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*THE IMPACT OF GOVERNMENT-LINKED
INVESTMENT COMPANIES IN MALAYSIA ON
THE PERFORMANCE AND
EARNINGS-MANAGEMENT OF THEIR
PORTFOLIO COMPANIES*

AMIRUDDIN BIN-MUHAMED

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**THE IMPACT OF GOVERNMENT-LINKED INVESTMENT
COMPANIES IN MALAYSIA ON THE PERFORMANCE AND
EARNINGS-MANAGEMENT OF THEIR PORTFOLIO
COMPANIES**

**BY
AMIRUDDIN MUHAMED**

**A thesis submitted to Durham University in fulfilment of the
requirements for the degree of Doctor of Philosophy**

**DURHAM UNIVERSITY
BUSINESS SCHOOL
2013**

Abstract

Research into the impact of government ownership on the financial performance and earnings-management of listed companies typically makes the assumption that the government is a monolithic entity and fails to consider that government ownership rights are usually administered by different types of government organisations. This thesis comprises two empirical studies to investigate whether the existence of different government investment organizations in Malaysia (called government-linked investment companies or GLICs,) which have differing objectives and control structures, also have different results in terms of performance and earnings-management. The portfolio companies that GLICs manage are known as government-linked companies (GLCs).

The first empirical project explores the impact of GLC ownership structure (relating to the different group of GLCs, GLICs ownership concentration in GLCs, the existence of golden-share provisions and the presence of senior civil servants and of politicians on the boards of directors of GLCs) in terms of corporate performance as measured by accounting and market data. Using panel data of GLCs listed on the Main Board of Bursa Malaysia between 2004 and 2008, we provide evidence that in Malaysia the impact of government ownership on the financial performance of government-controlled listed companies varies depending on the type of organization managing the government's ownership stakes.

In the second empirical project, we investigate the impact of ownership structure (ownership types, blockholders and managerial ownership) on earnings-

management practices of listed companies on the Main Board of Bursa Malaysia. This involved 2696 firm-year observations between 2004 and 2008. We provide evidence that firms in our sample indeed managed their reported earnings upward; firms controlled by private blockholders engage in earnings-management practices at a higher magnitude than GLCs controlled by government blockholders. Between the GLCs, we found no evidence of the impact of different GLICs had on GLCs earnings-management practices.

This research is of interest to policy makers such as government, GLICs or regulators. In addition, the findings from both empirical projects are of potential interest to portfolio investment companies and minority or foreign investors who might either benefit from the presence of blockholders or might be exploited by their power to pursue self-interested objectives rather than shareholders' value.

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Abbreviations

ACEPERT	Audit committee financial expert
ACINED	Audit committee independent directors
ACMEET	Audit committee meeting
ACQUALITY	Audit committee' quality
ACSIZE	Audit committee size
AFC	Asian Financial Crisis
AGM	Annual general meeting
ANALYST	Analyst following
BIG4	Big four auditors
BLUE	Best Linear Unbiased Estimator
BOD	Board of directors
BODSIZE	Board of directors size
BODMEET	Board of directors meeting
BODINED	Independent non-executive directors
BOD_SCS	Senior civil servants on the board of directors
BOD_POL	Politicians on the board of directors
BODQUALITY	Board of directors' quality
CEO	Chief executive officer
COINVESTMENT	Firm's investment opportunity
CONCENTRATION	Blockholder ownership concentration
DAC	Discretionary accruals
DAROA	The performance-adjusted discretionary accruals model
DUALITY	CEO duality
EGM	Extraordinary general meeting
EM	Earnings-management
FCF	Free cash flow
FGLIC	Federal government owned GLICs
FRS	Financial reporting standards
GLCs	Government-linked companies
GLICs	Government-linked investment companies
GLIC_share	Shareholdings by GLICs in GLCs
GMM	Generalized method of moments
GROWTH	Firm's growth prospects

IAS	International accounting standards
IASB	International accounting standards board
IFRS	International financial reporting standards
IMF	International Monetary Fund
IQR	Inter-quartile range
JONES	Original Jones model
LAGROA	Previous year performance proxy by return on assets
LIML	Limited Information Maximum Likelihood
MANSHARE	Managerial ownership
MASB	Malaysian accounting standard board
MCAP	Market capitalization
MCCG	Malaysian Code on Corporate Governance
MJONES	The modified Jones model
MOF Inc.	Ministry of Finance Incorporated
NDAC	Non discretionary accruals
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary-least-square
PCG	The Putrajaya Committee on GLC High Performance
PIF GLIC	Federal government sponsored pension and investment funds
PRIVATE	Private blockholders
ROA	Return on assets
ROE	Return on equity
SEDC	State Economic Development Corporations
SOEs	State owned enterprises
TACCLTA	Total accruals
VIF	Variance inflation factor
2NDBLOCK	Secondary blockholder

List of Appendices

Appendix 1: Detail definition of independent director based on Bursa Malaysia Listing Requirement

Declaration

I hereby declare that the materials contained in this thesis have not been previously submitted for a degree at this or any other university. I further declare that this thesis is solely based on my own research.

Amiruddin Muhamed

Statement of Copyright

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Plagiarism Statement

This project was written by me and in my own words, except the quotations from published and unpublished sources which are clearly indicated and acknowledged as such. I am conscious that the incorporation of material from other work without acknowledgement will be treated as plagiarism, subject to the custom and usage of the subject, according to University Regulations.

Amiruddin Muhamed

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DEDIKASI

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“Every story has an end, but in life every ending is just a new beginning”

CHAPTER 1

INTRODUCTION

1.1 Background of the study

In emerging economies, government block ownership in listed companies is much more prevalent than in developed economies, particularly Anglo-Saxon countries (Claessens, Djankov and Lang, 2000). Emerging economies tend to be characterized by a high degree of imperfection in capital, labour and goods markets (Zattoni, Pedersen and Kumar, 2009) and a lack of large and sophisticated private institutional investors (Ameer, 2010). Malaysia as an emerging economy is no exception in this matter; it is a big challenge to compete with other countries in the region to attract foreign funds into Malaysian equity markets. Inflow of foreign funds into Malaysian equity markets is important for business investment as limited access to external funds is frequently identified as one of the keys problems which hamper the economic development of emerging economies both at national and firm level (Hearn, Piesse and Strange, 2010; Tsoukas, 2011; Fan, Wei and Xu, 2011).

Governments often invest in private companies to provide access to additional funds, to further the development of strategic firms and industries, and to promote corporate governance by improving the supervision and control of their portfolio companies (Wade, 2004; Lau and Tong, 2008; Malaysia Ministry of Finance, 2010). Moreover, governments tend to maintain ownership rights in privatized firms which operate in

monopoly markets as a means to promote fair trading practices in the absence of effective regulators, which protect market participants against abuses of market power (Boubakri, Cosset and Guedhami, 2009).

The Malaysian Government made strategic investments through organisations called government-linked investment companies (GLICs), especially in key industries such as banking and financial services, electricity, telecommunications, airlines and other infrastructure projects. Companies in which the government-backed GLICs own a majority stake are in turn called government-linked companies (GLCs). Although the GLCs collectively account for 10 per cent of Malaysia's economic output, employ more than 300,000 people and have a market capitalisation of £47.1 billion or 49 percent of total market capitalisation (Malaysia Ministry of Finance, 2010: 100), past research pertaining to the impact of the government ownership on the listed companies' performance and earnings-management is rather limited.

