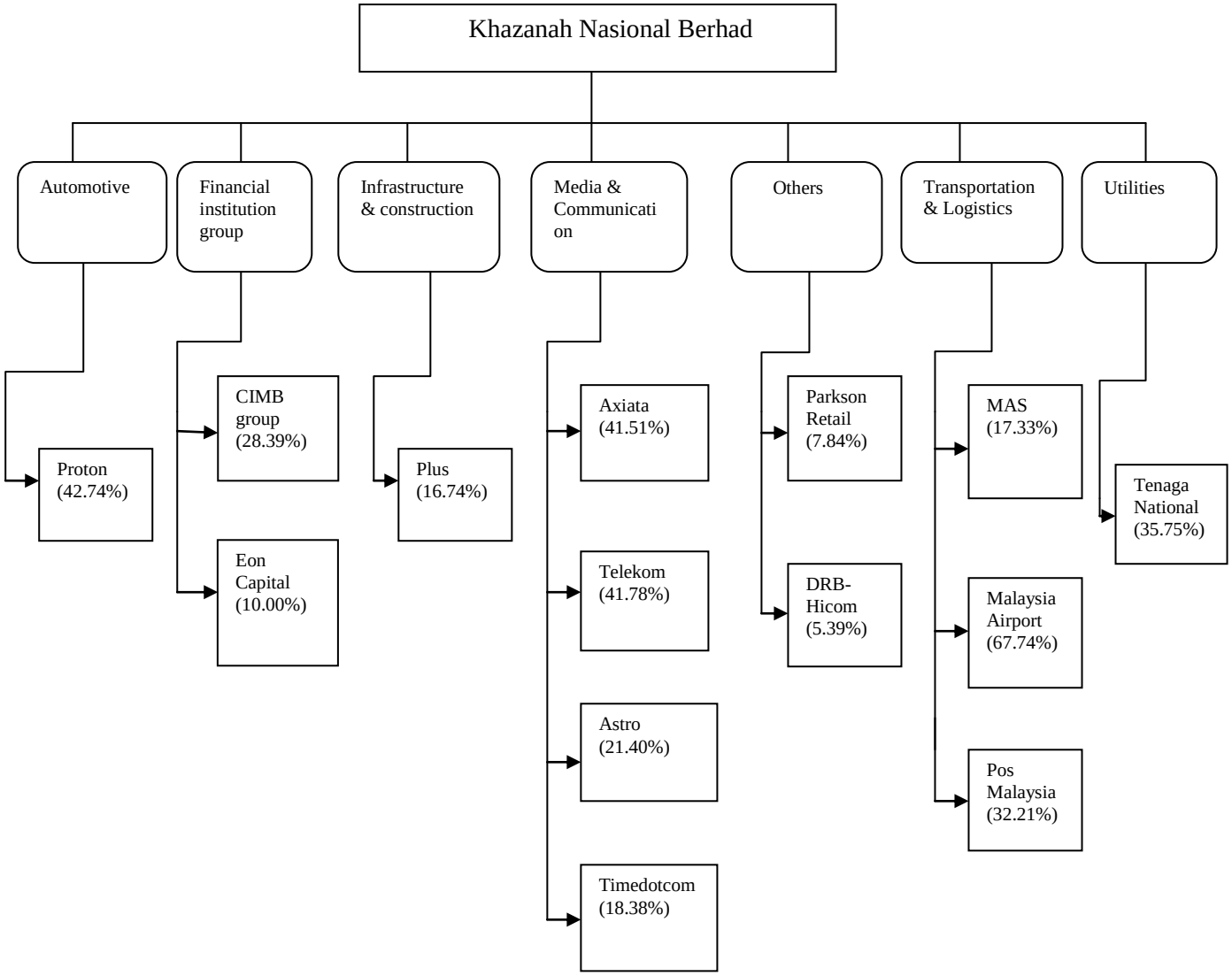

Figure 2.1

Investments of Khazanah Nasional Berhad (2010)

CEO or directors.

Many studies confirm that agency costs are linked to government or state ownership (Boycko, Shleifer & Vishny, 1996; Wei, Xie & Zhang, 2005; and Fan, Wong & Zhang, 2007). Eng and Mak (2003) find companies with significant government ownership have high agency cost because of conflicting objectives between majority and minority shareholders. Furthermore, high levels of state-owned companies may lead to increase agency problems as it is connected with lower wages but greater power for managers (Buck, Liu and Skovoroda, 2008).

However, government ownership can help in solving the information asymmetric problem. Eng and Mak (2003) argue that government and state ownership could get easier accessibility to gain information about various routes of funding inside the firms. This shows that government ownership could reduce information asymmetric problems.

Vining and Boardman (1992) and Dewenter and Malatesta (2001) find that private firms are more effective than government ownership because government's claims on social and political policy goals rather than attempting to maximize shareholder value. In contrast Martin and Parker (1995), Kole and Mulherin (1997) and Chen *et al.* (2009) argue that government ownership as large shareholder is serves as effective monitoring device because government ownership have more power in a competitive market.

Firms with more severe agency problems are more likely to accumulate excess cash if they do not have investment opportunities as managers, motivated by self interest, do not want to return the cash to shareholders (Jensen, 1986). This argument is supported by Paskelian *et al.* (2010) and Sun and Wang (2011) who find that higher government ownership is related to increased cash holdings. Their results suggest that government ownership uses its control to extract private benefits from the firms. Meanwhile, Megginson and Wei (2010) conclude that firms with high state ownership are less financial constrained. The authors find that state ownership is negatively influence by cash holdings for privatized firms in China from 1993 to 2007. Chen *et al.* (2012) also find government ownership is negatively and significantly affects firms' cash holding suggesting that higher level of government ownership could reduce the agency problems by protecting minority shareholders interests.

The evidence on the relationship between leverage and government ownership is mixed. High levels of government ownership may lead to increased moral hazard problems (Buck *et al.*, 2008). This could lead government ownership has a negative impact on leverage. Su (2010) finds that government-controlled firms affect leverage negatively.

In contrast, Gul (1999) argues that government ownership could lead to better monitoring of managers by ensuring that managers do not pursue their own benefits; therefore, the conflict between managers and shareholders can be reduced. In addition, Hwang, and Chien (2009) state that the high degree of government

ownership can help enhance the leverage capacity of firms because of the guarantee provided by the government. This could lead that companies with large a proportion of state influence leverage positively. Gul (1999) finds that leverage is positively and significantly related to state ownership. Lin, Finally, Huang and Song (2006), Zou and Xiao (2006) and Hovey (2007) show that leverage is not related to state ownership. There is inconclusive evidence as to the relationship between GLICs and state ownership with cash holdings and leverage. Table 2.5 summarizes the literature of the relationship between government ownership and cash holdings and table 2.6 summarizes the literature of the relationship between government ownership and leverage.

Table 2.5

Summary of the Literature on the Relationship between GLICs and State Ownership and Cash Holdings

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
Paskelian, Bell and Nguyen (2010)	China and India	A sample of 1164 of Chinese publicly listed companies (1993 to 2006) and 334 of Indian publicly listed companies (2003 to 2006).	OLS	Cash holding is positively related to government ownership.
Sun and Wang (2011)	China	A sample of 929 of Chinese publicly listed companies (2003 to 2008).	OLS	Cash holding is positively related to government ownership
Megginson and Wei (2010)	China	A sample of 9862 firm-year observations for Taiwan listed firms (1993 to 2007).	OLS	Cash holding is negatively related to government ownership.
Chen, Li, Xiao and Zou (2012)	China	A sample of 3074 firm across 114 cities in China (2005 to 2007).	OLS/2SLS	Cash holding is negatively related to government ownership.

Table 2.6

Summary of the Literature on the Relationship between GLICs and State Ownership and Leverage

Author (s)	**Country**	Sample (Period)	Methodology	Key Findings
Su (2010)	China	A sample of 926 of Chinese publicly listed companies (2000 to 2006).	OLS	Leverage is negatively related to government ownership
Gul (1999)	China	A sample of all Chinese publicly listed companies (1990 to 1995).	Pooled OLS	Leverage is positively related to government ownership
Hovey (2007)	China	A sample of 6222 firm-year observations for Taiwan listed firms (1999 to 2005).	OLS	Leverage is not related to government ownership.
Huang and Song (2006)	China	A sample of 799 firm year observations for the period (1994 to 2000).	OLS	Leverage is not related to government ownership.
Zou and Xiao (2006)	China	A sample of 1205 firm-year observations for Chinese listed firms (1997 to 2000).	Pooled OLS	Leverage is not related to government ownership.

2.4.1.4 Foreign Ownership

Hingorani, Lehn and Makhija (1997) conclude that foreign ownership could use their control to mitigate agency problems by aligning the interests of managers and other shareholders. Guedhami, Pittman and Saffar (2009) show that foreigners prefer transparent companies, as it could reduce information asymmetry and the impulse for expropriation. Further, Grinblatt and Keloharju (2000) and Seasholes (2000) state that foreign investors are more experienced and efficient in evaluating companies. Ferreira and Matos (2008) find that foreign ownership play more efficient role on corporate governance level than domestic intuitional, leading to enhanced firm performance which may influence corporate investment policy.

However, Patibandla (2006) argue that foreign investors face more agency costs than those of domestic institutional investors due to various legal environments. Merton (1987) suggests that investors have various amounts of information related to a company and they invest in a company that is already well-known to them. Therefore foreign investors tend to invest in large companies as foreign fund managers are less informed about domestic market compared to domestic investors (Covrig, Vicentiu, Lau & Ng, 2006). Mian and Nagata (2013), using a sample of 15031 Japanese observations from 2001 to 2012, find that foreign ownership is related to an increase in cash holdings. The authors argue that foreign ownership tends to invest in large and cash rich firms more than small and low cash firms. In line with this, Ku, Lee, Chen and Chang (2013) also find that foreign ownership

affect cash holdings positively. However, Al-Najjar and BinSaddig (2013) find that cash holdings are not related to foreign ownership.

The foreign owners are able to discipline the local managers via debt financing as foreign ownership focuses on corporate valuations and transparency (Zou & Xiao, 2006). Suto (2003) states that foreign ownership reduces the agency cost of equity financing. This reason might lead to negative relationship between foreign investors and leverage.

From the information asymmetric argument for foreign investors, it is expected that leverage and foreign investors are negatively related. In Japan, Kang and Stulz (1997) report that foreign investors tend to invest in large and low leverage firms suggesting that large firm have lower information asymmetries than small firms. Kim and Piman (1998) examine the relationship between foreign ownership and leverage using a sample of Japanese firms and find that foreign ownership affect leverage negatively. In addition, Li, Yue and Zhao (2009) find that foreign investors influence firms' leverage negatively using a sample of Chinese manufacturing firms during a period of 2001 to 2003. Finally, Zou and Xiao (2006) find that there is no relationship between foreign investors and leverage. They argue that foreign investors in China could not affect corporate financial decisions of their portfolio firms. Table 2.7 and Table 2.8 summarize the literature of the relationship between foreign investor with cash holdings and leverage respectively.

Table 2.7

Summary of the Literature on the Relationship between Foreign Investors and Cash Holdings

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
Mian and Nagata (2013)	Japan	A sample of 15013 firm-year observations of Japanese publicly listed companies (2001 to 2012).	OLS	Foreign ownership affect cash holdings positively.
Ku *et al.* (2013)	China and Taiwan	A sample of 2765 non- financial firms from (2002 to 2009).	OLS	Foreign ownership affect cash holdings positively.
Al-Najjar and BinSaddig (2013)	Saudi Arabia	A sample of 88 Saudi listed firms from (2003 to 2010).	Pooled OLS	No relationship between foreign ownership and cash holdings.

Table 2.8

Summary of the Literature on the Relationship between Foreign Investors and Leverage

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
K ang and Stulz (1997)	Japan	A sample of 1205 of Japanese publicly listed companies (1975 to 1991).	OLS	Leverage is negatively related to foreign investors.
Kim and Piman (1998)	Japan	A sample of all non-financial firms listed (1980 to 1991).	OLS	Leverage is negatively related to foreign investors.
Li *et al*. (2009)	China	A sample of 417 firm-year observations of publicly listed firms (2000 to 2004).	OLS	Leverage is negatively related to foreign ownership.
Zoua and Xiao (2006)	China	A sample of 1205 of Chinese publicly listed companies (1997 to 2000).	Pooled OLS	Foreign ownership is not related to leverage.

2.4.1.5 Domestic Institutional Ownership

Compared to individual investors, domestic institutional investors hold large stake in a firm, which give them an incentive to monitor management actions. Furthermore these institutional investors invest in many firms. Thus, their experience allows them to monitor managerial actions in a more effective and efficient way as compared to those of individual investors. They have expertise in the evaluation of company's operations and more power of voting, since they hold large stake, to take corrective actions when necessary (Agrawal & Mandelker 1990; Amihud & Li, 2006). Therefore, under agency theory, domestic institutional investors play an important role in reducing the conflict of interest between managers and shareholders and improving corporate governance. In Asia, Claessen and Fan (2002) state that institutional investors reduce the problems connected with the conflict between majority and minority shareholders. This gives confidence to creditors that the firm is well managed and has low risk of default (Brennan & Tamarowshi, 2000).

Since domestic institutions understand more about domestic markets, they have informational advantages over foreign ownership (Brennan & Cao, 1997). Thus, they could act as better monitor over management actions. Furthermore since their share in a firm is significant, they can play a crucial role in distributing information to other shareholders (Al-Najjar & Taylor, 2008).

Karpavicius and Yu (2011) examine the relationship between institutional ownership, leverage, payout and cash holdings by using three stage least square in

US firms. The authors find that high institutional ownership leads to lower leverage and greater cash holdings suggesting that excess cash reduces the bankruptcy risks and increases firm value, while high leverage level might lead to financial distress. In addition Harford *et al.* (2008) find that institutions investors affect cash holdings positively but mostly not significant. Brown, Chen and Shekhar (2012) divide institutional investors in two types, short term institutions (i.e., institutions that trade frequently for short term trading profits) and long term institutions (i.e., institutions that trade infrequently). The authors hypothesize if institutional investor helps to reduce agency problem then the relationship between institutional investors and cash holdings might be negative, while under weak corporate governance institutional investors could use their monitoring to pursue their own benefits, which shows that institutional investors have a positive influence on cash holdings. Brown *et al.* (2012) find that short term institutional investors affect cash holdings positively while long term institutional investors affect cash holdings negatively.

The relationship between domestic institutional investors and leverage is mixed. Tong and Ning (2004) argue that as domestic institutional investors have better access to different information resources, they prefer firms with low leverage ratio, since firms with high leverage could face future financial difficulties. Furthermore, domestic institutional investors could use their monitoring ability to minimize the conflict between managers and other shareholders (Pushner, 1995). Ciceksever, Kale and Ryan (2006), Ezeoha and Okafor (2010), Michaely and Vincent (2012) and Ashrafi and Muhammad (2014) find that domestic institutional investors negatively and significantly influence leverage. In contrast, Crutchley, Jensen, Jahera and Raymond

(1999) find that leverage is positively and significantly related to domestic institutional investors. The above discussion is summarized in Table 2.9 and Table 2.10. Table 2.9 summarizes the relationship between domestic institutional investors and cash holdings. Table 2.10 summarizes the relationship between domestic institutional investors and leverage.

Table 2.9

Summary of the Literature on the Relationship between Domestic Institutional Ownership and Cash Holdings

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
Karpavicius and Yu (2011)	US	A sample of all non-financial listed firms (1980 to 2009).	OLS/3SLS	Cash holdings are positively related to institutional ownership.
Brown, Chen & Shekhar (2012)	US	A sample of all non-financial listed firms (1981 to 2007).	OLS	Cash holdings positively related to short term institutional and negatively to long term institutional ownership.
Harford *et al.* (2008)	US	A sample of 276 publicly listed companies (2000 to 2005).	OLS/2SLS	Cash holdings are positively but mostly not significantly related to domestic institutional ownership.

Table 2.10

Summary of the Literature on the Relationship between Domestic Institutional Ownership and Leverage

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
Michaely and Vincent (2012)	US	A sample of all non-financial firms listed (1979 to 2009).	2SLS	Domestic institutional ownership is negatively influenced by leverage.
Ciceksever, Kale and Ryan (2006)	US	A sample of 2261 publicly listed firms (2003).	2SLS	Leverage is negatively related to domestic institutional ownership.
Ezeoha, and Okafor (2010)	Nigeria	A sample of 71 non-financial firms listed (1990 to 2006).	OLS	A negative relationship between domestic institutional ownership and leverage.
Crutchley, Jensen, Jahera, and Raymond (1999)	US	A sample of all non-financial firms listed (1987 to 1993).	3SLS	Leverage is positively related to domestic institutional ownership.
Ashrafi and Muhammad (2014)	Malaysia	A sample of 237 non-financial firms listed (2002 to 2011).	GMM	Domestic institutional ownership is negatively influenced by leverage.

2.4.2 Board Characteristics

Boards of directors are having full authority over internal control to monitor the top management of firm including chief executive officer (CEO) (Fama & Jensen, 1983). Under agency theory, the board of directors is one of main corporate governance approach to ensure the managers work for the benefits of shareholders (Allen, 2005). This research uses four main elements of a board, which are board size, board independence, managerial or insider ownership and CEO duality. Jensen (1993) argues that these factors influence the board's role in monitoring managers. The following sections investigate the implications of board characteristic on cash holdings and leverage polices.

2.4.2.1 Board Size

Lipton and Lorsch (1992) and Jensen (1993) state that small boards are more effective as compared to larger boards because of the difficulties in solving the agency problem among the members of the board. In case the board members are excessive, agency problems could increase, as some of directors could tag along as free riders. Jensen (1993) supports small boards due to their efficient decision making, better coordination and less communication problem problems. O'Reilly, Caldwell and Barnett (1989) find that large boards are related to the problems of cohesiveness, communication, conflict and develop factions. Thus, the board is becoming more symbolic and ignoring its duty to monitor and control managerial actions (Hermalin & Weisbach, 2003). Jensen (1993) and Yermack (1996) endorse small boards, as larger boards face problems of social loafing and free riding, which

reduces the efficiency of the boards (Lipton & Lorsch, 1992). Eisenberg, Sundgren and Wells (1998) argue that small board is connected to higher firm value.

The large boards are supported on the basis that they could offer improved monitoring and advice (Anderson, Sattar & Reeb, 2004; Coles, Daniel & Naveen, 2008). Singh and Harianto (1989) claim that larger boards reduce the dominance of CEO in the board in order to provide effective monitoring; thus, protecting shareholders benefits. Chaganti, Mahajan and Sharma (1985) find that non-bankrupt firms have larger boards compared to bankrupt firms, suggesting that large boards assist in firm survival.

Kusnadi (2011) examines the relationship between internal corporate governance and cash holdings of 276 listed firms in Singapore and Malaysia from 2000 to 2005. The author finds that board size is positively influenced by cash holding suggesting that small board may perform more effectively as a monitoring function. Lee and Lee (2009) also find that small board leads to lower cash holding. Their arguments suggest that larger boards have greater agency problems, which leads to less effective monitoring. Managers that are not well monitored would pursue their own benefits. One way of increasing their personal benefits is by holding more cash. Additionally, in Canada, Gill and Shah (2012) argue that cash could be used to reduce the pressure on managers to perform efficiently and could be used by managers to invest in projects that serve their own benefits. Thus, larger board size may allow managers to hold excess cash in the firm. However, Drobetz and

Grüninger (2007) find no significant relationship between board size and cash holdings.

The effects of board size on leverage are mixed. Wen *et al.* (2002) and Abor (2007) and Saad (2010) argue that firms with large board size could have communication difficulties among the directors when they want to take a decision, which could increase the agency problem. Their results show board size is related to higher leverage. On the other hand a negative impact is recorded by Berger *et al.* (1997) and Hasan and Butt (2009) who argue that larger board size leads to stronger pressure by making managers pursue lower leverage to enhance firm value as high level of leverage might lead to financial distress. Finally, Wiwattanakantang (1999) finds that board size is not associated with leverage. The following tables summarises review of literature on the relationship between board size and cash holdings and leverage. Table 2.11 summarises the relationship between board size and cash holdings and Table 2.12 summarises the relationship between board size and leverage.

Table 2.11

Summary of the Literature on the Relationship between Board Size and Cash Holdings

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
Kusnadi (2011)	Malaysia and Singapore	A sample of 276 publicly listed companies (2000 to 2005).	OLS/2SlS	Board size has a positive influence on cash holdings.
Lee and Lee (2009)	Five Asian countries	A sample of 4206 firm-year observations during the period (2001 to 2005).	2SLS	Cash holdings are positively related to board size
Gill and Shah (2012)	Canada	A sample of 166 publicly listed companies (2008 to 2010).	OLS	Board size has a positive influence on cash holdings.
Drobetz and Grüninger (2007)	Swiss	A sample of 227 publicly listed companies over the period (1995 to 2004).	GMM	Cash holdings are not related to board size.

Table 2.12

Summary of the Literature on the Relationship between Board Size and Leverage

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
Saad (2010)	Malaysia	A sample of 126 publicly listed companies (1998 to 2006).	multiple regression	Leverage is positively related to board size.
Abor (2007)	Ghana	A sample of 22 publicly listed companies (1998 to 2003).	OLS	Board size has a positive impact on leverage.
Berger *et al.* (1997)	US	A sample of 452 industrial firms over the period (1984 to 1991).	OLS	Leverage is negatively related to board size.
Hasan and Butt (2009)	Pakistan	A sample of 177 firm- year observations of non-financial firms (2002 to 2005).	Pooled OLS	A negative relationship between board size and leverage.
Wiwattanakantang (1999)	Thailand	A sample of 270 of non-financial firms (1996).	OLS	Leverage is not related to board size.

2.4.2.2 Board Independence

Under agency theory arguments, the separation of corporate ownership and control could lead to self interested actions by managers (Jensen & Meckling, 1976). Walsh and Seward (1990) suggest that board independence might be doing an effective job to monitor and control management, which helps to improve firm value and mitigate agency problems.

Raheja (2005) and Adams and Ferreira (2007) state that independent directors lead to better monitoring and reduce the agency problems by protecting minority shareholders' wealth. Meanwhile, Boon, Field, Karpoff and Raheja (2007) state that companies with strong management influence or weak institutional investor ownership tends to have lower board independence.

Anderson and Reeb (2004) suggest one of the boards' functions is to resolve the conflicts arising from family control. Non-executive directors could help to enhance managerial decisions and reduce agency problems between family control and other shareholders (Miller & Le Breton-Miller, 2006). In contrast Brunninge, Nordqvist and Wiklund (2007) state that close relationship between independent directors and managers could weaken the monitoring activities and as a result reduce the effectiveness of boards.

Table 2.13 summarizes the review of literature on the relationship between board independence and cash holdings and the results are mixed. In the US, Chen (2008)

looks at the effect of corporate governance on cash holdings, by dividing the company in two types, the new economy such as computer, network, telecommunications, and internet industries, and the old economy. The author hypothesizes that board independence affects cash holdings differently among the two types of firms. They find that board independence have a positive relationship for the new economy companies and negative relationship for the old economy companies. Kusnadi (2011) finds board independence positively and significantly influences cash holdings. He argues that firm with less board independence would be more susceptible to agency problems, thus, hold larger amount of cash.

In contrast, Lee and Lee (2008) examine the relationship between corporate governance structure and cash holdings for a sample of 1061 firms in five Asian countries during the period of 2001 to 2005. They find board independence has a negative effect on cash holdings suggesting that stronger monitoring by independent directors mitigate managerial penchant to hold larger cash in the firm. Moreover, Harford *et al.* (2008) and Chen and Wang (2014) find that board independence is related to lower cash holdings.

Table 2.14 shows that the results on the relationship between board independence and leverage are mixed. Based on agency theory, director independence helps reduce the conflict between shareholders and firms' managers. Berger *et al.* (1997) suggest that when the board is controlled by independent directors, managers face stronger monitoring thus limit their personal benefits. The authors find that leverage is

positively related to board independence. Abor (2007) and Abor and Biekpe (2007) and Kajananthan (2012) also find board independence affects leverage positively.

Wen *et al.* (2002) find that leverage is negatively and significantly related to board independence suggesting that low percentage of independent directors leads to higher leverage, which shows that firms use creditors to monitor managerial actions. Al-Najjar and Hussainey (2011) examine the relationship between ownership and board structure with capital structure in UK firms. They find that there is a negative relationship between independent director and leverage. Finally, Hasan and Butt (2009) find no significant relationship between non-executive directors and leverage in Pakistan. A possible reason is that, in Pakistan, independent directors are not truly independent.

Table 2.13

Summary of the Literature on the Relationship between Board Independence and Cash Holdings

Author (s)	**Country**	Sample (Period)	Methodology	Key Findings
Kusnadi (2011)	Malaysia and Singapore	A sample of 276 publicly listed companies (2000 to 2005).	OLS/2SLS	Cash holdings are positively related to board independence.
Lee and Lee (2009)	Five Asian countries	A sample of 4206 firm-year observations during the period (2001 to 2005).	2SLS	Cash holdings are negatively related to board independence.
Harford *et al.* (2008)	US	A sample of 276 publicly listed companies (2000 to 2005).	OLS/2SLS	Cash holdings are negatively related to board independence.
Chen and Wang (2014)	Taiwan	A sample of 22567 publicly listed companies (1990 to 2011).	OLS	Cash holdings are negatively related to board independence.

Table 2.14

Summary of the Literature on the Relationship between Board Independence and Leverage

Author (s)	**Country**	Sample (Period)	Methodology	Key Findings
Berger *et al.* (1997)	US	A sample of 452 industrial firms over the period (1984 to 1991).	OLS	Leverage is positively related to board independence.
Abor (2007)	Ghana	A sample of 22 publicly listed companies (1998 to 2003).	Pooled OLS	Leverage is positively related to board independence.
Abor and Biekpe (2007)	Ghana	A sample of 150 Ghanaian SMEs firm (1998 to 2003).	OLS	Leverage is positively related to board independence.
Kajananthan (2012)	Sri Lanka	A sample of 28 manufacturing companies (1998 to 2003).	T-Test	Leverage is positively related to board independence.
Al-Najjar and Hussainey (2011)	UK	A sample of 379 non-financial firms from (1991 to 2002).	Pooled OLS	Leverage is negatively related to board independence
Wen *et al.* (2002)	China	A sample of 180 firm- year observations of Chinese listed firms (1996 to 1998).	OLS	Leverage is negatively related to board independence

Table 2.14 (Continued)

Author (s)	Country	Sample (Period)	Methodology	Key findings
Hasan and Butt (2009)	Pakistan	A sample of 177 firm- year observations of non-financial firms (2002 to 2005).	Pooled OLS	There is no significant relationship between independent directors and leverage.

2.4.2.3 Managerial, or Inside Director, Ownership

The conflict of interest between shareholders and managers arises mainly from the separation of control and ownership. Jensen and Meckling (1976) state that if managerial ownership increases, then agency costs would decline because managers receive a larger share of the costs from tasks that reduce firm value. Jensen (1986) states that managers tend to hold large cash reserves to fulfill their own interest which might be at odd with other shareholders.

Ozkan and Ozkan (2004) find that managerial ownership at lower level of ownership could be helpful in the alignment of benefits between shareholders and managers. They termed this alignment of interests as alignment effect. Thus, under alignment effect, cash holding is negatively related with managerial ownership. However, with an increase in the stake of the managers in the company, managers may choose to hold excess cash to fulfill their own interests. Therefore, under entrenchment effect, cash holdings are positively related to managerial ownership. However, if the managerial ownership in the company is high, then the alignment effect would be greater than the entrenchment effect as engagement in behaviors that could increase managerial benefits might be punished by investors in the form of lower stock price. As a result the authors find a non-monotonic relationship between managerial ownership and cash holding. Opler *et al.* (1999), Drobetz and Grüninger (2006) and Kusnadi (2011) also find a non-linear relationship between managerial ownership and cash holdings.

Agency theory suggests that debt can play a very important role in supervising managerial actions to protect shareholder's interest and reduce agency problem (Grossman & Hart, 1980). While information asymmetry theory suggests that debt could be used as a positive signal for the firms. Berger *et al.* (1997) and Chen and Steiner (1999) find that managerial ownership affects leverage positively. Bajaj *et al.* (1998) suggest that debt can be used as a signal by the management to mitigate managerial entrenchment, and find that insider ownership is positively related with leverage level of the firm.

However, Friend and Lang (1988) find that managerial ownership has a negative influence on leverage as managers want to avoid the bankruptcy risk of the firm by reducing the leverage level. Jensen, Solberg and Zorn (1992), Hasan and Butt (2009) and Uwuigbe (2014) also find that managerial ownership is related to lower leverage.

Finally, some studies support the non-linear relation between managerial ownership and leverage, as debt is high at low level of managerial ownership. However, with a greater level of managerial ownership, managers start to pursue private benefits, thus, debt level goes down (Ruan, Tian & Ma, 2009). Table 2.15 summarizes the literature on the relationship between managerial ownership and cash holdings and Table 2.16 summarizes the literature on the relationship between managerial ownership and leverage.

Table 2.15

Summary of the Literature on the Relationship between Managerial Ownership and Cash Holdings

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
Kusnadi (2011)	Malaysia and Singapore	A sample of 276 publicly listed companies (2000 to 2005).	OLS/2SLS	A non-linear relationship between managerial ownership and cash holdings.
Ozkan and Ozkan (2004)	UK	A sample of 1029 publicly listed companies (1984 to 1999).	GMM	A non-linear relationship between managerial ownership and cash holdings.
Opler *et al*. (1999)	US	A sample of 1048 non-financial firms during the period (1971 to 1994).	OLS	A non-linear relationship between managerial ownership and cash holdings.
Drobetz and Grüninger (2007)	Swiss	A sample of 227 publicly listed companies over the period (1995 to 2004).	GMM	A non-linear relationship between managerial ownership and cash holdings.

Table 2.16

Summary of the Literature on the Relationship between Managerial Ownership and Leverage

Author (s)	**Country**	Sample (Period)	Methodology	Key Findings
Berger *et al.* (1997)	US	A sample of 452 industrial firms over the period (1984 to 1991).	OLS	Leverage is positively related to managerial ownership.
Chen and Steiner (1999)	US	A sample of 785 publicly listed companies over the period (1991 to 1993).	2SLS	Leverage is positively related to managerial ownership.
Hasan and Butt (2009)	Pakistan	A sample of 177 firm- year observations of non-financial firms (2002 to 2005).	Pooled OLS	A negative relationship between managerial ownership and leverage.
Jensen, Solberg and Zorn (1992)	US	A sample of 565 publicly listed companies over the period (1982 to 1987).	3SLS	Leverage is negatively related to managerial ownership.
Uwuigbe (2014)	Nigeria	A sample of 40 publicly listed companies (2006 to 2011).	OLS	Leverage is negatively related to managerial ownership.

2.4.2.4 CEO Duality

Early studies suggest that a more effective control mechanism could be achieved when chairman and CEO are two different persons. Mallette and Fowler (1992) state that agency theory indicates if the chairman of the board is the CEO, it reduces the effectiveness of board monitoring. Consistent with this view, Jensen (1993) states that it is important to separate the positions of chairman from CEO if the board is to function as an effective monitoring device. Jensen (1993) states that if both positions are held by the same person, agency problems are expected to increase. Therefore, the separation of both roles would allow the company to be managed and monitored more effectively.

Anderson and Anthony (1986) and Dahya, Lonie and Power (1996) state that the duality role could assist the CEO in improving decision making for achieving firms' objective, with minimum board interference. In addition, when more power is held by one person it may lead to better decisions (Rechner & Dalton, 1991; Donaldson & Davis, 1991). Sridharan and Marsinko (1997) state that the separation of power between chairman and CEO reduces the authority of managers, which increases the possibilities of conflict between management and board of directors.

Drobetz and Grüninger (2006) suggest that agency problems are much higher when the CEO and the chairman is the same person. Therefore, the authors find a positive relationship between CEO duality and cash holdings. In addition, Kusnadi (2011) finds the relationship between CEO duality and cash holdings are positive and

significant. In Canada, Gill and Shah (2012) also find cash holdings are positively and significantly related to CEO duality. Further Lee and Lee (2008) find that the separation between CEO and chairman positions leads to lower cash holdings suggesting that separating the positions of CEO and chairman reduce the propensity to hold excessive cash. Finally, Ozkan and Ozkan (2004) and Chen and Wang (2014) find that cash holdings are not related to CEO duality.

Abor (2007) finds that leverage is positively related to CEO duality, suggesting that leverage could be used to reduce agency problems associated with CEO duality as creditors will monitor the actions of CEO-chairman. Abor and Biekpe (2007), Saad (2010), Ranti (2013) and Uwuigbe (2014) also find a positive relationship between leverage and CEO duality. Fosberg (2004) finds that separating CEO from chairman does not lead to different leverage level. Finally, in Pakistan, Hasan and Butt (2009) demonstrate that capital structure has no significant relationship with CEO duality. In summary, there is inconclusive evidence regarding the relationship between CEO duality with either cash holdings or leverage. Table 2.17 summarizes the literature of the relationship between CEO duality and cash holdings and Table 2.18 summarizes the literature of the relationship between CEO duality and leverage.

Table 2.17

Summary of the Literature on the Relationship between CEO Duality and Cash Holdings

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
Gill and Shah (2012)	Canada	A sample of 166 publicly listed companies (2008 to 2010).	OLS	A positive relationship between CEO duality and cash holdings.
Drobetz and Grüninger (2007)	Swiss	A sample of 227 publicly listed companies over the period (1995 to 2004).	GMM	Cash holdings are positively related to CEO duality.
Kusnadi (2011)	Malaysia and Singapore	A sample of 276 publicly listed companies (2000 to 2005).	OLS/2SLS	A positive relationship between CEO duality and cash holding.
Lee and Lee (2009)	Five Asian countries	A sample of 4206 firm-year observations during the period (2001 to 2005).	2SLS	Cash holdings are negatively related to board CEO duality.
Ozkan and Ozkan (2004)	UK	A sample of 1029 publicly listed companies (1984 to 1999).	GMM	Cash holdings are negatively related to board CEO duality.