Our research has been inspired by the observation that research into the impact of government ownership on the financial performance and earnings-management of listed companies typically assumes the government to be a monolithic entity. In the past, enquiries into the impact of government ownership on performance (Shleifer and Vishny, 1994; Boycko, Shleifer, and Vishny, 1996; Sun, Tong, and Tong, 2002; Tam and Tan, 2007; Azmi, 2008; Shen and Lin, 2009; Mohd Ghazali, 2010; Ab Razak, Ahmad, and Joher, 2011; Le and Buck, 2011; Najid and Rahman, 2011; Wang and Yung, 2011) and earnings-management (Yen, Chun, Abidin and Noordin, 2007; Ding, Zhang and Zhang, 2007; Wang and Yung, 2011; Mohamad, Rashid and

Shawtari, 2012) of listed companies largely treated government investment as homogeneous.

In reality, government ownership, particularly in emerging economies, is often managed by a range of government organisations. We argue that different types of government investment organisations in Malaysia have different objectives and control structures; these differences matter when measuring impact of government ownership on listed companies' performance and earnings-management activities.

We also motivated by the fact that, as blockholders in listed firms, GLICs can potentially mitigate the lack of minority shareholder protection rights by improving the supervision and control of their portfolio firms (Wade, 2004; Lau and Tong, 2008). In Malaysia, for instance, federal GLICs are explicitly charged with improving the corporate governance of their portfolio companies (Malaysia Ministry of Finance, 2010)¹. This is expected not only to improve the financial performance of the individual firms but also to encourage the mobilisation of private domestic savings as well as foreign direct and portfolio investment to improve domestic firms' access to outside capital (Malaysia Putrajaya Committee on GLC High Performance, 2006a; 2006b; Malaysia Ministry of Finance, 2010).

Therefore, the main objective of this study is to investigate the impact of different groups of GLICs on corporate performance and earnings-management activities of their portfolio companies by taking into consideration the existence of different types of GLICs and different influences that may affect how they exercise their control

¹ Corporate Governance Survey Report (2008) conducted by Minority Shareholder Watchdog Group and Nottingham University Business School involving all listed companies in Bursa Malaysia Securities revealed that, GLCs were the leaders in terms of implementing recommended corporate governance best practices as suggest in Malaysian Code on Corporate Governance 2001.

rights. By focusing on this issue, this study will provide a unique contribution to our knowledge. By looking not just at blockholders or government blockholders as a whole, but rather at different types of government blockholders, this study closes gaps in the literature; indeed, this is a novel approach to a study concerning the effects of government ownership on financial performance and earnings-management practices of listed companies, in the context of an emerging market. This in turn may contribute to deeper knowledge related to ownership by the government, and thus open up a new dimension of how researchers should deal with this issue in future.

To achieve the objective mentioned above, this thesis is comprised of two main projects. **The first empirical project** explores whether controlling block ownership by the three main types of government investment organisations indicated above, their ownership concentration, the existence of golden share provisions, and the participation of politicians and senior civil servants in the boards of directors impact the performance of government controlled listed companies in Malaysia.

In relation to this matter, we argued that GLCs owned by Federal Government Sponsored Pension and Investment Funds (PIF GLIC) have clear objective to maximise depositors' and unit holders' wealth as compared to Federal Government GLIC (FGLICs) that highly influenced by Government to pursue social and development objectives. Therefore, we hypothesized that financial performance of GLCs controlled by PIF GLIC is better than financial performance of GLCs controlled by FGLICs. In addition, as laws and regulations are more difficult to enforce the further entities are away from the centre of power (Chen et al., 2009), we therefore expect the financial performance of GLCs controlled by FGLICs is better

than the financial performance of GLCs at the state level that controlled by State Economic Development Corporations (SEDC). As PIF GLIC is also GLIC at federal level, we also hypothesized that the financial performance of GLCs controlled by PIF GLIC is better than the financial performance of GLCs controlled by SEDCs. With regards of GLICs shareholdings in GLCs, we argued that the higher the degree of share ownership by a blockholder, the greater the incentive and ability for them to participate in the supervision and control of the firm's management. We therefore expect that a significant relationship between the proportion of GLIC ownership and GLCs' financial performance.

We also investigate the impact of golden shares on GLCs' performance. We argued that, as the government perceives GLCs with golden shares to be of strategic importance to the economic and social development of Malaysia, they might benefit from government protectionist measures that may positively impact on their financial performance. We therefore hypothesised a positive significant relationship between GLC performance and the existence of golden share provisions. Finally, as politicians and senior civil servants might be less capable of controlling managers or giving advice on strategic decisions due to their often limited business expertise (Chen et al, 2009), we therefore hypothesized that the proportion of senior civil servants and politicians on the board of GLCs are negatively related to financial performance of GLCs.

In this study, we only interested in the degree to which different government investors with different objectives, motivations and control structures affect financial performance of their portfolio companies (GLCs). Therefore, we only considered all

listed GLCs and excluded the non-GLCs. Our focused on GLCs also to consider whether different government investment organizations differ with regard to among other on their protection of minority shareholder interests, the study that never be conducted in Malaysia, by far. This is of interest both to the government, which expects GLICs to further corporate governance and corporate financial performance of GLCs, and for portfolio investors, who in an environment with poor enforcement of minority shareholder rights might be attracted to partly government owned companies

In this study, we were not interested to compare performance of GLCs and non-GLCs as this type of research has been conducted regularly both in developed and in an emerging markets including Malaysia. The findings normally showed that the performance of state owned enterprises (SOEs) lagged behind private firms (Boardman and Vining, 1989; Wei and Varela, 2003; Shen and Lin, 2009). Survey by Shirley and Walsh (2000) was interesting to be quoted here. They survey previous studies that related to performance differences between SOEs and private companies. They found that among 52 studies in the survey, majority of the studies (32 studies) suggest that private companies performed better than SOEs. Study by Villalonga (2000) also revealed a same conclusion.

In Malaysia, there is also the case where GLCs performance were lagged behind private firms as found in various studies such as by Tam and Tam (2007); Najid and Rahman (2011); Ab. Razak et al. (2011). As such, we expect our research is going to have similar results. But, by taking into consideration of the impact of different government investment institution and corporate performance of their portfolio

companies, we open a new paradigm and perspective on how we should deal with government ownership in the future by taking care of different government investment institution with different objectives, motivations and control structures.

In addition, as argued by Demsetz and Lehn (1985: 1176) that “corporate ownership varies systematically in ways that are consistent with value maximisation,” we also investigated issues of endogeneity and reverse causality in the relationship between ownership and performance.

The second empirical project is motivated by the findings in the first empirical project. In the first empirical project, some results regarding dependent performance variables using accounting data and using market data are inconsistent; in accounting data one sees a more pronounced positive effect, particularly the impact of ownership concentration by controlling government investors and golden shares on GLCs’ accounting performance. This suggests that market participants might discount the accounting information of companies with certain government-related corporate governance features, perhaps due to concerns about exploitation but also accounting manipulation.

This raised the question whether GLCs with different types of controlling GLIC owners (government blockholders) engage in different levels of earnings-management and more generally whether GLCs engage in different levels of earnings-management compared to firms not controlled by government investors. This question motivated us to investigate the issue of earnings management practices among portfolio companies controlled by GLICs in depth as the issue particularly important particularly to the minority (foreign) investors, who might either benefit

from the presence of government blockholders or might be exploited by their power to steer the company in accordance with their own interests.