Table 2.17 (Continued)

Author (s)	Country	Sample (Period)	Methodology	Key findings
Chen and Wang (2014)	Taiwan	A sample of 22567 publicly listed companies (1990 to 2011).	OLS	Cash holdings are not related to CEO duality.

Table 2.18

Summary of the Literature on the Relationship between CEO Duality and Leverage

Author (s)	**Country**	**Sample (Period)**	**Methodology**	**Key Findings**
Abor (2007)	Ghana	A sample of 22 publicly listed companies (1998 to 2003).	Pooled OLS	Leverage is positively related to board CEO duality.
Abor and Biekpe (2007)	Ghana	A sample of 150 Ghanaian SMEs firm (1998 to 2003).	OLS	Leverage is positively related to CEO duality.
Saad (2010)	Malaysia	A sample of 126 publicly listed companies (1998 to 2006).	multiple regression	Leverage is positively related to CEO duality.
Uwuigbe (2014)	Nigeria	A sample of 40 publicly listed companies (2006 to 2011).	OLS	Leverage is positively related to CEO duality.
Ranti (2013)	Nigeria	A sample of 40 publicly listed companies (2006 to 2011).	OLS	Leverage is positively related to CEO duality.

2.4.3 Instrumental Variables

This paper examines the simultaneous relationship between cash holdings and leverage. The presence of the simultaneity can cause endogenous relationship in the model. This leads to OLS being inconsistent and biased. In order to alleviate the endogenous problem, this paper uses two stage least square (2SLS). In order for 2SLS to mitigate the biased and inconsistent estimators, the 2SLS require at least one instrumental variable for each dependent variable in the equation. This study uses two instrumental variables for each dependent variable. Sections 2.4.3.1 and 2.4.3.2 explain the instrumental variables that only affect leverage, while sections 2.4.3.3 and 2.4.3.4 explain instrumental variables that only affect cash holdings

2.4.3.1 Corporate Tax Rate

Tax based theory implies that a major borrowing incentive is the tax advantage of interest payment. As a result, if a firm pays high tax rate, they will choose higher leverage level to reduce the tax load. Modigliani and Miller (1963) are the first to demonstrate the role of the tax benefit of debt. They built a basic model that predicts the association between leverage and corporate tax benefit. Barakat and Rao (2004) use a sample of 12 Arabic countries and find that the corporate tax rate has a positive influence on financial leverage. There results suggest that companies with high corporate tax rate are utilizing more debt due to higher debt tax shield interests. MacKie-Mason (1990) and Graham (1996) find that corporate tax rate is related to increase leverage. However, Dhaliwal, Heitzman and Li (2005) find that leverage is negatively related to corporate tax rates. They argue that higher leverage level would

increase the cost of leverage equity thus reduce the corporate tax benefits. Booth *et al.* (2001), Antoniou, Guney and Paudyal (2002) also find that corporate tax rate is related to lower leverage.

2.4.3.2 Non-Debt Tax Shield

Firms want to use tax deductibility of interest to decrease the tax bill. The tax based theory predicts that the firms have a motivation to take on more debt because they might exploit the tax shield. DeAngelo and Masulis (1980) claimed that the existence of other tax shields, such as depreciation, may also affect leverage. Non-debt tax shields could act as a proxy for tax deductible of debt financing. Therefore, firms with large non-debt tax shields have lower leverage level. Graham (1996), Shenoy and Koch (1996), Huang and Song (2006) and Kolay, Schallheim and Wells (2011) find that non-debt tax shield affect leverage negatively.

2.4.3.3 Non-Cash Liquid Assets

Opler *et al.* (1999) state that non-cash liquid assets are substitutes for holding cash. The trade off theory suggests that cash holdings are negatively related to non-cash liquid assets because the liquid assets could be converted into cash. With available non-liquid assets firms may not have to use the external financing to increase their funds if they are facing a shortage of cash (Ferreira & Vilela, 2004). Wenyao (2006), Gueney *et al.* (2007), Bates *et al.* (2009) and Al-Najjar (2013) find that non-liquid assets affect cash holdings negatively, which support the trade-off theory.

2.4.3.4 Inventories

Inventories are less liquid compared to non-cash liquid assets. Trade off theory suggests that firms are able to get funds by selling inventories but at a lower value as inventory is less liquid. Ogundipe, Salawu and Ogundipe (2012) find that inventory can be sold in the product markets for cash. In addition, Capkun and Weiss (2007) and Huang (2011) also find cash holdings are negatively and significantly related to inventory and cash holding.

2.4.4 Control Variables

This thesis uses the following variables to control for firm specific characteristics that have a potential influence on the cash holdings and leverage policies. These control variables are profitability, firm size and growth opportunity.

2.4.4.1 Profitability

Myers and Majluf (1984) argue that companies prefer inside sources of finance to outside sources. This preference suggests that, in line with pecking order theory, companies prefer inside funds, followed by debt, and finally external equity for financing new projects. A highly profitable company uses lower debt due to the fact that it has higher internal funds. In this case, pecking order theory predicts that higher profitability would lead to higher cash holdings. However, the trade-off theory indicates a negative impact of profitability on cash holdings. As profitable firms have more cash flows from operations, they do not have to worry about holding larger amount of cash to avoid the underinvestment problems (Ozkan and Ozkan, 2002). Kim *et al*. (1998) Ozkan and Ozkan, (2002), Bates, Kahle and Stulz

(2009) and Niskanen and Steijvers (2010) noted that profitability affects negatively on cash holdings.

Ferreira and Vilela (2004) use a sample of 400 companies in 12 EMU economies for the period 1987-2000. The authors find that profitability is related to decreased cash holdings. They suggest that highly profitable companies utilize their earnings to increase their cash reserves and consequently, they are expected to hold more cash.

The trade-off theory predicts that profitability influences leverage positively as highly profitable firms could use more debt financing to lower the tax obligations and subsequently increase their firm value. Jensen (1986) and Williamson (1988) define debt as a disciplining instrument for managers where managers use profit to pay for debt instead of pursuing their own interests. Thus, agency theory predicts that firms would use higher leverage to mitigate agency problems. Wald (1999), Wiwattanakantang (1999) and Booth *et al.* (2001) find that profitability affects leverage positively. Kester (1986), Titman and Wessels (1988), Wald (1999) and Huang and Song (2006) find that leverage is negatively and significantly related to profitability. Finally, Long and Maltiz (1985) find an insignificant relationship between leverage and profitability.

2.4.4.2 Firm Size

Under trade off theory, Mulligan (1997) argues that large firms tend to hold lower cash because large firms can gain from economies of scale. Mulligan (1997), Ferreira and Vilela (2004), Ozkan and Ozkan (2004), Bigelli and Vidal (2012) and

Al-Najjar (2013) suggest that cash holdings and firm size have negative relationship. However, pecking order theory suggests that firm size has a positive influence on cash holdings because large firms usually perform well enough as compared to that of small firms and therefore have excess cash (Opler *et al.*, 1999).

Further Titman and Wessels (1988) argue that a larger firm faces a lower bankruptcy costs as compared to small firms. As a result larger firms might prefer to usemore leverage. In this case, firm size has a positive impact on leverage (Jamal *et al.*, 2013). Friend and Lang (1988), Marsh (1982) and Huang and Song (2006) also find that firms size has a positive influence on leverage.

According to Rajan and Zingales (1995), larger firms have lower information asymmetry compared to small companies. Thus they are able to issue more equity in the financial market. This might lead to firm size has a negative influence on leverage. Kester (1986), Titman and Wessels (1988) and Kim and Sorensen (1986) find that firm size is related to lower leverage.

2.4.4.3 Growth Opportunity

Under agency theory, entrenched managers of firms with low growth opportunities may accumulate cash and use it at their discretion (Opler *et al.*, 1999). Myers and Majluf (1984) state that there is a severe asymmetric information problem faced by firms that have larger growth opportunities. A severe asymmetric information problem between insiders and outsiders cause external financing to be more costly. Therefore information asymmetry predicts a positive relationship between growth

opportunity and cash holdings. Kim *et al.* (1998), Ozkan and Ozkan (2004) and Guney *et al.* (2007) find that firms with greater growth opportunities hold more cash. In contrast Ferreira and Vilela (2004) and Bigelli and Vidal (2012) find that cash holdings are negatively related to growth opportunity.

Sinha (1992) and Michaelas *et al.* (1999) state that higher growth opportunities imply a higher demand for funds and this might lead to a negative impact of growth opportunity on leverage. Meanwhile, agency theory suggests that firms with high growth opportunities tend to use low leverage with short maturity as one way to reduce the agency conflict and the cost of debt (Barclay & Smith, 1995). Lasfer (1995), Johnson (2003) and Billett, King and Mauer (2007) find that growth opportunity has a negative influence on leverage.

2.5 Summary of the Chapter

The results of empirical studies have shown that the study of cash holdings are needed when a company holds huge amounts of cash relative to its assets. The discussions elaborate that holding excess cash would lead to increase agency problems. On the other hand, using higher leverage would lead to financial distress and increase the bankruptcy cost in the firm. Therefore in order to gain more understanding it is worthwhile to study the relationship between cash holding and leverage simultaneously.

In general, many Malaysian firms are controlled by large shareholders such as families, GLICs, state, foreign investors, and private domestic institutional investors. This structure allows the families or the large shareholders to choose strategies that would fulfill their own benefit at the expense of minority shareholders. In addition, evidence shows that smaller board, stronger independent directors and the separation between chairman and CEO would act as important force in protecting minority shareholder's interest which could overcome agency problem and information asymmetric problem, thus, could lead to better decision.

CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Introduction

This chapter explains the theoretical framework of this thesis and presents the hypotheses. Section 3.2 discusses the theoretical framework by examining the simultaneous relationship between cash holdings and leverage and their explanatory variables. Section 3.3 discusses the 23 hypotheses to be tested in relation to the effect of ownership and board structures on cash holdings and leverage policies. Section 3.4 describes the proxies and measurement of the variables and section 3.5 explains the research method that is adopted. Finally section 3.6 presents the data collection by explaining the source of the data that is used in this thesis.

3.1 Theoretical Framework

This thesis examines the effects of ownership structures and board characteristics on financial policies (cash holding and leverage) as summarized in Figure 3.1. Ownership structures are classified as family ownership, business group and institutional investors. Most of Malaysian firms are controlled by families (Amran & Ahmad, 2009). Such ownership structure might affect cash holdings and leverage polices. Claessens *et al.* (2000) argue that family ownership has a strong controlling power to affect corporate policy. Highly concentrated family firms might seek to extract private benefits from minority shareholders, thus increase agency problems. This problem might become more severe if families try to extend their control through business groups (Bany Ariffin *et al.*, 2010).

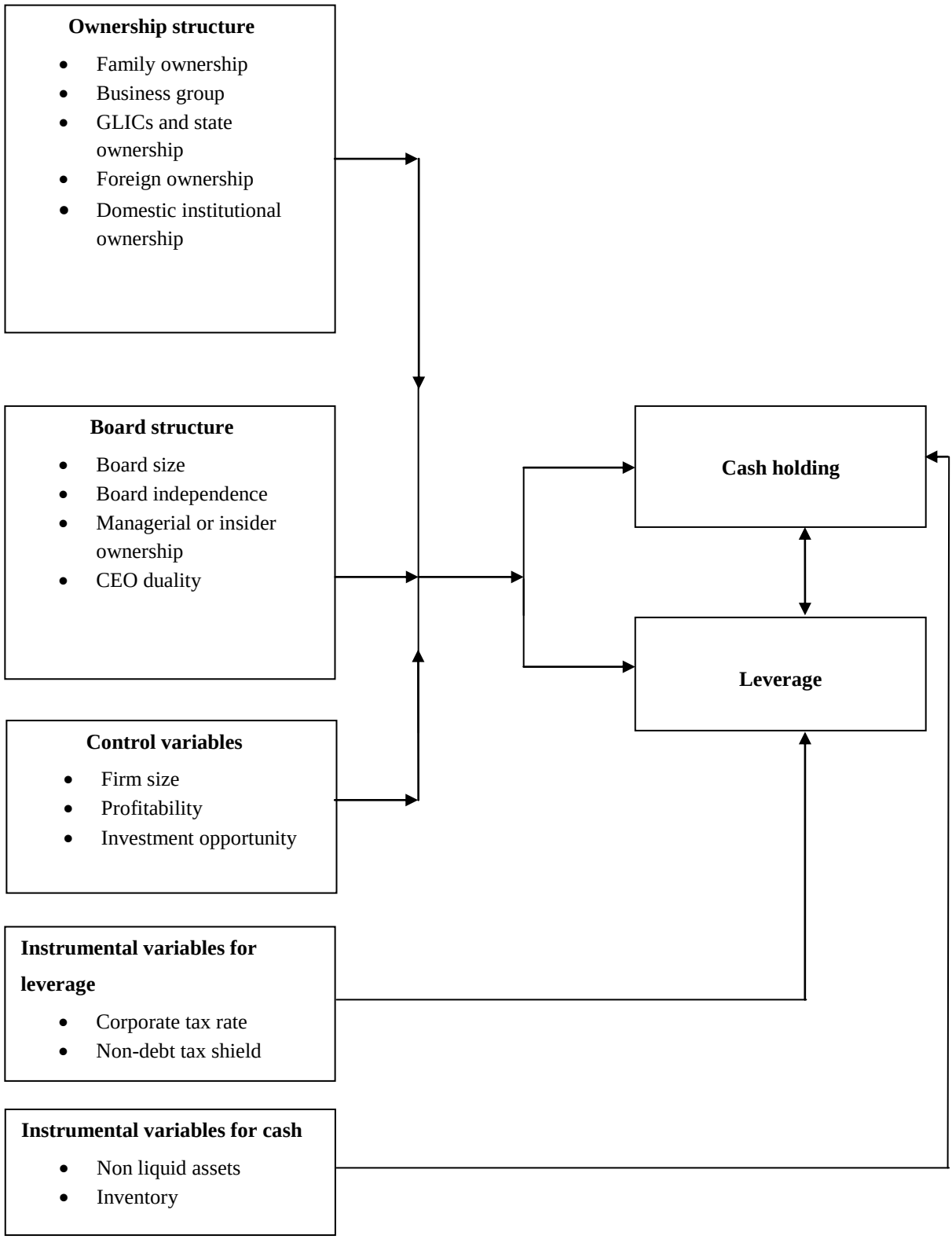

Figure 3.1

Determinants of Cash Holdings and Leverage

The presence of institutional shareholding through government ownership either by government listed investment companies (GLICs) or state ownership, foreign investors, and domestic institutional investors in a company plays an important role in resolving or increasing firm's agency problems. Shleifer and Vishny (1997) state that institutional investors can promote their interests. On the other hand, Shleifer and Vishny (1986) and Hasan and Butt (2009) state that institutional investors monitor the manager's decisions as they mitigate the agency problem between managers and other shareholders. Therefore, it is important to study the effect of institutional ownership on cash holdings and leverage.

Board characteristics can be classified into board size, board independence, managerial ownership, and CEO duality. Ozkan and Ozkan (2004) argue that companies with more independent directors would lower the information asymmetric problem and, thus, increase firm value. In addition, Desai *et al.* (2005) and Brenes, Madrigal and Requena (2011) suggest that the existence of independent directors signal to investors that the firm is under efficient monitoring; thus, investors would consider the firm as having an effective corporate governance structure.

The board of directors plays vital role in strategic decisions such as financial mix. Harford *et al.* (2008) argue that managerial ownership offers specific knowledge on project which helps board to understand and elaborate the various dimensions of the company's business. As for CEO duality, where a person holds responsibility and power as both CEO and chairman, it may create agency problems and lead to managerial opportunism.

3.2 Hypotheses Development

This section provides arguments and supports for the hypotheses. There are twenty three hypotheses developed for the study.

3.2.1 Cash holdings and Leverage

Empirical evidence on the relationship between cash holdings and leverage policies are mixed. Jensen and Meckling (1976) state that managers tend to retain cash to pursue their own interests which increases agency problems. In this case, leverage could be used to mitigate agency problems. Therefore, leverage would influence cash holdings negatively as companies might use debt to reduce agency problems associated with cash holdings (John, 1993). In line with this, Kim *et al.* (1998) and Ferrira and Vilela (2004) state that leverage and cash holdings are negatively related. On the other hand, firms tend to hold excess cash to avoid information asymmetric problems from using external financing that might cause financial distress and bankruptcy cost (Faulkender, 2004). Graham and Harvey (2001) find that leverage is negatively influenced by cash holdings.

Further, Garcia-Teruel and Martinez-Solano (2008) state that excess cash could lead to lower financial distress and bankruptcy cost. This allows a company to use more debt. The authors find that cash holdings affect leverage positively. Williamson (1988) also finds a positive relationship between cash holdings and firms leverage. Therefore in line with agency theory and information asymmetric theory, the following hypotheses are developed:

H1a: Cash holdings affect leverage.

H1b: Leverage affects cash holdings.

3.2.2 Ownership Structure

Ownership structure could affect cash holdings and leverage. Since Malaysian listed firms are largely controlled by large shareholders such as families, government and other institutional ownership (Claessens & Fan, 2002), it is important to investigate how different types of ownership are influencing cash holdings and leverage. Therefore, the following hypotheses examine the effects of ownership structures on cash holdings and leverage.

3.2.2.1 Family Ownership

Claessens *et al.* (2000) discussed the ownership structure of East Asian firms and suggest that families are having a dominating role in Asian countries including Malaysia. Many of Malaysian firms are controlled by families, and some of these families members serve as senior managers in the firms. Therefore, they would be expected to have wide discretions with respect to corporate cash policies (Kusnadi, 2007). Under agency theory, family controlled firms tend to hold more cash to pursue their own benefits, and this would lead to positive relationship between family ownership and cash holdings (Ozkan & Ozkan, 2004; Kusnadi, 2011). On the other hand, families could monitor their firms more effectively as they have a higher fraction of their wealth in their firms (Anderson & Reeb, 2003). Chen and Wang (2014) find that family ownership has a negative influence on cash holdings. Therefore, the following hypothesis is developed:

H2: There is a relationship between family ownership and cash holdings.

In family firms, the owners themselves act as managers. There is less need for debt to function as disciplining tool for managers. Therefore, shareholdings of family ownership are expected to be negatively correlated with leverage (Zou & Xiao, 2006; Mishra & McConaughy, 1999). In addition, family legacy and concentration of family wealth in the business also causes family controlled firms to have less desire for debt financing (King & Santor, 2008). This also supports the argument family-owned firms used lower leverage.

To reduce the agency problems between families and monitoring shareholders, family owned firms will use higher leverage (Schulze, Lubatki & Dino, 2003). Therefore the relationship between family ownership and leverage might be positive. Stulz (1988), Harijono and George (2005) and Ellul (2008) find a positive relation between leverage and family ownership. Therefore the following hypothesis is developed:

H3: There is a relationship between family ownership and leverage.

3.2.2.2 Business Group

Many of firms in East Asia are composed of family controlled business groups through pyramids and cross shareholding (La Porta *et al.*, 1999). In addition, the non-family firms which are controlled by governments may also use business group. The existence of business group allows controlling owners to allocate assets among member firms, including cash (Khanna & Palepu, 2000). Moreover business group

members have the advantage that they can access both external and internal capital markets. Internal capital markets have lower information asymmetries between member firms and increase the availability of external financing via guarantees and shared group reputation. On the other hand, Back *et al.* (2006) state that business group could increase the ultimate control rights of large shareholders through tunneling; thus, increasing the agency problems between majority shareholders and minority shareholders. Studies show that business group affiliation is likely to have an impact on the cash policy. Dewaelheyns *et al.* (2010), Kusnadi (2011) and Chen and Wang (2014) find that business group affect cash holdings negatively while Tsai (2012) finds that business group has a positive influence on cash holdings. Thus, the following hypothesis is developed:

H4: There is a relationship between business group and cash holdings

Under information asymmetric argument, Du and Dai (2005) and Manos *et al.* (2007) state that controlling owners utilize more debt to signal to investors that corporate governance in group affiliated firms is good, and this gives confidence to the investors to invest more in the firm. The authors find that leverage is positively related to business group. Furthermore in a business group, affiliated firms could help each other which could increase debt capacity. Thus, business groups could affect leverage positively. In contrast when firms use high leverage level, it can lead to financial distress and this might lead to negative relationship between business group and leverage. Therefore, the following hypothesis is tested:

H5: There is a relationship between business group and leverage.

3.2.2.3 Government-Linked Investment Companies (GLICs) and State Ownership

Government ownership, either through GLICs or state, can mitigate agency problem by forcing corporate managers to take decisions in the interests of minority shareholders. In addition, GLICs and state performance is monitored by the government. If their performance is not good, top management of GLICs and state organization might be replaced and this might affect the value of their future human capital. Thus, they have every incentive to make sure that companies under their control are being managed properly. Chen *et al*. (2012) find the impact of government ownership is negative on cash holdings. In addition, Megginson and Wei (2010) find that cash holding is negatively related to state ownership.

Agency theories suggest that those who control the firm use corporate resources for their own interests. Therefore, under weak corporate governance, government ownership cannot monitor the companies' efficiently. This might raise the agency problem between majority and minority shareholders, and this gives the chance to large shareholders to use the company's fund for their own benefits. This might lead to positive relationship between government ownership and cash holding. Therefore, the following hypotheses are developed:

H6a: There is a relationship between GLICs ownership and cash holdings.

H6b: There is a relationship between state ownership and cash holdings.

GLICs and state-owned companies are more likely to finance new investment projects with debt, rather than equity, because debt reduces agency costs by forcing managers to reduce their discretionary expenditure. In addition firms with high GLICs and state ownership might obtain loans more easily because of government connection (Manos *et al.*, 2007; Tam & Tan, 2007). Gul (1999) shows that the influence of government ownership is positive on leverage.

However, if GLICs and state owned a substantial amount of shares in a company, they have a higher incentive to monitor the management of that company. Thus, instead of using debt holders or creditors as monitors, GLICs and state could monitor the company themselves. In this case, leverage would be inversely related to GLICs and state ownership. Su (2010) finds that government ownership has a negative impact on leverage. Therefore, the following hypotheses are tested:

H7a: There is a relationship between GLICs and leverage.

H7b: There is a relationship between state ownership and leverage.

3.2.2.4 Foreign and Domestic Institutional Ownership

Foreign and domestic institutional ownership could monitor managerial actions and this would mitigate agency and managerial entrenchment. In addition, under information asymmetry theory, Choe, Kho and Stulz (2005) and Covrig *et al.* (2006) argue that institutional ownership can reduce the information asymmetry that influences the investment decisions of the managers and gives confidence to general

public. This might lead to cash holdings being negatively related to foreign ownership.

On the other hand, King and Wen (2011) indicate that institutional shareholders could create strategic alliances with managers at the expense of minority shareholders. Thus, higher institutional ownership will lead to higher personal benefits for the managers and this would lead to institutional investors have a positive impact on cash holdings. Karpavicius and Yu (2011) and Brown *et al.* (2012) find that institutional investors affect cash holdings positively. Therefore, the following hypotheses are developed:

H8: There is a relationship between foreign ownership and cash holdings.

H9: There is a relationship between domestic institutional ownership and cash holdings.

In general, when more shares are held by institutions, the implication is that the monitoring of managers is more effective and hence can raise firm value (Jensen, 1986; Shleifer & Vishny, 1986). Hasan and Butt (2009) argue that institutional investors play a role in monitoring the strategic decisions of a firm. Thus, institutional investors could reduce agency costs and managerial opportunism. Therefore, firms with strong institutional shareholders are more likely to have less debt (La Porta *et al.*, 2000). Kang and Stulz (1997) find that institutional ownership is negatively related to leverage. Li *et al.* (2009) find that foreign investors have a

significant negative impact on leverage. Huyghebaert and Hulle (2004) find that the relationship between domestic ownership and leverage is negatively related.

Under information asymmetry theory, Myers and Majluf (1984) state that company could reduce information asymmetric problem by first using internal funds, followed by debt and finally equity. Institutional investors mitigate the adverse selection costs of equity by reducing information asymmetry through information-gathering activities and their trading patterns (Sias, 2004; Bushee & Goodman, 2007). This might lead to institutional ownership influences leverage positively. Therefore, the following hypotheses are developed:

H10: There is a relationship between foreign ownership and leverage.

H11: There is a relationship between domestic institutional ownership and leverage

3.2.3 Board Characteristics

Board structure will affect cash holdings and leverage. The following hypotheses show the relationship between board structures and their effects on cash holdings and leverage. The following sections discuss the effects of board size, board independence, managerial ownership, and CEO duality on cash holdings and leverage.

3.2.3.1 Board Size

Dittmar *et al.* (2003) argue that large board tends to be very slow and less effective, and agency conflict is increasing in firms with large board, especially those

dominated by insiders and low non-management ownership. Yermack (1996) states that larger boards are less efficient compared to smaller boards as smaller boards provide greater decision making. In line with this, Lee and Lee (2009), Kusnadi (2011) and Gill and Shah (2012) find that board size has a positive influence on cash holdings. On the other hand, Anderson *et al.* (2004) suggest that large boards would provide greater monitoring and advice. This might lead to a negative relationship between cash holdings and board size. Therefore, the following hypothesis is developed:

H12: There is a relationship between board size and cash holdings.

Berger *et al.* (1997) show that board size has a negative impact on leverage. Their findings suggest that larger board size could put strong pressure on managers to use lower leverage to increase firm's performance. On the other hand, Wen *et al.* (2002) and Abor (2007) find that board size is positively related to leverage. They explain that large board tends to use high level of leverage to reduce the agency cost and increase firm value. Therefore, the following hypothesis is tested:

H13: There is a relationship between board size and leverage.

3.2.3.2 Board Independence

Myers and Rajan (1998) suggest that managers tend to use more cash to pursue their own benefits. Independent directors can act as effective monitors and reduce the agency problem (Byrd & Hickman, 1992). This might lead to negative relationship

between board independence and cash holding. In line with this, Harford *et al.* (2008), Lee and Lee (2009) and Chen and Wang (2014) find that board independence has a negative influence on cash holdings.

In contrast, under weak corporate governance, board independence could not monitor the management effectively and this could lead to an increase in agency problems by giving the managers the chance to pursue their own benefits. This could lead to board independence has a positive impact on cash holdings (Kusnadi, 2011). Therefore, it is expected that:

H14: There is a relationship between board independence and cash holding.

The presence of independent directors in a firm gives signals to investors that the firm is monitored in an effective manner, which leads to lenders willing to extend credit to the firm. Furthermore, long term funds via debt financing could be easily raised for the firm (Hasan & Butt, 2009). Berger *et al.* (1997), Abor (2007) and Abor and Biekpe (2007) find that independent directors affect leverage positively. Moreover, an absence of the independence in a board allows managers to pursue their own benefits (Friend & Lang, 1988). However, if independent directors truly monitor managerial actions, the need for external funds through debt financing could be reduced. Thus, in this case the presence of independent directors leads to lower leverage. Wen *et al.* (2002) and Al-Najjar and Hussainey (2011) find that leverage is negatively associated with board independence. Therefore the following hypothesis is developed:

H15: There is a relationship between board independence and leverage.

3.2.3.3 Managerial Ownership

Under agency theory, managers gain personal benefits from holding large amount of cash (Jensen, 1986). Jensen and Meckling (1976) argue that managerial ownership decreases the benefits of value reducing actions. Ozkan and Ozkan (2004), Harford *et al.* (2007) and Kusnadi (2011) find a non-monotonic relationship between insider ownership and cash holdings, where at lower level of managerial ownership, cash holding is negatively related with managerial ownership (alignment effect) but at higher level of managerial ownership, cash holdings are positively related with managerial ownership (entrenchment effect). Therefore the following hypothesis is developed:

H16: There is a relationship between managerial ownership and cash holding.

Friend and Hasbrouck (1988) argue that increased managerial ownership leads to leverage reduction as managers try to reduce the default risk. This shows that managerial ownership influences leverage negatively. Berger *et al.* (1997) and Chen and Steiner (1999) also find that leverage is negatively related to managerial ownership. However, higher managerial ownership could lead to managerial entrenchment with significant voting power and influence. In this case, they might manipulate the debt structure to maximize their personal benefits. For example, they may increase debt to obtain more cash to build a "management empire" (Ruan *et al.*,

2009). Higher managerial ownership could lead to higher agency problems between managers and other shareholders. In this case, leverage could be used to monitor managerial actions. These arguments lead to a positive relationship between managerial ownership and leverage (Friend and Lang, 1988; Short *et al.*, 2002). Therefore, it is expected that:

H17: There is a relationship between managerial ownership and leverage.

3.2.3.4 CEO Duality

CEO duality reduces the monitoring role of board of directors over the executive managers and this reduces the effectiveness of board and increases the agency problem. The findings of previous studies show that CEO duality is related to higher cash holdings (Drobetz & Grüninger 2007; Gill & Shah, 2012). Likewise, Yermack (1996) argues that firms are more valuable when the functions of the CEO and chair person are separated. Thus, according to agency theory, the separation of CEO and chairperson would lead to lower cash holdings. Therefore, the following hypothesis is developed:

H18: There is a relationship between CEO duality and cash holding.

Under agency theory, when the positions of CEO and the chairman are both held by the same person there is a possibility that it may lead to opportunistic behaviours by managers to pursue private benefits. This would lead to negative relationship between CEO duality and leverage. In contrast, Donaldson and Davis (1991) argue

that when the roles of CEO and chairperson are held by the same individual, it would create a necessary and important unity of command which helps to increase the effectiveness in decision-making. This might lead to CEO duality is related to increased leverage (Fosberg, 2004). Abor (2007) and Abor and Biekpe (2007) find that leverage is positively related to CEO duality. Based on these arguments, the following hypothesis is developed:

H19: There is a relationship between CEO duality and leverage.

3.2.4 Instrumental Variables

This section discusses the relevant hypotheses for the instrumental variables of leverage and cash holdings that are being used in this study in order to solve the endogeneity problem.

3.2.4.1 Corporate Tax Rate

Firms with higher tax rates should use more debt to take advantage of the tax-shield gains. Graham (1996) and Graham, Lemmon and Schalheim (1998) find a positive relationship between debt levels and tax rates. However, Dhaliwal *et al.* (2005) Antoniou *et al.* (2002) find that tax rate negatively influences leverage. Therefore, the following hypothesis is tested:

H20: There is a relationship between corporate tax rate and leverage.

3.2.4.2 Non-Debt Tax Shield

DeAngelo and Masulis (1980) argue that firms with higher non-debt tax shields (such as net operating losses and depreciation) are more likely to have lower leverage. Bennett and Donnelly (1993) and Ozkan (2001) find that leverage is negatively and significantly related to non-debt tax shields. In contrast, Bradley *et al.* (1984) and Wald (1999) find that non-debt tax shields have a positive influence on leverage. Therefore the following hypothesis is developed:

H21: There is a negative relationship between non-debt tax shield and leverage.

3.2.4.3 Non-Cash Liquid Assets

Firms can hold other liquid assets such as accounts receivables besides cash, which could be used as a substitutes for cash holdings when they experienced cash shortfalls. This argument predicts that there is a negative relationship between the cash holdings and liquid assets (see for example Ozkan & Ozkan, 2004; Lee & Song, 2007; Chiang & Wang, 2011). Therefore, in line with tradeoff theory the following the hypothesis is developed:

H22: There is a negative relationship between non-cash liquid assets and cash holdings.

3.2.4.4 Inventory

Firms can use inventory as a substitute for cash. When there is a shortfall in cash, firms liquidate the inventory to cover the shortfall. This action shows that inventory

affects cash holdings negatively. In line with this, Huang (2011) finds that cash holdings are negatively related to inventory. Thus, the following hypothesis is examined:

H23: There is a negative relationship between inventory and cash holdings.

3.3 Measurement of Variables

This section provides the operational definitions of each variable examined in this thesis. The dependent variables are cash holding and leverage. The independent variables are composed of ownership characteristics, board structures, control and instruments. Table 3.1 provides a summary of the measurements used in this thesis.

Table 3.1

Summary of the Measurements of the Variables

Variables	**Corresponding abbreviations**	**Proxy for measurement**	**Study/References**
Cash holdings	CASH	Cash and cash equivalent (WC02001) to total assets (WC02999).	Al-Najjar (2013), Chen and Wang (2014).
Leverage	LEVERAGE	Total debt (WC 03255) to total asset (WC02999).	Teruel and Solano (2008), Hasan and Butt (2009).
Ownership characteristics			
Family ownership	FAMILYOWN	Percentage of shares holds by family. Family is identified as an individual or group of individuals related by family ties who holds the largest voting block of at least 10% of the total votes.	Smith and Amoako-Adu (1999), Miller, Le Breton-Miller, Lester & Cannella Jr (2007).
Business group and pyramids	BUSGROUP	Dummy = 1 if family control at least three the firms via business group, 0 otherwise.	Khanna and Palepu (2000), Kusnadi (2011).

Table 3.1 (Continued)

Variables	Corresponding abbreviations	Proxy for measurement	Study/References
GLICs	GLICS	Percentage of total shares held by GLICs.	Chu and Cheah (2004), Najib and Abdul Rahman (2011).
State	STATEOWN	Percentage of total share held by state government.	Li et al. (2009), Cornett et al. (2009)
Foreign ownership	FOREIGNOWN	Percentage of the total shares held by the foreign investors.	Ang and Ding (2006), Najid and Abdul Rahman (2011)
Private domestic institutional investors ownership	DOMESTIC OWN	Percentage of the total share held by the private domestic institutional investors (such as unit trust, insurance companies, and banks).	Bennett, Sias and Starks (2003), Ferreira and Matos (2008).