Therefore, in the second empirical project, we further extend our research by also including firms without government controlled blockholders, in order to measure reporting quality relying on competitor benchmarks and to get a wider idea about corporate reporting quality in Malaysian listed companies. In this project, we argued that PIF GLICs might have an incentive to deter earnings management in their portfolio companies as their investment is long-term investment which aims to provide continuing benefits to their depositors or unit holders. On the flip side, FGLICs' influence on their portfolio companies is likely to be politically motivated rather than commercially motivated. Therefore, we expect the magnitude of earnings-management of GLCs controlled by PIF GLICs is lower than the magnitude of earnings-management of GLCs controlled by FGLIC. However, as GLCs controlled by SEDCs are under less scrutiny as laws and regulations are more difficult to enforce the further entities are away from the centre of power (Chen et al, 2009), we expect the magnitude of earnings-management of GLCs controlled by FGLIC is lower than the magnitude of earnings-management of GLCs controlled by SEDC. As PIF GLIC is also GLIC at federal level, we hypothesized that the magnitude of earnings-management of GLCs controlled by PIF GLIC is lower than the magnitude of earnings-management of GLCs controlled by SEDC.

In addition to government blockholders, we also examine earnings-management activities in the listed firms controlled by private blockholders. As the main objective of private blockholders are more inclined to maximizing profits by for example;

influencing shares prices through reporting favourable income, we expect the magnitude of earnings-management of listed firms controlled by private blockholders is higher than the magnitude of earnings-management of GLCs controlled by various GLICs.

Finally, in this second empirical project, we also investigate the impact of blockholder ownership concentration and managerial ownership on earnings-management. By taking into account the weak degree of investor protection as well as poor corporate governance structure in Malaysia that might lead to high information asymmetry in firms, we expect a significant positive relationship between managerial ownership and earnings-management. However, as the impact of blockholders ownership concentration on earnings-management can be discussed in both positive and negative associations, we therefore predict a significant relationship between blockholders ownership concentration and earnings-management without specifying the direction of the relationship.

In this project, we also examine the potential complementary and substitutive relationship of boards of directors and audit committee characteristics in mitigating earnings-management. Finally, we also take into account the potential for a bi-directional relationship between ownership structure and earnings-management by using a simultaneous system of equations. This is particularly important as past studies largely ignored the potential for simultaneity bias between both variables (e.g. Ding et al. 2007; Mohd Ali, Mohd Salleh and Hassan, 2008; Yang, Lai and Tan, 2008; Al-Fayoumi, Abuzayed and Alexander, 2010; Mohamad et al., 2012).

1.2 General contributions

This study contributes to knowledge and research about corporate governance by providing new insight and understanding on the role of government in an emerging market. In general, this study may be beneficial to market participants in particular:

1.2.1 The Malaysian government

This research recommends that governments which want to use GLICs to promote corporate governance and performance in listed companies, and to attract domestic and foreign investors, should consider carefully how objectives and organisational characteristics of different GLICs are likely to impact on the performance and earnings-management of their portfolio companies in this respect. However, as our study is only about corporate governance protecting minority shareholders' interests in relation to financial performance and earnings-management practices, the government cannot use our findings to find out about how effective GLCs support its policies relating to, for example, employment and social objectives.

1.2.2 Government investment organisations and Putrajaya Committee on GLC High Performance

Perhaps the main benefit of this study is for government investment organizations; they will be able to understand their role to play more clearly in terms of ensuring the excellence and efficiency of companies under their control. In the meantime, the Malaysian government established the Putrajaya Committee on GLC High Performance (PCG) in 2005. Its principal mandate is to design and implement

comprehensive national policies and guidelines to transform GLCs into high-performing entities and establish the institutional framework to manage and subsequently to oversee the execution of these policies and guidelines. This study helps PCG in determining the best corporate governance mechanisms for GLCs in order to achieve the objective of transforming GLCs into high-performing entities.

1.2.3 Portfolio and minority investors

As government investment organisations tend to dominate the capital markets of emerging economies, it is of interest, in particular to portfolio investors, to explore whether the impact on corporate governance, performance and earnings-management of different types of GLICs varies systematically. Findings from this study will help investors in their decision-making processes. Moreover, by also taking into account earnings-management activities by firms which are not controlled by government investors, this study contributes to knowledge about the advantages and disadvantages of investing in firms controlled by blockholders from the perspective of an emerging market. This issue is important particularly to the minority (foreign) investors, who might either benefit from the presence of blockholders (government or private) or be exploited by their power to manipulate earnings to pursue self-interested objectives rather than shareholder's value.

1.2.4 Market regulators and lenders

This study may also in benefit to other stakeholders such as regulators and lenders. The results from this study will help regulators (e.g. Malaysia Securities Commission and Bursa Malaysia Securities) in policy formulation and enforcement of rules (e.g.

Bursa Malaysia Listing Requirement) where they will be able to strengthen existing regulations or introduce new policies minimizing the earnings-management activities in listed firms. Moreover, in terms of enforcement of the rules, they can use findings from this study to focus on firms that are included in the group with higher levels of earnings-management activities.

For lenders, the results of this study can help them become more cautious in lending decisions by also take into account the earnings-management activities by listed firms that conducted for the purpose among others, to get a loan from them.

1.3 Structure of the thesis

The thesis consists of five chapters.

Chapter two discusses government ownership and control in Malaysia. It provides an explanation of the GLICs concept and how the government controls GLICs as well as their portfolio companies.

Chapter three discusses on research methodology related to various research paradigms, the used of quantitative and qualitative research method and also the adaptations of suitable research method in Malaysian environment.

Chapter four focuses on the first project that examines the impact of GLICs in Malaysia on corporate performance of their portfolio companies. Based on their investment objectives and their control structure, the study separated GLICs into three main groups, namely (i) federal government sponsored pension and investment funds; (ii) federal government owned GLICs charged with promoting the federal

government's economic and social policies; and (iii) State Economic Development Corporations charged with promoting state governments' economic and social policies. The issues of endogeneity and reverse causality of variables understudies are also addressed in this chapter.

Chapter five focuses on the second project that examines the impact of GLICs on earnings-management activities of their portfolio companies. Similar to first project, we separate GLICs into three types as mentioned above. In addition, we also included listed companies owned by private blockholders as part of our study.

Finally, **chapter six** summarizes the findings of the two projects above and provides a thesis contributions, limitations as well as the thesis overall conclusion.

CHAPTER 2

GOVERNMENT OWNERSHIP AND CONTROL IN MALAYSIA

2.1 Background of Government ownership in GLICs

The first GLIC in Malaysia was founded in 1959. The original purpose of the Ministry of Finance Incorporated (MOF Inc) was to supervise companies once owned by the British Colonial Government prior to 1957². However, from 1971 onwards, the role of MOF Inc was extended to acquire further assets to support the Malaysian Government's New Economy Policy introduced in 1970 (Gomez and Jomo, 1999). The policy aims to facilitate the direct and indirect participation of indigenous population or *Bumiputera*³ in the country's economic development (Gomez and Jomo, 1999). In particular, the policy was designed to restructure the multiethnic but economically-divided Malaysian society by increasing native *Bumiputera* corporate equity ownership to 30 percent by the year 1990 (Khan and Jomo, 2000; Fisk and Osman-Rani, 1982).

This policy, designed to improve the *Bumiputeras'* economic position was deemed vital for the social stability of Malaysia following the May 1969 post-election race riots, which was prompted by racial sentiment and dissatisfaction of inequality in

² Malaysia gained independence from Britain on August 31, 1957.