Table 3.1 (Continued)

Variables	Corresponding abbreviations	Proxy for measurement	Study/References
Board structures			
Board size	BOARDSIZE	Number of directors in the board.	Krishnan and Visvanathan (2008), Lam and Lee (2008)
Board independence	INDEPENDENCE	Percentage of independent directors to total directors on board.	Peasnell, Pope and Young (2006), Lee and Lee (2009).
Managerial ownership	MANAGERIALOWN	Total shares held by executive directors over total shares.	Ozkan and Ozkan (2004), Hasan and Butt (2009).
CEO duality	CEODUAL	Dummy = 1 if CEO and chairman are the same individual, 0 otherwise.	Abur (2007), Kusnadi (2011)

Table 3.1 (Continued)

Variables	Corresponding abbreviations	Proxy for measurement	Study/References
Control variables			
Firm size	LNFSIZE	Natural logarithm of total assets (WC02999).	Delcoure (2007), Mitton (2008)
Profitability	PROFITABILITY	EBIT (WC18191) to Total assets (WC02999).	Flannery and Rangan (2006), Pour and Lasfer (2009).
Growth opportunity	GROWTH	Market-to-book ratio (MTBV).	Fattouh and Harris (2005), Gaud, Hoesli and Bender (2006)
Instrumental variables for leverage			
Corporate tax Rate	INCTAX	Income tax (WC01451) to total assets (WC02999).	Dhaliwal, Heitzman and Li (2005) Shahjahanpour, Ghalambor and Aflatooni (2010).
Non-debt tax shield	NDTSH	Depreciation and amortization expenses (WC01151) to total assets (WC02999).	Chen (2004), Hovey (2007).

Table 3.1 (Continued)

Variables	Corresponding abbreviations	Proxy for measurement	Study/References
Instrumental variables for cash holdings			
Non-liquid assets	NONLIQASSETS	Working capital (WC03151) minus cash (WC02001) divided by total assets (WC02999).	Opler *et al.* (1999), Resaeian, Rahimi and Hanjari (2010).
Inventory	INVENTORY	Inventory (WC02101) to total assets (WC02999).	Capkun and Weiss (2007), Huang (2011).

3.4 Model Specification

Instrumental variables (IV) refer to instruments used to address a variety of violations (lumped under the general heading of endogeneity) of ordinary least squares (OLS) assumptions. According to Wooldridge (2006), endogeneity happens when explanatory variable in the multiple regression models is correlated with the error term, either because of simultaneity, omitted variable or measurement error. Simultaneity arises when one or more of the independent variables are jointly determined with the dependent variable, typically through an equilibrium mechanism. This study will examine the simultaneity of cash holdings and leverage. Wu-Hausman test is used to determine the existence of endogeneity problem. The presence of endogeneity leads to OLS estimators being inconsistent and biased (Wooldridge, 2006).

In order to alleviate potential endogenous problem, this study uses two-stage least squares (2SLS) method. Kennedy (1998) argues that 2SLS is an appropriate analytical method in the presence of endogeneity. 2SLS is an instrumental variable estimation technique where the instrument for an endogenous explanatory variable is obtained as the fitted value from regressing the endogenous explanatory variable on all exogenous variables (Wooldridge, 2006). In order for 2SLS to yield unbiased and consistent estimators, the 2SLS model requires one or more instrumental variables for each observed endogenous variable in the equation (Kirby & Bollen, 2009) and proper instruments must be included in the model.

2SLS is the improved version of single equation models. Using 2SLS, Friend and Hasbrouk (1988) examine the agency implications of debt structure and managerial ownership simultaneously. Studies by Acharya, Almeida and Campello (2007) and D'Mello, Krishnaswami and Larkin (2008) employ a simultaneous equations approach with cash holdings and leverage. They find that cash holdings and leverage are simultaneously determined. However, they do not examine the impact of corporate governance mechanisms on cash holdings and leverage.

3.4.1 Operational Models

This study uses 2SLS regression models to test the simultaneous effect of cash holdings and leverage after controlling for ownership and board structure. The following models of cash holdings and leverage are estimated.

$$\begin{aligned}\text{CASH}_{it} = {} & \beta_0 + \beta_1 \text{ LEVERAGE}_{it} + \beta_2 \text{ GLICS}_{it} + \beta_3 \text{ STATEOWN}_{it} + \beta_4 \\ & \text{FAMILYOWN}_{it} + \beta_5 \text{ BUSGROUP}_{it} + \beta_6 \text{ FOREIGNOWN}_{it} + \beta_7 \\ & \text{DOMESTICOWN}_{it} + \beta_8 \text{ BOARDSIZE}_{it} + \beta_9 \text{ INDEPENDENCE}_{it} + \beta_{10} \\ & \text{MANAGERIALOWN}_{it} + \beta_{11} \text{ CEODUAL}_{it} + \beta_{12} \text{ LNFSIZE}_{it} + \beta_{13} \\ & \text{PROFITABILITY}_{it} + \beta_{14} \text{ GROWTH}_{it} + \beta_{15} \text{ NONLIQASSETS}_{it} + \beta_{16} \\ & \text{INVENTORY}_{it} + \varepsilon_{it} \end{aligned} \quad \textbf{(1)}$$

$$\begin{aligned}\text{LEVERAGE}_{it} = {} & \alpha_0 + \alpha_1 \text{ CASH}_{it} + \alpha_2 \text{ GLICS}_{it} + \alpha_3 \text{ STATEOWN}_{it} + \alpha_4 \\ & \text{FAMILYOWN}_{it} + \alpha_5 \text{ BUSGROUP}_{it} + \alpha_6 \text{ FOREIGNOWN}_{it} + \alpha_7 \\ & \text{DOMESTICOWN}_{it} + \alpha_8 \text{ BOARDSIZE}_{it} + \alpha_9 \text{ INDEPENDENCE}_{it} + \\ & \alpha_{10} \text{ MANAGERIALOWN}_{it} + \alpha_{11} \text{ CEODUAL}_{it} + \alpha_{12} \text{ LNFSIZE}_{it} + \\ & \alpha_{13} \text{ PROFITABILITY}_{it} + \alpha_{14} \text{ GROWTH}_{it} + \alpha_{15} \text{ INCTAX}_{it} + \alpha_{16} \\ & \text{NDTSH}_{it} + u_{it} \end{aligned} \quad \textbf{(2)}$$

where for each firm (*i*) and each year (*t*),

CASH	= Cash and cash equivalent to total assets.
LEVERAGE	= Total debt to total assets.
GLICS	= Percentage the total shares held by the seven GLICs.
STATEOWN	= Percentage of the total share held by state government.
FAMILYOWN	= Percentage of shares holds by family. Family is identified as an individual or group of individuals related by family ties who holds the largest voting block of at least 10% of the total votes.
BUSGROUP	= Dummy of 1 if a family controls more than three firms via business group, 0 otherwise.
FOREIGNOWN	= Percentage the total shares held by the foreign investors.
DOMESTICOWN	= Percentage the total shares held by the private domestic institutional investors.
BOARDSIZE	= Number of directors in the board.
INDEPENDENCE	= Percentage of independent directors to total directors on board.
MANAGERIALOWN	= Total shares held by executive directors over the total common shares.
CEODUAL	= Dummy of 1 if CEO and chairman are the same, 0 otherwise.
LNFSIZE	= Natural logarithm of total assets.

PROFITABILITY	= EBIT to total assets.
GROWTH	= Market-to-book ratio.
INCTAX	= Income taxes to total assets.
NDTSH	= Depreciation and amortization expenses to total assets.
NONLIQASSETS	= Working capital minus cash divided by total assets.
INVENTORY	= Inventory to total assets.

3.5 Data collection and Sample Selection

Data is collected from two separate sources: DataStream database and annual reports. Annual reports are retrieved from the Bursa Malaysia website. Data on ownership characteristics and board structures are manually collected from the annual reports. The data on ownership is obtained under the analysis of shareholders section in annual reports. The information related to the boards of directors of firm is collected by reviewing the profile of board of directors. All relevant data are collected from 2008 to 2010. The sample period of this research starts from 2008 because it was the year after the Malaysian Code on Corporate Governance is revised. In addition, this period comes during and after global financial crises which might affect financial decisions and corporate governance mechanisms for Malaysian companies.

The companies taken as sample are selected among the population of all listed companies in the Main Market of Bursa Malaysia from 2008 to 2010. Meanwhile, 58 finance related firms are excluded from the data collection process because of their

Table 3.2

Derivation of Sample

Sample selection from 2008-2010	
Total number of listed companies extracted from DataStream	964
Less:	
Financial related companies	(58)
Companies on ACE Market	(112)
Initial sample	794
Less:	
Delisted and missing values companies	(120)
Total annual sample	674
Total companies from 2008 to 2010	2022

irrelevance by possessing unique features and regulatory environment (Chu & Cheah, 2006; Yatim *et al*., 2006). In addition, 112 ACE market firms are also not taken into consideration because they are small speculative companies with limited track record. This screening procedure results in 2022 firm-year observations, after dropping 360 firms that have missing values. Table 4.1 shows the total companies for the three-year period that are used in this study.

3.6 Summary of the Chapter

The chapter begins by presents the research framework in the thesis. Twenty three hypotheses have been tested based on the effect of ownership and board structures on cash holdings and leverage. 2 SLS model is used in this study to alleviate endogenous problem between independent and dependent variables. The sample includes all listed companies in the Main Market of Bursa Malaysia that are collected from 2008 to 2010.

CHAPTER FOUR
RESULTS AND ANALYSIS

4.0 Introduction

This chapter presents the results of the effect of ownership and board structures on cash holdings and leverage by using the data of public listed companies in Malaysia. This chapter is divided into four sections. Section 4.1 provides the descriptive analysis of all variables in the regression model. Section 4.2 discusses the correlation coefficient analysis. Section 4.3 presents the results of the regression models. Finally, the conclusion of the chapter is presented in section 4.4.

4.1 Descriptive Statistics

Table 4.1 shows the descriptive statistics for the full sample that is used in this study. The table provides information about the number of observations, mean, median standard deviation, minimum and maximum.

Cash holdings (CASH), which are defined as cash to total assets, have a mean value of 12.31% which is higher than the mean values of 9.9% and 9% for UK and Germany firms as reported by Ozkan and Ozkan (2004) and Guney *et al*. (2007) respectively. However, it is lower than the mean value of 17% reported for US firms by Opler *et al*. (1999).

Table 4.1

Descriptive Statistics

Variable	Observation	Mean	Median	Std.Deviation	Minimum	Maximum
CASH (%)	2022	12.3100	0.0867	0.1167	0.0001	0.6676
LEVERAGE (%)	2022	21.8600	0.1993	0.1788	0.0000	0.9959
GLICS (%)	2022	5.7346	0.0000	12.8701	0.0000	0.9599
STATEOWN (%)	2022	1.5640	0.0000	8.5809	0.0000	0.6965
FAMILYOWN (%)	2022	29.5000	0.3205	0.2462	0.0000	0.8305
BUSGROUP	2022	0.0800	0.0000	0.2660	0.0000	1.0000
FOREIGNOWN(%)	2022	4.2100	0.0000	0.1229	0.0000	0.7375
DOMESTICOWN (%)	2022	1.8800	0.0000	0.0360	0.0000	0.3439
BOARDSIZE	2022	7.5000	7.0000	1.9720	2.0000	18.0000
INDEPENDENCE	2022	3.2600	3.0000	1.0360	0.0000	9.0000
MANAGERIALOWN(%)	2022	31.7500	0.3329	0.2296	0.0000	0.8305
CEODUAL	2022	0.1100	0.0000	0.3110	0.0000	1.0000
TA (in billions)	2022	1.3940	2.8733	0.1091	0.0117	74.0252
LNFSIZE	2022	12.7732	12.5684	1.3757	9.3690	18.1199
PROFITABILITY (%)	2022	5.2200	0.0561	0.0972	-0.6440	0.3457
GROWTH	2022	0.9551	0.6700	1.1492	-1.3600	12.7300
INCTAX (%)	1860	1.2300	0.0088	0.0190	-0.0585	0.2840
NDTSH (%)	2022	2.9500	0.0253	0.0238	0.0002	0.1702
NONLIQASSETS (%)	2022	7.4100	0.0655	0.2003	-1.0997	0.6210
INVENTORY (%)	2022	15.1000	0.1273	0.1317	0.0000	0.8100

Notes: Refer to Table 3.1 in chapter three for the variables definitions CASH = Cash and cash equivalent to total assets; LEVERAGE = Total debt to total assets; GLICS = Percentage of total shares held by the seven GLICs; STATEOWN = Percentage of the total share held by state government; FAMILYOWN = Percentage of shares holds by family. Family is identified as an individual or group of individuals related by family ties who holds the largest voting block of at least 10% of the total votes; BUSGROUP = 1 if family control more than 3 firms via business group, 0 otherwise; FOREIGNOWN = Percentage of the total shares held by the foreign investors; DOMESTICOWN = Percentage of the total shares held by the private domestic institutional investors (such as unit trust, insurance companies, and banks); BOARDSIZE = Number of directors in the board; INDEPENDENCE = Percentage of independent directors to total directors on board; MANGERIALOWN = Total shares held by executive directors over total common shares; CEODUAL = 1 if CEO and chairman are the same individual, 0 otherwise; LNFSIZE = Natural logarithm of total assets; PROFITABILITY = EBIT to total assets; GROWTH = Market-to-book ratio; INCTAX = Income taxes to total assets; NDTSH = Depreciation and amortization expenses to total assets; NONLIQASSETS = Working capital minus cash divided by total assets; INVENTORY = Inventory to total assets.

Leverage ratio (LEVERAGE) has a mean value of 21.86%. It is higher than the mean value of 15.28% reported by Mat Kila and Wan Mansor (2008) for Malaysian

firms. However, the mean value is lower as compared to the study by Ibrahim and Samad (2011), which is 26%.

The mean value of GLICs ownership (GLICS) is 5.73% with a standard deviation of 12.87%. Ownerships by GLICs ranged from 0 to 96.0%, and the maximum value is Khazanah National's investment in Pharmaniaga Berhad in 2009. Due to high mean value of GLICs, it could play a significant role in reducing the agency problem between majority and minority shareholders and it could reduce the information asymmetric problems in the firm (Najib & Rahman, 2011). Table 4.3 presents the numbers of firms and the percentage of shares by GLICs with the first number shows the total number of companies and the number in bracket shows the percentage of companies. This table shows that most of GLICs investments are less than 10% as they focus on diversifying their investments. This is especially true for four depositors-driven GLICs, which are EPF, PNB, LTH and LTAT. The statistics shows that GLICs have ownership in 817 companies or 40.34% of the sample firms. State ownership (STATEOWN) has a mean value of 1.65% with a maximum value of 69.65% owned by Pahang state via Mentiga Berhad.

Family ownership (FAMILYOWN) records a mean value of 29.50% and a standard deviation of 24.72%. It is higher than the mean value of 25.6% and 27.3% for a sample of Malaysian firms reported by Ibrahim and Samad (2011) and Munir, Saleh and Yatim (2013) respectively. This statistics highlight that since most of Malaysian firms are controlled by families, this might increase the agency problems between majority and minority shareholders. Table 4.3 presents descriptive analysis of

controlling ownership by families in Malaysian firms. The statistics show 63.89% of firms are controlled by families. The statistics also show that families act as ultimate owners in 544 firms or 25.90% of the sample firms as they own more than 50% ownership stake in their firms. However, this result is lower than the result by Rachagan and Satkunasingam (2009) who find that 72% of Malaysian firms are controlled by families. Meanwhile, the result in this study is higher than the result by Himmelberg *et al.* (2004) who find that 60% of Malaysian firms have concentrated ownership.

Meanwhile, about 8% of Malaysian family firms are controlled via business group (BUSGROUP) with a standard deviation of 26.61%, where there are around 17 business group. This value is lower than that in Taiwan where Tsai (2012) finds that 31.2% of firms are related to business groups.

The mean value of ownership by foreign investors (FOREIGNOWN) is 4.21%. The mean value is relatively low compared to that of Chinese firms, which has a value of 18% as reported by Li *et al*. (2009). In addition the mean value of ownership by private domestic institutional investors, as proxied by DOMESTICOWN, is 1.88% which is quite low. Private domestic institutional investors are made up primarily of banking institutions, insurance companies and unit trusts. As investments in equities are risky, banking institutions shun away from these investments, while for insurance companies and unit trusts, even though they invest in equities, they try to diversify away their risks by investing only a small portion of their funds in equities of individual companies.

Table 4.2

Ownership Interest by GLICs

Ownership Interests	EPF	PNB	LTAT	LTH	KWAP	KNB	MOF	GLICs
0-10	357 (17.6%)	282 (13.9%)	92 (4.5%)	279 (13.7%)	19 (0.93%)	6 (0.29%)	6 (0.29%)	452 (22.35%)
10-20	89 (4.4%)	63 (3.1%)	2 (0.098%)	39 (1.92%)	0 (0)	2 (0.098%)	7 (0.34%)	203 (10%)
20-30	5 (0.24%)	39 (1.9%)	0 (0)	10 (0.49%)	0 (0)	1 (0.049%)	3 (0.13%)	79 (3.9%)
30-40	1 (0.049%)	6 (0.29%)	0 (0)	2 (0.098%)	0 (0)	10 (0.49%)	0 (0)	26 (1.28%)
40-50	2 (0.098%)	0 (0)	0 (0)	0 (0)	0 (0)	11 (0.54%)	0 (0)	10 (0.49%)
50 >	2 (0.098%)	13 (0.64%)	4 (0.19%)	5 (0.24%)	0 (0)	10 (0.49%)	0 (0)	47 (2.32%)
Total shares	456 (22.48%)	403 (19.83)	98 (4.79)	335 (16.45%)	19 (0.93%)	40 (1.97%)	16 (0.76%)	817 (40.34%)

Table 4.3

Descriptive Analysis of Controlling Ownership by Families in Malaysian Firms

Ownership Interests	Family companies	Ownership percentage
10% to 20%	57	2.7%
20% to 30%	171	8.4%
30% to 40%	258	12.75%
40% to 50%	291	14.14%
More than 50%	544	25.90%
Total holdings	1321	63.89%

The range value of private domestic institutional investors is from 0 to 34.39% with a standard deviation of 3.60%.

In addition, Table 4.1 also illustrates the descriptive statistics for board structures. The mean value for board size (BOARDSIZE) is 7.50, which is basically similar to mean value of 7.32 and 7.44 as reported by Lee and Lee (2009) and Kusnadi (2011) respectively. Jensen (1993) argues that an effective board should have less than eight members. In an average firm, the mean value of independent directors in the board, as proxied by INDEPENDENCE, is about 3.26 with a standard deviation of 1.036, and minimum and maximum values 0 to 9.

The mean value of managerial ownership (MANAGERIALOWN) is 31.75%. It is almost similar to the mean value of 28% as reported by Kusnadi (2011). However it is relatively higher compared to the mean value of 14.2% for UK firms reported by

Ozkan and Ozkan (2004). The mean value of CEO duality is 11%. It is higher than the mean value of 8.6% as reported by Ozkan and Ozkan (2004) but lower compared to the mean value of 50.9% for East Asian firms as reported by Lee and Lee (2009). The existence of CEO duality in Malaysia does not follow the recommendation made by Malaysian Code on Corporate Governance 2007 which suggests that the role of chairman and chief executive officer in the board should be held by different person.

The mean value for firm size (FSIZE) is RM 1.394 billion. Profitability (PROFITABILITY) records a mean value of 5.22% with standard deviation of 9.72%. The mean value of growth opportunity (GROWTH) is 0.9551. The range of growth opportunity is from -1.36 to 12.73. Finally, the mean values for instrumental variables of income tax (INCTAX), non-debt tax shield (NDTSH), non-liquid assets (NONLIQASSETS) and inventory (INVENTORY) are 1.23%, 2.95%, 7.41% and 15.1% respectively.

4.2 Correlation Coefficients

Table 4.4 presents the Pearson correlation coefficients to measure the strength of relationships between the independent variables in this study. Table 4.5 shows that none of the correlation coefficients between the independent variables are higher than 0.80. According to Gujarati (2003), if the correlation coefficients are higher than 0.80, it might lead to multicollinearity problem between the variables.

The highest correlation coefficient of 0.64 is between managerial ownership and family ownership. Since most of Malaysian firms owned by families they tend to

assign their family members to serve on the board to protect their interests in the firms it is expected that the correlation would be high. The second highest correlation of 0.58 is between profitability and income tax. The results suggest that profitable companies tend to pay higher tax.

4.3 Regression Results

This section discusses regression results in this study, starting with the results based on OLS method in section 4.3.1. However, cash holdings and leverage might be simultaneously or endogenously determined. Wu-Hausman test is performed to examine the endogenous relationship between cash holdings and leverage. In the presence of endogeneity, OLS estimator is both biased and inconsistent, and estimation technique based on two stage least squares (2SLS) is more appropriate. Section 4.3.2 discusses endogeneity test and results based on 2SLS method. Section 4.3.3 discusses three stage least squares (3SLS) where 3SLS is used to test for the robustness of the results based 2SLS method. Finally, results of additional analyses are covered in section 4.3.4.

Table 4.4

The Correlation Coefficient

	CASH	LEVERAGE	GLICS	STATEOWN	FAMILYOWN	BUSGROUP	FOREIGNOWN	DOMESTICOWN	BOARDSIZE
CASH	1								
LEVERAGE	-0.42**	1							
GLICS	0.14**	0.00	1						
STATEOWN	-0.04	-0.06**	0.01	1					
FAMILYOWN	0.00	-0.02	-0.25**	-0.19**	1				
BUSGROUP	0.03	0.11**	0.09**	-0.04	0.06**	1			
FOREIGNOWN	0.15**	-0.10**	0.01	-0.04	0.14**	0.02	1		
DOMESTICOWN	0.07**	0.03	0.18**	0.06**	-0.11**	0.10**	0.02	1	
BOARDSIZE	0.11**	0.00	0.24**	0.07**	0.04	0.05*	0.03	0.11**	1
INDEPENDENCE	0.08**	0.00	0.23**	0.07**	-0.12**	0.07**	-0.03	0.09**	0.54**
MANAGERIALOWN	0.00	-0.01	-0.29**	-0.22**	0.64**	-0.03	0.12**	-0.11**	0.00
CEODUAL	0.03	0.04	-0.08**	-0.06*	0.09**	0.02	0.02	0.00	-0.07**
FSIZE	0.03	0.17**	0.43**	0.08**	-0.10**	0.30**	0.06	0.30**	0.36**
PROFITABILITY	0.31**	-0.30**	0.10**	0.02	0.08**	0.02	0.04	0.13**	0.17**
GROWTH	0.18**	-0.06**	0.22**	-0.03	-0.12**	0.07**	0.00	0.22**	0.10**
INCTAX	0.27**	-0.26**	0.08**	0.01	0.03	-0.01	0.02	0.11**	0.09**
NDTSH	-0.09**	0.10**	0.05*	-0.04	-0.01	-0.05*	0.06**	0.02	-0.01
NONLIQASSETS	0.07**	-0.47**	-0.08**	-0.01	0.10**	-0.12**	0.05*	-0.07**	0.01
INVENTORY	-0.21**	0.05*	-0.08**	-0.03	0.16**	-0.11**	0.01	-0.09**	-0.03

Table 4.4 (Continued)

	INDEPENDENCE	MANAGERIALOWN	CEODUAL	FSIZE	PROFITABILITY	GROWTH	INCTAX	NDTSH	NONLIQASSETS	INVENTORY
CASH										
LEVERAGE										
GLICS										
STATEOWN										
FAMILYOWN										
BUSGROUP										
FOREIGNOWN										
DOMESTICOWN										
BOARDSIZE										
INDEPENDENCE	1									
MANAGERIALOWN	-0.16**	1								
CEODUAL	-0.07**	0.15**	1							
FSIZE	0.32**	-0.18**	-0.07**	1						
PROFITABILITY	0.09**	0.06**	0.05*	0.20**	1					
GROWTH	0.07**	-0.10**	0.00	0.20**	0.27**	1				
INCTAX	0.03**	0.02**	0.02	0.09**	0.58**	0.42**	1			
NDTSH	-0.02**	-0.02**	0.06	-0.09**	-0.08**	0.07**	-0.07**	1		
NONLIQASSETS	-0.06	0.13	0.00	-0.23**	0.20**	-0.10**	0.12**	-0.20**	1	
INVENTORY	-0.11	0.12	0.02**	-0.17**	0.00	-0.13**	0.04	-0.13**	0.49**	1

Notes: (**) correlation is significant at 1% level; (*) correlation is significant at 5% level.

4.3.1 OLS Regression Models

Subsection 4.3.1.1 summarizes OLS results when cash holding is used as the dependent variable, while subsection 4.3.1.2 summarizes the results based on leverage. Discussions about the results are postponed until after the endogeneity test is performed.

4.3.1.1 OLS Regression for Cash Holdings

Table 4.5 reports the results of OLS for cash holdings. The existence of the heteroscedasticity is examined by using Cook-Weisberg/ Breusch-Pagan (CW/BP) test. The results show that the OLS method suffers from heteroscedasticity as the value of CW/BP is 132.54, which is significant at 1%. OLS method also suffers from autocorrelation problem based on Wooldridge test of autocorrelation based on panel data as the value of Wooldridge test is 84.27, which is significant at 1%. Therefore, the regression results are corrected by using heteroscedasticity-and autocorrelation-consistent standard errors. Adjusted R-squared is 0.2605, which shows the proportion of variation in the dependent variable being explained by the variation in the independent variables. The significant F-statistic demonstrates that jointly all variables are not equal to zero. Variance inflation factor (VIF) is widely used to test for multicollinearity problem. If the values of VIF are more than 10, then the model suffers from multicollinearity problem (Gujarati, 2003, p. 362). Table 4.5 shows that the values of all VIF are between 1.04 for CEO duality and 2.05 for non-liquid assets. Thus, the results indicate that there is no serious multicollinearity problem in the model.

The results in Table 4.5 show that the coefficients for leverage, GLICs, state ownership, foreign investors are statistically significant at one percent. Meanwhile, board size, profitability and inventory are significant at five percent level. CEO duality is significant at 10%. Family ownership, business group, domestic institutional investors, board independence, managerial ownership, firm size, growth and non-liquid assets are not related to cash holdings.

4.3.1.2 OLS Regression Results for Leverage

Table 4.6 summarizes the results for leverage. Using Cook-Weisberg/ Breusch-Pagan test for heteroscedasticity, it is found that the model suffers from heteroscedasticity as the CW/PB value is 31.60, which is significant at 1% level. OLS is also suffering from autocorrelation based on Wooldridge test, which gives a value of 302.70 that is significant at 1% level. Thus, hypothesis testing is done by using heteroscedasticity- and autocorrelation-consistent standard errors. R-squared is 27.94 percent. F-statistic is statistically significant at one percent level.

The results show that the coefficients for cash holdings, state ownership, foreign investors, income tax and non-debt tax shield have statistical significance at 1 percent level. In addition, CEO duality is found to be statistically significant at five percent level. The rest of the ownership and board variables are statistically insignificant. The coefficient results for control variables in leverage model are statistically significant at 1 percent for firm size and profitability, while growth is statistically insignificant.

Table 4.5

OLS Regression Results for Cash Holdings

Variables	**Coefficient**	**P-value**
LEVERAGE	-0.2472	0.000***
GLICS	0.0009	0.002***
STATEOWN	-0.0008	0.006***
FAMILYOWN	-0.0070	0.727
BUSGROUP	0.0158	0.252
FOREIGNOWN	0.1041	0.001***
DOMESTICOWN	0.0937	0.232
BOARDSIZE	0.0048	0.028**
INDEPENDENCE	0.0005	0.889
MANAGERIALOWN	0.0100	0.641
CEODUAL	0.0177	0.074*
FSIZE	-0.0055	0.124
PROFITABILITY	0.1177	0.032**
GROWTH	0.0057	0.186
NONLIQASSETS	-0.0425	0.141
INVENTORY	-0.1020	0.010**
CONSTANT	0.2034	0.000***
Number of Observation	2022	
R-squared	0.2663	
F-statistics/ P-value	25.72	0.000
CW/BP	132.54	0.000
Wooldridge test	84.27	0.000
Range of VIF	1.04-2.05	

Notes: ***,**,* show significant level of 1%, 5% and 10% respectively.

Table 4.6

OLS Regression for Leverage

Variables	**Coefficient**	**P-value**
CASH	-0.5147	0.000***
GLICS	-0.0006	0.157
STATEOWN	-0.0019	0.001***
FAMILYOWN	-0.0132	0.617
BUSGROUP	0.0277	0.261
FOREIGNOWN	-0.1006	0.010**
DOMESTICOWN	0.1142	0.519
BOARDSIZE	0.0010	0.740
INDEPENDENCE	-0.0044	0.447
MANAGERIALOWN	0.0177	0.524
CEODUAL	0.0360	0.038**
FSIZE	0.0324	0.000***
PROFITABILITY	-0.1942	0.000***
GROWTH	0.0047	0.405
INCTAX	-1.2636	0.000***
NDTSH	0.6092	0.006***
CONSTANT	-0.1205	0.070*
Number of Observation	1860	
R-squared	0.2794	
F-statistics/P-value	53.59	0.000
CW/BP	31.60	0.000
Wooldridge test	302.75	0.000
Range of VIF	1.04-1.91	

Notes: ***,**,* show significant level of 1%, 5% and 10% respectively.

4.3.2 Two Stage Least Squares (2SLS) Regression Models

This section starts by looking at the existence of endogeneity problem in subsection 4.3.2.1. Wu-Hausman tests are performed to check for the endogeneity of cash holdings and leverage. The existence of endogeneity leads to adoption of 2SLS over OLS. Subsection 4.3.2.2 presents the 2SLS results for cash holdings. Finally, 2SLS results for leverage are given in subsection 4.3.2.3.

4.3.2.1 Endogeneity Test

As noted earlier, simultaneity can cause endogeneity problem, which occurs when one or more dependent variables are jointly established with the other dependent variables, usually with the help of an equilibrium mechanism (Wooldridge, 2006). Based on information asymmetric and agency theories, it is expected that cash holdings and leverage might be simultaneously determined.

Wu-Hausman test is performed to determine the existence of endogeneity problem. Based on cash holdings model, Wu-Hausman test gives a value of 36.01, and for leverage model Wu-Hausman test gives a value of 146.24 with p-values of 0.000 for both models. Therefore, the results confirm the existence of endogeneity problem and the appropriations of using 2SLS as the estimation method in this study as OLS approach is biased.

4.3.2.2 Analyses of 2SLS Models on Cash Holdings

Table 4.7 shows the regression results based on cash holdings. Model 1 is estimated using all the variables identified in this study. Meanwhile, Model 2 is estimated by using only the significant variables.

Model 1 in Table 4.7 shows a significant negative impact of leverage on cash holdings at one percent level. Jensen (1986) argues that leverage could be used to mitigate agency problems associated with free cash flows. The result of this study supports that argument where leverage influence cash holdings negatively. This result is similar to those of Opler *et al*. (1999), Harford *et al*. (2008) and Valipour, Maharlouie and Maher (2012) who report that leverage is an effective tool to reduce the agency problems between managers and shareholders.

GLICs are a unique feature in Malaysia as they could play a dominant role in reducing agency problem by controlling managerial actions that are likely to accumulate excess cash. Megginson and Wei (2010) and Chen *et al*. (2012) find that cash holdings are negatively and significantly related to government ownership. However, Paskelian *et al*. (2010) and Sun and Wang (2011) argue that government could use their ownership to extract private benefits from firms, which leads government ownership related to decreased cash holdings. The regression result does not support the previous arguments as the coefficient is statistically insignificant with a p-value of 0.117.

Table 4.7

2SLS Results for Cash Holdings

	Model 1		Model 2	
Variable	**Coefficient**	**P-value**	**Coefficient**	**P-value**
LEVERAGE	-0.7262	0.000***	-0.7622	0.000***
GLICS	0.0004	0.117		
STATEOWN	-0.0016	0.000***	-0.0017	0.000***
FAMILYOWN	-0.0190	0.248		
BUSGROUP	0.0212	0.070*	0.0201	0.090*
FOREIGNOWN	0.0436	0.095*	0.0383	0.122
DOMESTICOWN	0.1512	0.072*	0.1773	0.035**
BOARDSIZE	0.0053	0.003***	0.0048	0.003***
INDEPENDENCE	-0.0031	0.363		
MANAGERIALOWN	0.0201	0.263		
CEODUAL	0.0278	0.004***	0.0287	0.003***
FSIZE	0.0072	0.053*	0.0091	0.001***
PROFITABILITY	0.0102	0.771		
GROWTH	0.0019	0.477		
NONLIQASSETS	-0.2576	0.000***	-0.2726	0.000***
INVENTORY	0.1200	0.026**	0.1343	0.002***
CONSTANT	0.1495	0.000***	0.1306	0.000***
Number of Observations	1860			
R-Squared	-			

Notes: ***,**,* show significant level of 1%, 5% and 10% respectively.

A plausible explanation of this is that GLICs are less effective than private ownership because government ownership focuses more on national, social and political interests rather than attempting to maximize shareholder value.

State ownership (STATEOWN) is negative and statistically significant at one percent level on cash holdings. A possible explanation is that ownership by state government could lead to better monitoring of management decisions, thus reducing the agency problems in the firm.

Table 4.7 shows insignificant results between family ownership and cash holdings with p-value of 0.248. The result does not support the studies by Ozkan and Ozkan (2004) and Kusnadi (2011) who find a significant positive relationship between family ownership and cash holdings. Their results suggest that family firms tend to hold high cash level as this might allow the firm to invest the cash in projects that increase families' benefits at the expense of minority shareholders, which result in an increase in agency problems. A plausible explanation for the insignificant result is that by holding large amount of cash, family firms would earn lower return. On the other hand, they also do not hold low amount of cash as cash reduces the likelihood of financial distress. Thus, in this case the effect of family ownership on cash holdings are not clear.