³ *Bumiputera* is the Malay language terms for the "sons of the soil" (Torii, 1997).

economic and wealth distribution between the majority *Malay population*⁴ – who were largely poor and lived in suburban areas – and the minority *Chinese population*⁵ – who were generally wealthy and lived in urban areas. Though assertive in nature, the policy requires that the expansion of *Bumiputera*'s economic share be achieved by expanding the Malaysian economy, rather than by the nationalisation or seizing of non-*Bumiputera*-owned businesses. Therefore, ideally, both the *Bumiputera* and non-*Bumiputera* population will benefit from government policy hence achieving an economically balanced and socially harmonious society (Malaysia, 1971).

To support the New Economy Policy, further GLICs were established at federal levels⁶ such as the Urban Development Authority (UDA) in 1971 and National Equity Corporation (*Permodalan Nasional Berhad*) in 1974. These organizations were established predominantly to help the *Bumiputera* population invest their savings in private companies and thereby participate in the economic growth of the country (Jomo, 1991; Prasad, Vozikis and Ariff, 2006). Meanwhile, at a regional level, State Economic Development Corporations (SEDCs) were established to safeguard the interests of *Bumiputera* in their own state, such as the Selangor SEDC in 1964 and Kedah SEDC in 1965 (Gomez and Jomo,1999). These GLICs are expected to invest in equity on behalf of the *Bumiputera* as a beneficial owner, and hence, control and influence the directions of the GLCs.

⁴ Malays ethnicity is part of *Bumiputera* group.

⁵ Chinese ethnicity is part of non-*Bumiputera* group

⁶ Malaysia is a federated constitutional monarchy that practices parliamentary democracy and has a three-tier government structure: federal, state and local government (Oxford Business Group, 2007: 239)

The New Economy Policy greatly influenced how business activities carried out in Malaysia, causing excessive political interference in business and uneven access to opportunities (Gomez and Jomo, 1997). According to Tam and Tan (2007: 220) as a consequence of the policy, “firm performance in Malaysia is often seen to be a function of the identity of the owner, its ties to powerful political agents and the resulting access to business opportunities and finance.”

2.2 Government control over GLICs and GLCs

While privatization policy of the 1980s saw many of MOF Inc owned assets transferred to the private sector, GLICs continue to hold ownership and control rights in many privatised companies, particularly in strategic industries. Among the objectives of GLICs today are to make their investment on behalf of federal and state governments and exert their influence over their portfolio companies (GLCs) to achieve key government policies. This is particularly with regard to the development of new and strategic industries that deemed crucial to Malaysian economic growth, creating employment opportunities, economic and social development plan and providing basic infrastructure needs. Since the benefit to the society is expected to be derived not simply from the cash flow rights in the GLCs, but the ability of GLICs to influence the management of the companies, GLICs need to own a sufficient proportion of the outstanding share capital. This is because acquiring a substantial stake of the companies' equity allows GLICs to gain a significant influence over the listed companies' affairs.

In turn, GLCs are defined as business entities in which the governments, through their GLICs, have a controlling stake (Malaysia, Ministry of Finance, 2010, p.100). Controlling stake in this context refers to the government's ability to appoint members to the board of directors or senior management, and/or to make major decisions for the GLCs such as the award of business contracts, corporate strategy, restructuring and financing, as well as acquisition and divestment exercises either directly or through GLICs (Lau and Tong, 2008).

GLCs evolved in different ways. Some originated as a government-link entities or departments before they were being incorporated and eventually privatized as public listed companies during the Malaysian Privatization Policy initiative in 1980s. Others were the result of investment by GLICs in existing private businesses or formed by GLICs as part of their business expansion activity. Based on their investment objectives and control structures and in line with Wicaksono (2009), GLCs in Malaysia can be classified into three major categories of ownership:

- i. GLCs owned by federal government sponsored pension and investment funds (PIF GLICs), such as the National Equity Corporation (*Permodalan Nasional Berhad*), the Armed Forces Fund Board (*Lembaga Tabung Angkatan Tentera*), the Employees Provident Fund and the Pilgrimage Fund Board. The objective of these organisations is to provide pension benefits or to maximise the long-term savings returns of their mainly *Bumiputera* depositors and unit holders. Because of the strategic importance of the funds not only for economic enfranchisement of the indigenous population but also for Malaysia's pension system – in particular for private sector employees – and long-term economic development (Asher, 1998), PIF GLICs are under

ministerial oversight. Their boards consist of representatives of the depositors or the employers and employees who contribute to the funds, as well as government representatives, usually in the form of senior civil servants, rather than politicians.

- ii. GLCs owned by federal government owned GLICs (FGLICs), such as Khazanah Nasional Berhad and MOF Inc that are charged with promoting the government's economic and social policies. While the federal government benefits from dividend payments by FGLICs' portfolio companies, the main objective of the investment is to maintain government control of strategic assets and of industries which are deemed crucial to Malaysia's economic growth and social development. Officially, minority shareholders in GLCs controlled by FGLICs are expected to be protected – not exploited – by the government blockholder (OECD, 2010). The boards of federal government owned investment organisations tend to be dominated by government representatives and led by senior federal politicians, such as the prime minister and the minister of finance.
- iii. State Economic Development Corporations (SEDCs) were established under state legislation from the mid-sixties onwards. SEDCs aim to promote regional economic and social development programmes (Fisk and Osman-Rani, 1982; Jomo and Tan, 2005) and generate dividend income for their state governments. The boards of SEDCs tend to be chaired by the Chief Minister (equivalent to Prime Minister at federal government) of the particular state, and the boards tend to be composed mainly of senior civil servants or political representatives from the relevant state.

See Table 2-1 for descriptions of the major characteristics of each group of GLICs in Malaysia.

In addition to investment by GLICs, the Malaysian government is able to influence some GLCs in strategic industries via a special rights redeemable preference share, commonly known as “golden share” (Gomez and Jomo, 1999; Woon, 1989). They are administered by the MOF Inc on behalf of the Malaysian government. The golden share does not give any rights to the government to take part in any capital or profits of the GLCs, or a right to vote in the annual general meetings (AGM) or extraordinary general meetings (EGM) of the GLCs, but it does confer special rights to the government which will enable the government, through MOF Inc, “to ensure that certain major decisions affecting the operations of the Company are consistent with the Government’s policies.”⁷ The special rights carried by the golden share include the right to attend and speak in the AGM or EGM of the GLCs, the right to appoint not more than three persons at any time as directors of the company,⁸ and provide the government with legal rights or veto powers to overrule any resolution proposed by the board of directors or the shareholders of the company which is deemed inconsistent with government policies (Sun and Tong, 2002).

Golden shares are used not only to support the government’s economic and social policies, but also as a means of monopoly regulation as GLCs with golden shares tend to benefit not only from economies of scales but some of them also have

⁷ See Tenaga Nasional Berhad Annual Report 2010:331

⁸ See Malaysian Airline System Berhad Annual Report 2009:206. The number of members of the BOD that can be appointed by Government in the GLCs with the golden share varies.

monopoly powers which are remnants from the time at which they were operated directly by Government departments before privatization (Woon, 1989).