Many families in Malaysian corporate scenario try to diversify their investments through business group (Kusnadi, 2011). Business group plays a dominant role in Malaysian economy as business group accounts for about 8% of the full sample in

this study. Business group in this study is defined by using a dummy variable which is equal to one if the group own at least three firms and zero otherwise. The regression result shows that business groups have significant positive coefficient with p-value of 0.070. The result is consistent with the results by Kusnadi (2011) and Tsai (2012) who find a positive and significant result between business group and cash holdings.

Baek, Kang and Lee (2006) argue that controlling shareholders could use their ownership via business group to exercise full control over a firm by using small portion of its cash. Thus, controlling shareholders engage in tunneling by transferring the resources out of the firm to increase their benefits (Johnson *et al*., 2000). Bae *et al*. (2002) find that tunneling increases the agency problem between majority and minority shareholders in business group because it increases the ultimate owners control of the group, thus increasing the incentive to divert resources for their own benefits. Based on the argument above, this result is consistent with tunnelling incentive among firms that belong to business group. This result is consistent with the result of Kalcheva and Lins (2007) who find that managers of firms within a business group tend to hold excess cash.

In general, foreign investors and domestic private institutions play a role in mitigating agency problems and aligning the interests between managers and minority shareholders (Hingorani *et al*,. 1997). The result of this study does not support the previous argument as the coefficient is positive and statistically significant at five percent level between foreigners or domestic institutions and cash

holding. However, this result is consistent with the result of Harford *et al*. (2008), who find a positive relationship between institutional investors and cash holdings. A possible explanation for positive results are institutional investors could use their positions to pursue their own benefits that tend to increase the agency cost. Another explanation, as argued by Harford *et al*. (2008) is that institutional investors could act as effective monitoring by allowing the managers to have excess cash to avoid the costly external financing.

The coefficient of board size is positive and statistically significant at one percent level. The result supports the findings by Lee and Lee (2009) and Gill and Shah (2012). The reason for a positive outcome is that a large board could lead to communication problems among the directors in the board, thus the board become more symbolic and ignore its duty to monitor and control the managers. This in turn allows the managers, who are not well monitored, to hold excess cash to pursue their own interests.

Coles *et al*. (2008) argue that independent board could monitor wide scope of management operations and decisions. In addition, board independent leads to better monitoring and reduce the agency problems by protecting minority shareholder interests (Adams & Ferreira, 2007). Lee and Lee (2008) find a negative relationship between board independence and cash holdings. Their result suggests that stronger monitoring by independent directors mitigate managerial penchant to hold larger cash in the firm. Based on the regression result of this study, the relationship between board independence and cash holdings are not significant. A possible

explanation for the insignificant result is that board independence may not be independent enough to monitor and control managerial decisions in the firm. Since majority of the firms in Malaysia are effectively controlled by families, families will put their members on the board. These members will fight for the benefits of their families. Furthermore, since families hold significant stake in firms, they have an incentive to appoint independent directors who will work for their benefits. In this case board independence are not truly independent. This could lead to higher cash holdings by family-controlled firms. However, these majority shareholders have an incentive to increase their wealth. If the board is not independent, investors will require a discount on share prices as the board is under the influence of majority shareholders. In this case, majority shareholders will not act in their interests by appointing affiliated individuals as independent directors. Because of these arguments, board independent might not affect the cash holdings in Malaysian.

The regression result show that cash holdings are not related to managerial ownership. Ozkan and Ozkan (2004), Drobetz and Grüninger (2007) and Kusnadi (2011) find a non-linear relationship between managerial ownership and cash holdings. This study also tests for non-liner relationship between managerial ownership and cash holdings and the result is still insignificant. A possible explanation for the insignificant result is that managers would earn lower return by holdings large amount of cash in their firms. On the other hand, managerial ownership will not hold low level of cash as this might not be enough to cover cash needs of the firm.

Jensen (1993) argues that strong board is observed when the chairman and CEO are two different individuals. Lee and Lee (2008) find that CEO duality and cash holdings are negatively linked suggesting that the separation between CEO and chairman positions leads to lower cash holdings. However, this study finds a significant positive relationship between CEO duality and cash holdings at one percent level. This result is consistent with those of Drobetz and Grüninger (2006), Kusnadi (2011) and Gill and Shah (2012), whom all find CEO duality and cash holdings are positively connected together. A plausible explanation for a positive result is that CEO duality may imply that if both positions are held by one individual, it could reduce the effectiveness of board monitoring and increase the agency problem between managers and shareholders. This allows the firm to hold higher level of cash.

Out of three control variables, the result shows that firm size is positive and significant at ten percent level. The result is in line with study by Opler *et al*. (1999) who argue that the pecking order theory suggests positive relationship between cash holdings and firm size. Therefore, the reason for the positive result is that large firms performing well enough compared to small firms and they keep the cash to finance for future investment projects.

Table 4.8 shows insignificant result between profitability and cash holding. This result is not in line with study by Opler *et al*. (1999), who find a positive relationship between profitability and cash holdings. A possible reason for the insignificant results is that since profitable firms have a lot of profit, they will not hold too much

cash. On the other hand, profitable firms also will not hold low level of cash as cash could be used to reduce the probability of financial distress. The result also illustrates that cash holdings and growth opportunity are not related. A possible explanation for the insignificant result is that a growth firm will not hold high level of cash because cash leads to lower returns. On the other hand, it will not hold low level of cash as it requires cash to finance for its investment decisions.

The result shows that non-liquid asset has a negative relationship on cash holdings. This result is consistent with findings by Wenyao (2006) and Gueney *et al*. (2007) who find a negative relationship between non-liquid assets and cash holdings. The possible reason for the negative result is that based on trade off theory, non-liquid asset could be used for raising funds when there is a shortage in cash. In addition, inventory is also negatively related to cash holdings. A possible explanation is that based on trade off theory, firms could use inventory to raise fund by selling their inventories. The result is in line with the results of Huang (2011) and Ogundipe *et al*. (2012).

Model 2 in Table 4.7 continues the analysis by showing the results of cash holdings model after excluding the insignificant variables that may affect the regression results. The results of Model 2 are still similar to the results of Model 1, except that foreign ownership is no longer significant.

4.3.2.3 Analyses of 2SLS Models on Leverage

Table 4.8 provides the regression results by using leverage as the dependent variable. Model 1 in Table 4.8 shows a negative result of cash holdings on leverage at one percent level. The result is similar to study by Graham and Harvey (2001) who find a negative relationship between cash holdings and leverage. Myers and Majluf (1984) argue that information asymmetric between managers and shareholders make the external financing more costly than internal financing. In line with this, Faulkender (2004) reports that high information asymmetric make cash holdings necessary for the firms to avoid the high cost of issuing new debt. The result of this study supports the argument where cash holdings affect leverage negatively.

The result shows that the relationship between GLICs and leverage is positive and statistically significant at five percent level. Gul (1999) and Lin, Hwang, and Chien (2009) conclude that GLICs and firms leverage are positively related. They argue that government ownership could enhance the leverage capacity of firms because of the guarantee provided by the government. The result of this study supports the previous argument. Another possible explanation for the significant result is that GLICs use high leverage level to monitor managerial actions in their companies.

State ownership has a negative and statistically significant relationship with leverage at one percent level. A plausible explanation for the negative result is that high level of state ownership could lead to better monitoring of managerial actions. In this case, state ownership could substitute leverage as a monitoring mechanism.

Table 4.8

2SLS Results for Leverage

	Model 1		Model 2	
Variables	**Coefficient**	**P-value**	**Coefficient**	**P-value**
CASH	-1.9496	0.000***	-2.6253	0.000***
GLICS	0.0011	0.030**	0.0019	0.001***
STATEOWN	-0.0026	0.000***	-0.0028	0.000***
FAMILYOWN	-0.0159	0.571		
BUSGROUP	0.0424	0.040**	0.0613	0.012**
FOREIGNOWN	0.1127	0.021**	0.2031	0.000**
DOMESTICOWN	0.2440	0.103		
BOARDSIZE	0.0072	0.029**	0.0112	0.002***
INDEPENDENCE	-0.0010	0.868		
MANAGERIALOWN	-0.0047	0.879		
CEODUAL	0.0528	0.002***	0.0629	0.002***
FSIZE	0.0154	0.003***	0.0070	0.235
PROFITABILITY	-0.0241	0.661		
GROWTH	0.0104	0.031**	0.0222	0.000***
INCTAX	0.2782	0.460		
NDTSH	0.0390	0.859		
CONSTANT	0.1850	0.007***	0.3159	0.000***
Number of Observations	1860			
R-Squared	-			

Notes: ***,**,* show significant level of 1%, 5% and 10% respectively.

Another possible explanation is that since state ownership has different objectives compare to private firms, state controlled firms have to pay higher interest rates if they want to borrow from capital markets. In this case state owned firms might not raise fund from the debt market.

Previous studies show that firms using higher leverage could reduce the agency problem between majority and minority shareholders (Driffield *et al*., 2007; Céspedes *et al*., 2010). They report significant positive relationships between family ownership and leverage. However, Shleifer and Vishny (1997) find a negative association between family ownership with leverage. A possible explanation for the insignificant result in this study is that family ownership will not use less leverage because it might give a bad signal to investors that family firms are just focusing on their own interests. On the other hand, since most of the family wealth is invested in the firm, they will not use more debt because higher debt could lead to higher probability of financial distress and consequently loss of wealth for the family.

The result shows that business group yields a positive and statistically significant relationship with leverage at five percent level. This result is consistent with the result of Du and Dai (2005) who find a positive relationship between business group and leverage. They argue that controlling shareholders use debt as a signal to outside shareholders. Manos *et al*. (2007) argue that the access to debt financing could reduce the agency problems. Schiantarelli and Sembenelli (2000) argue that firms in business group have better access to both internal and external capital markets. In addition, business group firms could reduce risk and increase the firm value through

diversification. Thus, these groups might reduce the expected external cost by providing loan guarantee to the creditors as they could use the assets of one group member as collateral for another (Claessens *et al*., 1999). The significant positive result in this study supports the arguments above.

The results indicate a significant positive relationship between foreign ownership and leverage. A possible explanation for significant result is that since ownership by foreigners are affiliated with the parents firms, it is easy for them to get better access to inside and outside market. Since they have better governance and better technology, they could get lower cost of debt. As for domestic private institutional ownership, it does not influence leverage. A plausible explanation for insignificant result is that since domestic private institutional investors have low ownership, they do not have enough incentive to involve in management actions as they bear the costs of monitoring but the benefits accrue to other shareholders. However, the result does not support Michaely and Vincent (2012) who find negative results between domestic institutional investors and leverage.

Board size has a positive and statistically significant relationship with leverage. The result supports Wen *et al*. (2002) and Abor (2007) who find a positive relationship between board size and leverage. They argue that firms with large board size could have difficulty in decision making which could lead to agency problems. Therefore, a possible explanation for the positive result in this study is that smaller board holds low leverage level as they could monitor the firm more effectively than large board. In this case, small board does not need to use leverage as a monitoring tool. On the

other hand, large board could face difficulty in arriving to a consensus while making a decision. Therefore, they need to use higher leverage level as monitoring tool.

Berger *et al*. (1997) argue that board independence serves as a monitoring mechanism by limiting the manager's personal benefits. Abor (2007) finds leverage is positively related to board independence. Meanwhile, the result in this study shows insignificant relationship between board independence and leverage. The result in this study suggests that since most of firms are tightly held by families, managers or institutions, this could give them the power to appoint their associates to serve on the board. In this case, independent directors will not monitor the managers effectively as they have to protect the interests of their principals, which lead to agency problems between independent directors and minority shareholders.

Managerial ownership is not significant in explaining leverage. This result is in contrast to those of Friend and Lang (1988) and Hasan and Butt (2009), who report a negative relationship between managerial ownership and leverage. They argue that managers tend to hold low leverage level to avoid the risk of bankruptcy. A plausible explanation for the insignificant results is that insider ownership in Malaysian firms will not use low level of leverage as this could increase the information asymmetric problem. On the other hand, managers also tend not to use high leverage as it might lead to either higher likelihood of experiencing financial distress, a higher level of monitoring by creditors on managerial decision, or both.

The relationship between CEO duality and leverage is positive and statistically significant. This result is in line with Abor (2007) and Abor and Biekpe (2007) who

find a significant positive relation of CEO duality with leverage. The reason for a positive result is that in general CEO duality could lead to agency problem. One way to show that CEO duality could lead to better decision making is by having a higher leverage level as creditors would monitor the actions of CEO - chairman, and subsequently reduce the agency problems between top management and shareholders.

Finally the results for the control variables show that firm size and growth opportunity are positive and statistically significant at five percent and one percent levels respectively. Titman and Wessels (1988) find that small firms tend to hold low leverage levels as they face higher cost and higher bankruptcy risk when they use high leverage. The positive relationship shows that as large firms are less likely to experience bankruptcy and have better access to the capital market than small firms, they could use higher amount of leverage. Furthermore, when large firms take on more leverage it could lead to lower information asymmetric problems, thus, reducing the agency costs between majority and minority shareholders. In general, growth firms face high agency problems (Myers, 1977). A positive result suggests that high growth firms could use external financing as a signal to investors that they are performing well, thus, have lower agency problems.

The result also shows that the relationship between profitability and leverage is statistically insignificant. The insignificant result suggests that profitable firms will not use high leverage level as it could increase bankruptcy and financial distress

costs. On the other hand, profitability firms will not use low leverage as low leverage leads to lower tax benefits on interest payment.

Model 2 in Table 4.8 show the results of only significant variables after deleting the insignificant variables from Model 1. The results in Model 2 report similar result with those reported in Model 1 except firms size which become statistically insignificant in Model 2.

4.3.3 3SLS Regression Results

This section discusses the results of three stage least squares (3SLS) regression model. 3SLS is more efficient than 2SLS as it can obtain consistent estimates of the parameters than those obtained by 2SLS (Driffield *et al*., 2007). In addition 2SLS provides the results in two single equations while 3SLS provides both equations results together. Therefore this study provides additional analyses by using 3SLS to examine the credibility of the initial results.

Table 4.9 presents the regression results using 3SLS. The results in Equation 1 show that for cash holdings, explanatory variables are still similar to the results of 2SLS regression model that are summarized in Table 4.7, except that ownerships by GLICs is significant at ten percent level. Meanwhile, ownerships of private domestic institutions are no longer significant with cash holdings. Results of using leverage as dependent variable, as summarized by Equation 2, show that the explanatory variables have basically similar magnitudes and signs as compared to the results of 2SLS model as shown in Table 4.8.

Table 4.9

3SLS Regression Results

Variables	**Coefficient**	**P-value**
Equation 1: CASH		
LEVERAGE	-0.5784	0.000***
GLICS	0.0005	0.075*
STATEOWN	-0.0015	0.000***
FAMILYOWN	-0.0110	0.506
BUSGROUP	0.0230	0.049**
FOREIGNOWN	0.0497	0.057*
DOMESTICOWN	0.1335	0.112
BOARDSIZE	0.0038	0.036**
INDEPENDENCE	-0.0009	0.789
MANAGERIALOWN	0.0008	0.965
CEODUAL	0.0287	0.003***
FSIZE	0.0096	0.009***
PROFITABILITY	-0.0223	0.522
GROWTH	0.0057	0.029**
NONLIQUIDASSETS	-0.0268	0.561
INVENTORY	0.0320	0.548
CONSTANT	0.0875	0.009***

Table 3.9 (Continued)

Variables	Coefficient	P-value
Equation 2 leverage		
CASH	-1.9489	0.000***
GLICS	0.0011	0.028**
STATEOWN	-0.0026	0.000***
FAMILYOWN	-0.0157	0.577
BUSGROUP	0.0420	0.041**
FOREIGNOWN	0.1140	0.019**
DOMESTICOWN	0.2462	0.100
BOARDSIZE	0.0073	0.028**
INDEPENDENCE	-0.0010	0.862
MANAGERIALOWN	-0.0049	0.875
CEODUAL	0.0532	0.002***
FSIZE	0.0152	0.003***
PROFITABILITY	-0.0273	0.616
GROWTH	0.0109	0.021**
INCTAX	0.2333	0.521
NDTSH	-0.0463	0.709
CONSTANT	0.1896	0.005***
Number of Observations	1860	

Notes: ***,**,* show significant level of 1%, 5% and 10% respectively.

4.3.4 Additional Analysis

This section uses truncated variable approach to extend the analysis for robustness. Truncated variable method is used as some of the financial variables may contain

outliers which might influence the results of the regression. The regression is estimated by truncating 0.5 percent of both tails of all financial variables that use natural logarithm functions such as firm size. Table 4.10 provides 2SLS regression results of cash holdings based on truncated variables. Results of truncating variables for cash holdings are still similar to those in Table 4.7, except that foreign ownership is not significant.

Table 4.10

2SLS Results of Cash Holdings Based on Truncated Variables

Variables	**Coefficient**	**P-value**
LEVERAGE	-0.7885	0.000***
GLICS	0.0004	0.173
STATEOWN	-0.0016	0.000***
FAMILYOWN	-0.0186	0.275
BUSGROUP	0.0209	0.079*
FOREIGNOWN	0.0360	0.207
DOMESTICOWN	0.1520	0.078*
BOARDSIZE	0.0056	0.003***
INDEPENDENCE	-0.0040	0.259
MANAGERIALOWN	0.0250	0.191
CEODUAL	0.0280	0.005***
FSIZE	0.0079	0.071*
PROFITABILITY	0.0118	0.848
GROWTH	0.0014	0.630
NONLIQASSETS	-0.3013	0.000***
INVENTORY	0.1088	0.103
CONSTANT	0.1583	0.000***
Number of observations	1860	

Notes: ***,**,* show significant level of 1%, 5% and 10% respectively.

Table 4.11 shows the results of truncating variables for leverage. The results in Table 4.11 are similar to the results presented in Table 4.8, except that ownerships by foreigners are no longer significant.

Table 4.11

2SLS Results of Leverage Based on Truncated Variables

Variables	**Coefficient**	**P-value**
CASH	-1.6041	0.000***
GLICS	0.0006	0.156
STATEOWN	-0.0024	0.000***
FAMILYOWN	-0.0144	0.553
BUSGROUP	0.0376	0.036**
FOREIGNOWN	0.0652	0.120
DOMESTICOWN	0.1981	0.127
BOARDSIZE	0.0060	0.037**
INDEPENDENCE	-0.0025	0.631
MANAGERIALOWN	0.0003	0.992
CEODUAL	0.0481	0.001***
FSIZE	0.0195	0.000***
PROFITABILITY	-0.0262	0.712
GROWTH	0.0120	0.008***
INCTAX	-0.2767	0.387
NDTSH	-0.0420	0.839
CONSTANT	0.1150	0.058**
Number of observations	1860	

Notes: ***,**,* show significant level of 1%, 5% and 10% respectively.

In addition, 3SLS is also used to estimate the relationships between dependent and explanatory variables by using the truncated data. Table 4.12 shows the regression results. The results for cash holding variables are similar to the results in Table 4.9 except that GLICs is no longer significant. As for leverage equation, the results show

Table 4.12

3SLS Results Based on Truncated Variables

Variables	**Coefficient**	**P-value**
Equation 1: CASH		
LEVERAGE	-0.5379	0.000***
GLICS	0.0005	0.108
STATEOWN	-0.0014	0.001***
FAMILYOWN	-0.0054	0.751
BUSGROUP	0.0221	0.064*
FOREIGNOWN	0.0511	0.073*
DOMESTICOWN	0.1126	0.192
BOARDSIZE	0.0036	0.052*
INDEPENDENCE	-0.0010	0.775
MANAGERIALOWN	-0.0044	0.816
CEODUAL	0.0279	0.005***
FSIZE	0.0099	0.024**
PROFITABILITY	0.0020	0.974
GROWTH	0.0072	0.014**
NONLIQUIDASSETS	0.0367	0.569
INVENTORY	-0.0393	0.551
CONSTANT	0.0801	0.024**

Table 4.12 (Continued)

Variables	**Coefficient**	**P-value**
Equation 2: LEVERAGE		
CASH	-1.6066	0.000***
GLICS	0.0006	0.161
STATEOWN	-0.0024	0.000***
FAMILYOWN	-0.0145	0.551
BUSGROUP	0.0380	0.034**
FOREIGNOWN	0.0641	0.126
DOMESTICOWN	0.1968	0.129
BOARDSIZE	0.0059	0.038**
INDEPENDENCE	-0.0024	0.640
MANAGERIALOWN	0.0005	0.986
CEODUAL	0.0476	0.001***
FSIZE	0.0197	0.000***
PROFITABILITY	-0.0310	0.660
GROWTH	0.0115	0.010**
INCTAX	-0.1937	0.501
NDTSH	0.0516	0.701
CONSTANT	0.1096	0.067*
Number of Observations	1860	

Notes: ***,**,* show significant level of 1%, 5% and 10% respectively.

that GLICs, foreign ownership and private domestic institutional investors are statistically insignificant. The rest of the variables are still related to leverage as in Table 4.9.

4.4 Summary of the Chapter

Wu-Hausman specifications test is estimated to check for endogeneity problems. To control the potential endogeneity between cash holdings and leverage, this chapter presents the results using 2SLS and 3SLS models. Table 4.13 provides the results of cash holdings variables using 2SLS, 3SLS, OLS methods and the results of additional analyses using 2SLS truncated variables.

Based on 2SLS regression model the result for leverage reports a negative and statistically significant relationship with cash holdings. In addition, state ownership also reports a significant negative result at one percent level. Business group have a positive and significant relationship with cash holdings. The results report that the ownerships by foreigners and domestic institutional investors have positive impact on cash holdings at ten percent level. Board size and CEO duality are positively related to cash holdings. Firm size has a significant positive influence at ten percent level. Non-liquid assets have negative and significant relationship with cash holdings. Inventory is positive and significant related to cash holdings in 2SLS model. However, GLICs is positive and statically significant with cash holdings only in 3SLS regression model.

Table 4.13

Conclusion of Regression Result for Cash Holdings

Variables	**2SLS**	**3SLS**	**Truncate 2SLS**	**OLS**
LEVERAGE	-0.7262***	-0.5784***	-0.7885***	-0.2472***
GLICS		0.0005*		
STATEOWN	-0.0016***	-0.0015***	-0.0016***	-0.0008***
FAMILYOWN				
BUSGROUP	0.0212*	0.0230**	0.0209*	
FOREIGNOWN	0.0436*	0.0497*		0.1041***
DOMESTICOWN	0.1512*		0.1520*	
BOARDSIZE	0.0053***	0.0038**	0.0056***	0.0048**
INDEPENDENCE				
MANAGERIALOWN				
CEODUAL	0.0278***	0.0287***	0.0280***	0.0177*
FSIZE	0.0072*	0.0096***	0.0079*	
PROFITABILITY				0.1177**
GROWTH		0.0057**		
NONLIQASSETS	-0.2576***		-0.3013***	
INVENTORY	0.1200**			-0.1020**
CONSTANT	0.1495	0.0875	0.1583	0.2034

Notes: ***,**,* show significant level of 1%, 5% and 10% respectively.

Table 4.14 shows a conclusion of the regression results based on leverage. Regardless of the models employed, the relationship between cash holdings and leverage is negative and statistically significant at one percent level in all models. GLICs have a positive and significant impact on leverage at five percent level. State ownership is negative and statistically significant at one percent. The regression result shows that business group, foreign investors and board size are positive and

statistically significant at five percent level. CEO duality and firm size are statistically significant at one percent level with a positive sign. Growth is positively related to leverage. However, domestic institutional investors are only significant on 3SLS regression model. Profitability and income tax are negatively related to leverage while non-debt tax shield are statistically positive to leverage in OLS model.

Table 4.14

Conclusion of Regression Result for Leverage

Variables	**2SLS**	**3SLS**	**Truncate 2SLS**	**OLS**
CASH	-1.9496***	-1.9489***	-1.6041***	-0.5147***
GLICS	0.0011**	0.0011**		
STATEOWN	-0.0026***	-0.0026***	-0.0024***	-0.0019***
FAMILYOWN				
BUSGROUP	0.0424**	0.0420**	0.0376**	0.0277**
FOREIGNOWN	0.1127**	0.1140**		-0.1006**
DOMESTICOWN		0.2462*		
BOARDSIZE	0.0072**	0.0073**	0.0060**	
INDEPENDENCE				
MANAGERIALOWN				
CEODUAL	0.0528***	0.0532***	0.0481***	0.0360**
FSIZE	0.0154***	0.0152***	0.0195***	0.0324***
PROFITABILITY				-0.1942***
GROWTH	0.0104**	0.0109**	0.0120***	
INCTAX				-1.2636***
NDTSH				0.6092***
CONSTANT	0.1850	0.1896	0.1150	-0.1205

Notes: ***,**,* show significant level of 1%, 5% and 10% respectively.

CHAPTER FIVE
CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter begins with a summary of the research process, by restating the purpose of the study in Section 5.1. Section 5.2 summarizes the findings of the study. Then, Section 5.3 discusses the implications of the findings. Section 5.4 provides the limitations of the study along with recommendations for future research.

5.1 Overview of the Study

This study investigates the importance of leverage and cash holdings based on agency theory and information asymmetric theory. In addition, this study also investigates whether or not corporate governance mechanisms such as ownership and board structures have important roles in explaining the financial decision of corporate cash holding and leverage in Malaysian companies.

Chapter two presents the literature review on the relationship between corporate governance mechanisms on cash holdings and leverage. Among the theories discussed are agency theory, pecking order theory, information asymmetric theory and capital structure theory. Empirical studies show that holding excess cash would lead to increase agency problems. On the other hand, using higher leverage would lead to financial distress and increase the bankruptcy cost in the firm. Unlike past studies the main objective of this study is estimated cash holdings and leverage as two interrelated models as leverage could play a significant role by reducing the

agency problems while cash holdings would reduce the probability of financial distress and bankruptcy cost.

The variables hypothesized to have an effect on cash holdings and leverage are: 1) ownership variables, which include GLICs' ownership, state ownership, family ownership, business groups' ownership, foreign investors' ownership and private domestic institutional investors' ownership; 2) board structures including board size, board independence, managerial ownership and CEO duality; and 3) control variables including profitability, firm size and growth opportunity. In addition to that, in order to solve for endogeneity problem, two instrumental variables are used for leverage, which are corporate tax rate and non-debt tax shield, and two instrumental variables are used for cash holdings, which are non-liquid assets and inventory for cash holdings.

The sample includes all companies listed in Bursa Malaysia for the period of 2008 to 2010. The initial sample consists of 674 firms after excluding finance related companies, ACE Market companies and missing data from the annual reports or DataStream. Data is obtained from two sources: DataStream database and annual reports.

5.2 Summary of Findings

This study finds that if ownership is defined by an individual own more than 30% (20%) of a firm, then about 53% (61%) of firms in Malaysia are owned by families. This finding shows the prevalence of family firms in Malaysia. This finding

reaffirms the findings of Ngui (2002) and Rachagan and Satkunasingham (2009) who find that more than 50% of companies in Malaysia are controlled by families.

The first objective of this study examines cash holdings and leverage as two independent models. The results are estimated using 2SLS regression model after Wu-Hausman test confirms the existence of endogeneity problems, which means that the results of OLS are biased.

The regression result shows a negatively significant relationship at one percent level between leverage and cash holdings. This result is consistent with the agency theory that suggests the use of leverage as a monitoring mechanism. Specifically, leverage reduces the free cash flows level which consequently reduces the agency cost problems. On the other hand, information asymmetric theory suggests that firms tend to use internal financing rather than external financing as managers and large shareholders consider external financing as more costly. In this case, cash holding also has a significant negative effect on leverage.

The second objective of this study is to determine whether ownership structures variables affect cash holdings. State ownership has a significant negative relationship with cash holdings. The results also show that business group has positive impact on cash holdings. The positive result shows that managers of firms business group tend to hold excess cash in their firms. Thus, it could lead to higher agency problem. The regression result of foreign investors and domestic private institutions show significant positive results on cash holdings. Therefore, foreign investors and

domestic institutional investors could not play an important role in reducing the agency problem as on average, these institutions hold insignificant amount in a firm. Finally, the result of this study indicates no relationship between family ownership and GLICs with cash holdings.

The third objective of this study is to examine whether ownership variables affect leverage. The result shows a positive relationship between GLICs and leverage, indicating that GLICs use high leverage level to monitor managerial actions. State ownership is negatively and significant related to leverage. High state ownership could substitute leverage as a monitoring mechanism. The results show positive relationship between business group and leverage. This result explains that controlling owners in Malaysian firms use debt as a signal to outside shareholders that corporate governance in firms affiliated with a business group is good. The finding of this study shows a positive and significant relationship between foreign ownership and leverage. Foreign investors tend to use higher leverage level as they have better access to external and internal market, thus they could get lower cost of debt. Meanwhile, there is no effect of family ownership and private domestic institutional investors on leverage.

The fourth objective of this study is to identify whether board structure variables can affect cash holdings. The result shows a significant positive result between board size and cash holdings. Large board could lead to difficulties in decision making, thus increasing the chance for managers to pursue their own benefits by holding excess cash. Meanwhile, the result also shows that CEO duality is positively related

with cash holdings. The positive result of CEO duality may imply that if both positions are held by one individual, agency problems are expected to increase. Finally the findings of this study show no relationships between board independence and managerial ownership with cash holdings.

The last objective of this study is to identify if board structure variables affect leverage. The findings of this study indicate that board size and leverage are positively related. The result also shows that CEO duality has a positive relationship with leverage. The findings show that when the posts of chairman and CEO are held by one individual, it could lead to higher agency problem. To mitigate for these problems, higher leverage is used. Finally, board independence and managerial ownership do not affect leverage.

This study also reports the results of using three stage least squares (3SLS). The results of 3SLS are generally similar to those 2SLS. Finally, this study extends the analysis by using truncated variable approach to check for the effects of outliers on the regression results. The results of truncating the variables are similar to the results of not truncating the variables, either by using 2SLS or 3SLS.

5.3 Contributions and Implications of the Research

Agency theory suggests that high level of cash holdings would create agency problems (Jensen & Meckling, 1976; Jensen, 1986). One way to mitigate these problems as suggested by Jensen (1986) is to use more debt as creditors would monitor managerial actions. On the other hand, use of leverage could lead to higher

probability of financial distress. In this case, pecking order theory (Myers, 1984) suggests that firms prefer cash to leverage in their financing decision. The interactions between these two decisions suggest that estimating the two decisions independently by using ordinary least square (OLS) would lead to biased results. Therefore, this study provides new evidence that managers would be able to make better choice and improve their financing decisions by using both decisions simultaneously using two stage least squares (2SLS).

Since families and GLICs own about 61% and 8% respectively in Malaysian firms, these families and institutions have a say on the appointment of independent directors in their controlled firms. In this case, the independent directors might not truly independent as they are suggested or appointed by the largest shareholders. Thus, policymakers should look at the appointment of independent directors, who should play a prominent role in monitoring managerial actions more effectively especially in a concentrated ownership environment, such as Malaysia. Directors who are truly independent could help bolster investors' confidence to invest in Malaysia.

The result of this study shows that state ownership leads to a better monitoring of managers as cash holdings are negatively related to state ownership. Thus even though it is argued that state might use its controlled firms to meet its objective of providing better social goals, such as higher employment or lower housing prices, that requires higher amounts of cash, this study finds that is not the case. Furthermore by monitoring its controlled firms, state could reduce the level of

leverage. One concern about state ownership is that it could use its resources to guarantee loans taken up by the state controlled firms, either implicitly or explicitly. This guarantee in turn is borne ultimately by taxpayers. However, the finding of this study shows that state ownership does not lead to higher leverage. Thus even though state could use its position to let its controlled firms to use higher leverage, it does not happen. Therefore, this study shows that state ownership is welcomed as it leads to lower agency problems, at least in terms of decisions related to cash holdings and leverage.

The results of this study show that CEO duality leads to higher cash holdings which imply that agency problems exist. However, CEO duality also leads to higher leverage which could mitigate the agency problems. In this case, the net effects of CEO duality are not clear. However, they are the biggest losers if they take advantage of those problems as their wealth is tied up to their firms' performance. In this case, they have every incentive to take actions that are of the best interests to all shareholders. As a consequence, this study suggests that, in terms of CEO duality, policymakers should let the firms decide on their best cause of actions.

Demsetz and Lehn (1985) and Demsetz and Villalonga (2001) argue that efficient and competitive markets lead to the optimal corporate forms. In this case, we should not expect ownerships by families and managers to have an impact on levels of leverage and cash holdings. Therefore, the findings in this study that family and managerial stakes do not influence leverage and cash holdings show the maturity of Malaysian capital markets.

5.4 Limitations and Recommendations for Future Research

This study is subject to a number of limitations. First, data on ownership in annual reports is limited to 30 largest shareholders. If an institution owns some shares in a company but the institution not considered as a part of 30 largest shareholders, then the institution will not be considered in this study. In this case, this study cannot include the correct percentage of institutional ownership. Thus, there might be a measurement error, which could affect the results of this study.

Second, independent directors might not be truly independent as they are appointed by families and institutions. Again, in this case, there is a measurement error as the independent directors cannot be measured precisely.

There are two suggestions for future research. First suggestion is to include finance and finance related firms to cash holdings and leverage models as these models are two important decisions that can be generalized to all sectors in Malaysian market. Second, future study can also be extended by including other board characteristics, such as board meeting and board tenure, that could affect corporate governance in Malaysian firms.

5.5 Summary of the Chapter

This study investigates the effect of ownership and board structures on cash holdings and leverage for a sample of all listed companies in Malaysia between 2008 to 2010. This study provides evidence that ownership structures variables such as GLICs, state ownership, business group and foreign investors, and board structures variables

such as board size and CEO duality play important roles on cash holdings and leverage. Finally, this study discussed some limitations and recommendations for future research that may affect on decisions of cash holdings and leverage in Malaysia.

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