Apart from influencing GLCs through GLICs' controlling stake and golden shares, GLICs are themselves supervised by federal and state parliamentary Public Accounts Committees. In addition, with regards to GLICs scrutiny of and influence on GLCs' corporate governance, all GLICs can draw on expert advice by the Putrajaya Committee on GLC High Performance as well as the Auditor General. However, supervision tends to be tighter for federal GLICs, in particular FGLICs, than SEDCs. The reason for this is probably FGLICs' higher public visibility and closer proximity to the centre of power (Chen et al. 2009).

Moreover, besides the indirect control politicians and government officials can exert over GLCs via their influence over GLICs, senior civil servants and politicians often serve directly on the boards of directors of listed companies, including GLCs (Azmi, 2008). This practice is perhaps the most visible evidence of the close relationship between business and politics in Malaysia (Gomez and Jomo, 1999).

In conclusion, although the initial objective of the establishment of GLICs focused on the social purposes which are to support the government's policies, today GLICs and their portfolio companies have become important participants in the economic development of Malaysia and the backbone of the country's capital market development. As mentioned in the previous chapter, GLCs collectively account for 10 per cent of Malaysia's economic output with market capitalisation of £47.1 billion or 49 percent of total market capitalisation (Malaysia, 2010, p.100). As such the study on the impact of GLICs on financial performance and earnings management of

GLCs will not only benefit Malaysian Government in general and GLICs in particular but also help investors make the best decision on their investments as well to encourage foreign investment inflows into Malaysian capital market.

2.3 Corporate governance in Malaysia

2.3.1 Corporate governance development

Poor corporate governance is often implicated as an important contributor to the Asian Financial Crisis in 1997/98 (e.g. Asian Development Bank, 2000; Abdul Rahman and Mohamed Ali, 2006). Malaysia was among the countries that was badly hit by the crisis. According to Abdul Rahman and Mohamed Ali (2006), the crisis in Malaysia exposed serious weaknesses in corporate governance practices in the country; namely, weak financial structure, over-leveraging by companies and lack of transparency, disclosure and accountability. Following the crisis, the Malaysian government embarked on numerous corporate governance reforms intended at improving corporate governance practices in the corporate sector and to restore the confidence of foreign investors on Malaysian capital market which was severely affected during the crisis⁹ (Liew, 2007). The following is a short list of activities and organizations set up to improve corporate governance in Malaysia during and after the Asian Financial Crisis:

⁹ In the first six month of AFC, Malaysian Ringgit (the Malaysian currency) plunged from a value of 2.52 vs the US dollar to 4.5 Malaysian Ringgit and the Kuala Lumpur Composite Index fell 75% from its pre-crisis level (Asian Development Bank, 2000). Foreign direct investment also shrank from RM14.5 billion to RM8.5 billion due to the negative impact of the crisis on corporate profits, retained earnings and investor confidence (Ping and Yean, 2007).

- i. 1998 – the establishment of High Level Finance Committee on Corporate Governance to propose recommendations on the establishment of corporate governance framework in Malaysia (Ow-Yong and Guan, 2000) and the establishment of Malaysian Institute of Corporate Governance to raise the awareness and promote high standards of corporate governance towards coping with the rapid changing capital market environment;
- ii. August 1999 – enhancing disclosure quality. In an effort to enhance the quality of disclosure, Bursa Malaysia Securities adopted quarterly reporting where all listed companies have to disclose their financial information (reports on income statements, balance sheets and cash flow statements) to the public with effect from August 1999;
- iii. March 2000 – the Malaysian Securities Commission endorsed and published the first Malaysian Code on Corporate Governance (MCCG), largely derived from the recommendations of the Cadbury Report (1992) and Hampel Report (1998) in the United Kingdom and covered matters related to fair treatment of all shareholders, protection of shareholder rights, transparency through the timely disclosure etc.;
- iv. 2001 – the new Bursa Malaysia Revamped Listing Requirement to promote better corporate governance by, among others, imposing a mandatory disclosure of complying with MCCG and requiring the audit committee to have at least one member from the finance or accounting background. It also required all listed companies to prepare their audited consolidated accounts in accordance with the standards by Malaysian Accounting Standard Board;

- v. 2001 – The establishment of Minority Shareholders Watchdog Group (MSWG) to provide an official platform for minority shareholders activism to protect their interests;
- vi. 2007 – The introduction of MCCG 2007 (revised version of MCCG 2000) to improve the quality of the board of public listed companies by putting in place the criteria for the qualification of directors and strengthening the audit committee, as well as the internal audit function of the listed companies. In this year also, a major change occurred on Malaysian financial reporting standards where the standards were revised to be virtually identical with IFRS; and
- v. 2012 – The introduction of Malaysian Code on Corporate Governance 2012 (MCCG 2012). This new code which superseded the MCCG 2007 and became effective on 31 December 2012 requires listed companies to report on their compliance with the principles and recommendations of the MCCG 2012 in their annual reports. It focuses on clarifying the role of board in providing leadership, enhancing board effectiveness through strengthening its composition and reinforcing its independence. It also encourages companies to put in place corporate disclosure policies.

The ongoing efforts towards establishing the framework of corporate governance as discussed above indicates the government's seriousness in ensuring a conducive business environment in Malaysia, which can also directly or indirectly impact the quality of financial reporting.

2.3.2 Financial reporting standards

La Porta et al. (1998) suggests that accounting standards in Malaysia before the Asian Financial Crisis were relatively good with the score of 76 from maximum of 90 points. However, they also found that enforcement and actual practice is weak. To address the issue of inconsistency among listed firms on the use of financial reporting standards, the Malaysian Accounting Standard Board (MASB) was established under the Financial Reporting Act 1997 as an independent authority to develop and issue accounting and financial reporting standards in Malaysia which carry the force of law. The principles of the accounting standards developed by the MASB, called the Malaysian Accounting Standards, are consistent with International Accounting Standards (IAS) issued by the International Accounting Standards Committee (IASC) in the 1980s (Liew, 2007) with additional guidance tailored to deal with specific issues that are not dealt with in IAS and comply with local laws and regulations (Morris, Pham and Gray, 2011).

Following the introduction of International Financial Reporting Standards (IFRS) to replace the IAS in 2001 by International Accounting Standards Board (IASB – formerly known as IASC), beginning in 2004 the MASB initiated a broad strategic direction to gradually align its accounting standards with IFRS. Its main objective was to improve financial reporting in Malaysia. As a first step, the Malaysian Accounting Standards were renamed as FRS (Financial Reporting Standards) and renumbered to be in line with standards issued by IASB to make it easier for investors, preparers and auditors to see the relationship between the two. In 2007, the standards were revised to be virtually identical with IASB standards and finally in the 1st January 2012, a new IFRS-compliant framework called Malaysian Financial

Reporting Standards (MFRS Framework) was taken into effect as part of the full convergence of accounting standards in Malaysia with IFRS and applicable to all entities in Malaysian (mandatory adoption) other than private entities and 2012 will be the first year financial reporting in Malaysia prepare under full IFRS regime. Recently, The World Bank (2012) indicates a high level of compliance with FRS/MFRS in financial reporting prepared by public firms in Malaysia.

Even though compliance with new accounting standards is not an assurance that financial reports are free from earnings-management activities, studies on the relationship between accounting accruals and subsequent stock return following the accounting regulation change show encouraging findings. For example, Chan, Lee and Lin (2009) examined the relationship between accounting accruals and subsequent stock return following the accounting regulation change in the UK with regards to the introduction of Financial Reporting Standards No.3: Reporting Financial Performance (FRS3). Based on 3,462 firm-years of observations during 1986-1992 (pre-FRS3 period) and during 1995-2002 (post-FRS3 period), they find a significant reduction in accrual anomalies in the UK from the pre-to post-FRS3 periods.

In the meantime, some studies focus on the effect of IFRS on earnings-management. Zeghal, Chtourou and Sellami (2011) investigate whether adoption of IFRS by French companies is associated with lower earnings-management activities. Based on a sample of 353 French listed companies in the period of 2003 to 2006, their results show that mandatory adoption of IFRS is associated with a reduction in the earnings-management level. In Malaysia, Wan Ismail, van Zijl and Dunstan (2010) investigated the differences in earnings quality of Malaysian companies before and

after the adoption of FRS. Based on sample of 2663 firm-years observations of Malaysian listed companies in the period between 2002 and 2009, they found that earnings quality is higher after the adoption of FRS, where the abnormal accruals rate is significantly lower and reported earnings by public firms in Malaysia are more value-relevant.

As such, the introduction of IFRS in Malaysia may be seen as an advantage to the country due to high quality and high credibility of the standards. According to Ball (2006), IFRS promises more accurate, comprehensive and timely financial reporting relative to national accounting standards replaced by it. This should leads to more-informed valuation in the equity market, and hence lower risk to investors.

2.4 Literature review: government ownership and corporate performance

2.4.1 Theoretical background: ownership structure, government ownership and corporate performance

Issues related to the relationship between ownership structure and corporate performance has been discussed since Berle and Means (1932). In their book "Modern Corporation and Private Property," they argued that the main feature of the modern enterprise is a separation between ownership and control that can trigger conflict between the two parties, as in practice agents do not always pursue the principal's interest, particularly the wealth maximization objective. Agents may instead pursue their own interests.

Principal-agent theory suggests that the ownership structure of a company has implications both for the incentive alignment between managers and directors and for the supervision and control incentives of investors (Jensen and Meckling, 1976; Fama and Jensen, 1983; Shleifer and Vishny, 1986). In this context, it is not only the size and distribution of ownership stakes, but also the identity of the blockholders (La Porta, Lopes-De-Silanes, and Shleifer, 1999).

Property rights theory suggests that, given the mismatch between costs and benefits from their participation in the internal corporate governance of their portfolio companies, investors who only own a small proportion of shares in any one company are likely to suffer from control apathy (Rock, 1991). In particular, in economies with inefficient capital, goods and labour markets, low ownership concentration in firms may lead to a control vacuum, which allows senior executives to exploit firms and their shareholders for their own private benefit (Himmelberg, Hubbard, and Palia, 1999; Holderness, 2003).

This explains the prevalence of blockholders in emerging economies (Al Farooque, 2010). Since private investors who control large stakes in individual companies are likely to face a much more positive cost-benefit relationship from their supervision and control efforts, their presence is expected to improve the control of firms' management and, therefore, reduce agency costs (Rock, 1991; Holderness, 2003). If blockholders are mainly interested in long-term returns of the firms they invest in, the positive impact of their control efforts on the firms' cash flow and subsequently their share prices and dividend payments will also benefit minority shareholders who only hold a few shares (Jensen and Meckling, 1976; Holderness, 2003).

However, on the flip side, blockholders might use their control power to encourage firms' management to pursue policies that promote their interests at the expense of other, less powerful, investors (La Porta et al., 1999; Claessens, Djankov, and Lang, 2000; Laeven and Levine, 2008). As controlling blockholders do not suffer proportionally from negative financial effects they inflict on the firm, this problem tends to be exacerbated if there is a disparity between cash flow rights and control rights of blockholders due to pyramidal ownership structures or multiple class shares (Claessens et al., 2000; Bennedsen and Nielsen, 2010).

This suggests that, in addition to the size of the ownership stake, the control incentives of blockholders are of crucial importance to the impact of block ownership on corporate performance.

With regards to the control incentives of government investment organisations, Le and Buck (2011: 231) argue, "if the state is concerned with extracting tax revenues, based on a proportion of profit, or maximising the value of its stake for subsequent asset sales, it may press managers, just like a private blockholder, to make efficient decisions that raise firm value." The same should apply if their objective is to improve corporate governance of their portfolio companies in order to make the firm and the overall capital market more efficient and attractive for investment by domestic and foreign portfolio investors and to reduce domestic firms' cost of capital. Consequently, from the perspective of resource dependency theory, government block ownership is expected to be particularly beneficial to firm performance and minority shareholder protection in environments with limited

competition on goods, managerial labour and capital markets and weak law enforcement regimes (Sun et al., 2002; Defond and Hung, 2004).

However, investment objectives of government investment organisations often also include the promotion of social targets, of economic development at national or industry rather than firm level, or of political support (Shleifer and Vishny, 1994; Boycko, Shleifer, and Vishny, 1996; Cuervo and Villalonga, 2000; Shen and Lin, 2009). If company resources are employed to facilitate those objectives, the influence of government investment organisations on their portfolio companies might lead to the exploitation of private minority shareholders. As previously discussed, this problem is expected to be exacerbated when there is a disparity between the cash flow and control rights of government investors, such when government organisations hold preference shares with multiple voting rights or golden shares. This suggests that the objectives of government investments organisations are likely to influence how government ownership affects firm performance.

From a property rights perspective, government representatives who control ownership stakes on behalf of the government tend not to benefit personally from any cash flow gains generated by their control efforts. Consequently, their economic control incentives are lower than those of the representatives of other blockholders, such as families or institutional investors, who either own the shares personally, or whose income is tied to the performance of the companies they supervise. This raises the prospect that government representatives might suffer from control apathy or that they might collude with managers or other investors to exploit the firm (Shleifer and Vishny, 1994; Cuervo and Villalonga, 2000; Le and Buck, 2011).

Nevertheless, Chen et al. (2009) emphasized that some government representatives benefit indirectly from the performance of the GLCs they supervise. They argue, for instance, that while government representatives who monitor SEDCs' investments in China cannot expect to be promoted depending on the firms' performance, the career prospects of government representatives who supervise FGLICs' investments are closely linked to the performance of their portfolio firms. Chen et al. (2009) also note that GLICs which offer government representatives better career prospects are able to hire candidates that are more qualified. This suggests that the incentives of government representatives are likely to influence how government ownership affects firm performance.

Our discussions so far assume the existence of one-way relationship between ownership and performance. However, there are researchers who argue that the ownership-performance relationship could be on the opposite direction where firm performance that actually determined firm's ownership structure and not *vice versa*. (Demstez, 1983; Demstez and Villalonga, 2001; Al Farooque et al., 2007). Demstez (1983) for example argues that ownership structure is an endogenous outcome of shareholders decisions which motivated and influence by profit-maximizing. These issues will be addressed in our study.

2.4.2 Empirical evidence on the relationship between government ownership and corporate performance

The majority of empirical research so far suggests that government ownership tends to negatively impact financial performance of listed companies (see e.g. Boardman

and Vining, 1989; Megginson and Netter, 2001; Wei and Varela, 2003; Goldeng, Grunfeld and Benito, 2008; Shen and Lin, 2009). Shirley and Walsh (2000) survey previous studies that related to performance differences between state-owned enterprises and private enterprises. They found that, among 52 studies in the survey, majority of the study (a total of 32) suggest that private enterprises performed better than state owned enterprises¹⁰. A similar picture can be seen from the study by Villalonga (2000).

Boardman and Vining (1989) compared the performance of state-owned enterprises, mixed enterprises and private corporations among the 500 largest non-U.S. industrial firms as compiled by Fortune magazine in 1983. They employ four profitability measured which are return on equity, return on assets, return on sales, and net income. Based on ordinary least squares regression of 57 state-owned enterprises, 23 mixed enterprises and 409 private corporations, they find that on average, large industrial mixed enterprises and state-owned enterprises are less efficient and less profitable than private corporations. Perhaps non-economic goals in addition to profit maximization be one of the factors of the lower performance of SOEs as highlighted in many studies on government ownership-performance (see for example Shleifer and Vishny, 1994; Cuervo and Villalonga, 2000; Le and Buck, 2011, Wang and Yun, 2011).

Goldeng, Grunfeld and Benito (2008) examine the differences in performance between private companies and state owned enterprises in one of the Scandinavian economies, Norway. They measure performance using return on assets and

¹⁰ The term 'state owned enterprises' has a similar meaning to the term 'government-linked companies' used in this study.

operational costs. Similar to other studies mentioned above, they find that the performance of state-owned enterprises is indeed inferior to that of private enterprises.

Tian and Estrin (2008) investigate the relationship between government ownership and corporate value of Chinese public listed companies in two stock exchanges, Shanghai Securities Exchange and Shenzhen Stock Exchange. Based on a large data set between 1994 and 2004 (9594 firm-year observations), they find that the overall impact of government shareholding on corporate value in China (measure by return on assets and quasi Tobin's Q) is negative.

In developing countries other than the Asian region, Zeitun (2009) investigates the impact of ownership structure on company's performance using 167 Jordanian listed companies over the period 1989-2006. Measures of performance using accounting (return on assets and return on equity) and market performance (quasi Tobin's Q and market to book value ratio), Zeitun (2009) reports a significant negative relationship between government ownership and firm's accounting performance. On the other hand, Zeitun (2009) also find that government ownership decrease the likelihood of default.

The results are by no means consistent, even for individual countries (see e.g. Sun et al., 2002; Wei and Varela, 2003; Tian and Estrin, 2008; Shen and Lin, 2009 and Le and Buck, 2011 on the relationship between government ownership and corporate performance in China).

However, contradicting many past studies in China, Chen et al. (2009) show that the performance of private controlled listed firms not superior to SOE controlled companies and they are only marginally better than SOEs controlled by state asset management bureaus. In detail, they investigated the relations between types of large shareholders, ownership structure and firm performance of listed firms. However, in contrast to past studies that largely treated government investment as homogeneous (Shleifer and Vishny, 1994; Boycko, Shleifer, and Vishny, 1996; Sun et al., 2002; Ang and Ding, 2006; Tam and Tan, 2007; Azmi, 2008; Shen and Lin, 2009; Mohd Ghazali, 2010; Ab Razak et al., 2011; Le and Buck, 2011; Najid and Rahman, 2011; Wang and Yung, 2011), they group China's state owned enterprises (SOEs) into three categories of ownership, namely: SOEs controlled by state asset management bureaus, SOEs affiliated with the central government, and SOEs affiliated with local government.

Chen et al. (2009) argue that distinct types of owners have different objectives and motivations and this will affect how they exercise their control rights over their portfolio companies. For example, in terms of monitoring activities, SOEs affiliated to the central government are subject to stricter supervision and monitoring from various departments under the central government compared to SOEs affiliated to local government, which are subject to weaker supervision and management as laws and regulations are more difficult to enforce the further away the organizations are from the centre of power.

Findings from Chen et al.'s (2009) research indicate that the performance of Chinese listed firms varies across the type of controlling government shareholders. In regards to government investment organizations, SOEs affiliated with the central government

perform the best, SOEs controlled by state asset management bureaus perform worst and SOEs affiliated to the local government are in the middle. These findings are appealing because they show the importance of taking into account the identity of government investment organization as their influence over the investee company may impact on the financial performance of the company. Lumping of all types of government ownership into one group as in prior studies indeed obscures the real impact of the government as shareholder.

Other than Chen et al. (2009), there are other studies suggest SOEs performed better than private companies. For example, Ang and Ding (2006) investigate the governance structure of GLCs in Singapore under the control of Temasek Holdings, the government investment holdings entity¹¹. They compare the financial and market performance of all GLCs and non-GLCs listed on the main board of the Singapore Exchange over an 11-year-period from 1990 to 2000. They identified GLCs as listed firms where Temasek Holdings is a single largest shareholder and must hold an effective ownership interest of around 20% or more. Findings from their research show that GLCs on average exhibit higher valuations than those of the non-GLCs in many performance measures. Variable of interest, the degree of government shareholding in GLCs through Temasek Holdings is positively and significantly related to firm value (measure by quasi Tobin's Q) and in term of firm profitability (measure by ROA and ROE), GLCs outperform non-GLCs.

Regarding the impact of government ownership on firm performance in Malaysia, the Malaysian government suggests that block ownership by GLICs serves to

¹¹ Malaysia and Singapore used term GLCs rather than SOEs. Temasek Holdings is equivalent to Khazanah Nasional Berhad in the context of Malaysia.

promote economic growth, social integration and the improvement of corporate governance and performance (Malaysia Ministry of Finance, 2010; Malaysia Putrajaya Committee on GLC High Performance, 2006a; 2006b). Previous research on the impact of government ownership and control rights on the financial performance of listed companies in Malaysia is limited to considering the question whether listed companies controlled by GLIC block holdings out or underperform other firms.

In this context, research by Tam and Tan (2007) based on data from 150 publicly listed firms suggests that GLCs tend to underperform firms controlled by family or foreign investors. However, their study is not comprehensive enough to draw conclusions on the effects of government ownership on firm performance as they employed limited sample of GLCs (10 GLCs) and focused on only one particular year (year 2000).

Later Lau and Tong (2008) investigated the impact of government ownership on firm value (proxy by quasi Tobin's Q). 15 GLCs controlled by Khazanah Nasional Berhad that listed on the main board of the Bursa Malaysia Securities from the year 2000 to 2005 (90 firm-year observations) were included into the sample. Similar to Ang and Ding (2006), they used a threshold of 20% of government effective ownership through Khazanah Holdings Berhad to identify GLCs. Findings of their study suggests that government ownership positively and significantly related to Tobin's Q. However, similar to Tam and Tan (2008), this study does not provide sufficient evidence for a conclusion on the impact of government ownership on the performance of listed companies in Malaysia as the study only focuses on one group of GLCs that owned by Khazanah Holdings Berhad. As discussed in the previous

chapter, there are two more main GLICs in Malaysia, which are the PIF GLIC and SEDCs. These have their own GLCs that should be part of the sample size.

Recently, Najid and Rahman (2011) investigated the governance structure of GLCs in Malaysia owned by Khazanah Nasional Berhad and its relationship to the GLCs performance. The main measures of performance are return on assets (ROA) and return on equity (ROE) for accounting performance and Tobin's Q for market performance. They used a matched sample of 47 GLCs and non-GLCs over a 6 year period from 2001 to 2006. Findings from the study suggest lower firm performance among the GLCs in all performance measures relative to non-GLCs. However, in the pool regression¹² they find firm value proxy by Tobin's Q is positively and significantly related to government ownership even though the magnitude of the relationship is very small (coefficient 0.00826 at $p < 0.05$). We noted that the obvious weakness in their study is the used of financial companies as part of their sample selection. Most studies on the ownership structure or corporate governance and performance usually drop financial companies, mainly because of their incomparable financial data (Sun et al., 2002). In the Malaysian business environment, financial companies are also subject to different regulations¹³ than firms in others industries (Haniffa and Hudaib, 2006; Ab Razak et al., 2011). As such, including financial companies in the sample can produce bias and inaccurate results. Moreover, similar to Lau and Tong (2008), their study is not comprehensive as the sample was limited to only GLCs owned by Khazanah Nasional Berhad.

¹² In the pool regression only GLCs is part of the regression model as Najid and Rahman (2011) employed dummy code for GLCs and non-GLCs. Hence, the non-GLCs form the control sample for comparative purposes.

¹³ Banking and financial institutions are subject to special regulations under Banking and Financial Institutions Act 1989 while others companies subject to Companies Act 1965 (revised 2006).

One more important study that also investigates whether GLCs perform better than non-GLCs is by Ab Razak et al. (2011). In detail, they examine governance mechanism and firm performance of Malaysian GLCs and non-GLCs over an 11-year period from 1995-2005 listed on the main board of Bursa Malaysia Securities. Tobin's Q and ROA are employed to measure market and accounting performance respectively. Their main findings suggest that GLCs exhibit lower valuations than non-GLCs in both performance measures.

In recent years in Malaysia, there has been renewed interest by researchers to explore the influence of government ownership of the company's performance. However, as highlighted earlier, there has not yet been any research into whether different types of GLICs affect GLCs differently or whether the disparity between cash flow and control rights due to golden shares impacts on GLCs' performance as investigated in this study.

2.5 Hypotheses development

2.5.1 Types of GLICs and GLC performance

As previously discussed, GLICs in Malaysia can be categorised into (i) federal government sponsored pension and investment funds (PIF GLICs); (ii) federal government owned GLICs (FGLICs) charged with promoting the federal government's economic and social policies; and (iii) State Economic Development Corporations (SEDCs) charged with promoting state governments' economic and social policies.

The primary objective of PIF GLICs is to provide pension benefits or maximise savings returns for their depositors or unit holders. While they are under the purview of the sponsoring government ministries, who have the ability to appoint representatives to their boards of directors, the majority of board members are representatives of depositors or unit holders or independent directors or specialist advisors. Moreover, the government's representatives on the boards tend to be senior civil servants rather than politicians, who might try to use their influence to pursue personal political interests.

The clear objective to maximise depositors' and unit holders' wealth as well as the influence of their representatives is expected to incentivise PIF GLICs to use their influence over their portfolio companies to improve their corporate governance and to maximise shareholder wealth.

By contrast, the boards of directors of FGLICs, such as the Khazanah Nasional Berhad and the MOF Inc., are appointed by the government and dominated by senior politicians, in particular the prime minister and senior ministers, as well as senior civil servants. The fact that government representatives have various other demands on their time and that they tend to have little experience in business or finance is likely to limit their ability to contribute effectively to the supervision and control of FGLICs or their portfolio companies. Moreover, as their remuneration is not directly tied to the performance of the FGLICs or their portfolio companies, their economic incentive to engage in or to control are limited.

The performance of FGLICs is monitored by the Auditor General and the federal parliamentary Public Accounts Committee. Moreover, the Putrajaya Committee on

GLC High Performance routinely assesses the performance and corporate governance of key GLCs in the FGLICs' portfolio. Because of this additional scrutiny, government representatives might have a personal incentive in the positive development of the corporate governance and performance of the FGLICs portfolio companies in order to avoid public embarrassment and therefore damage to their career and election prospects.

Nonetheless, while FGLICs are charged with improving the corporate governance of their portfolio companies and the federal government benefits from GLCs' dividend payments, FGLICs are also expected to serve the country's national interests. While good corporate governance and the mobilisation of both domestic and foreign investment are part of the government's economic and social development plan, so is the promotion of strategic assets and industries deemed crucial to Malaysia's economic growth and the support of the economic development of the indigenous population (Malaysia Putrajaya Committee on GLC High Performance, 2005; 2006a; 2006b). This suggests that government representatives might use their influence in FGLICs to exert pressure on GLCs to use company resources to support the government's policies rather than improve their long-term profitability (Gomez and Jomo, 1999; Najid and Rahman, 2011).

This consideration suggests:

Hypothesis 1: The financial performance of GLCs controlled by PIF GLICs is better than the financial performance of GLCs controlled by FGLICs.

Although there are similarities between SEDCs and FGLICs with regards to the organisations' objectives and the composition and control incentives of their board

members, the performance of SEDCs and their portfolio companies is under less scrutiny as laws and regulations are more difficult to enforce the further entities are away from the centre of power (Chen et al., 2009). Moreover, the Putrajaya Committee on GLC High Performance rarely scrutinises the performance of SEDCs' portfolio companies, although SEDCs themselves fall under the scrutiny of the relevant state's parliamentary Public Accounts Committee and the Auditor General.

We therefore expect that:

Hypothesis 2: The financial performance of GLCs controlled by FGLICs is better than the financial performance of GLCs controlled by SEDCs.

Given our earlier discussion regarding the objectives and corporate governance of PIF GLICs, we also hypothesise that:

Hypothesis 3: The financial performance of GLCs controlled by PIF GLICs is better than the financial performance of GLCs controlled by SEDCs.

2.5.2 GLIC ownership concentration and GLC performance

Property rights and agency theory suggest that, the higher the degree of share ownership by a blockholder, the greater the incentive and ability to participate in the supervision and control of the firm's management (Rock, 1991; Holderness, 2003; La Porta et al., 1999). Tighter monitoring is expected to reduce agency costs and, therefore, lead to improved financial performance (Shleifer and Vishny, 1986). This suggests a positive relationship between GLIC ownership and GLC performance.

Moreover, as blockholders' cash flow rights increase, their incentives to exploit minority shareholders falls, as they carry a higher proportion of the costs of any misuse of company funds (La Porta et al., 1999; Holderness, 2003).

In line with these considerations, empirical research by Ang and Ding (2006) on the influence of the degree of state ownership on corporate performance of GLCs in Singapore suggests a positive significant relationship between firm value and government ownership. Similarly, in the context of Malaysia, Lau and Tong's (2008) and Mohd Ghazali's (2010) research on the impact of GLIC ownership on GLC performance also found a significant positive relationship between the degree of the government ownership and firm value. We therefore expect that:

Hypothesis 4: There is a positive significant relationship between the proportion of GLIC ownership and GLCs' financial performance.

2.5.3 The impact of golden shares on GLCs' performance

As previously discussed, the Malaysian government is able to influence some GLCs in strategic industries via a special rights redeemable preference share, commonly known as "golden share" (Gomez and Jomo, 1999). Irrespective of any government investment, golden shares allow the Ministry of Finance's GLIC (MOF Inc.) to speak at shareholders' general meetings, to appoint up to three members¹⁴ to the board of directors, and to overrule resolutions proposed by the board of directors or the shareholders of a company (Sun and Tong, 2002).

¹⁴ As discussed in Chapter 2, the number of members that can be appointed to the board of directors varies according to Memorandum and Articles of each companies

Research into the effect of disparities between cash flow and control rights of private investors (e.g. see Bennedsen and Nielsen, 2010) suggests that excess control rights increase the incentives of blockholders to engage in minority shareholder exploitation. This suggests that GLCs with golden shares are likely to be particularly vulnerable to pressure to use resources to promote government policies, even if this is to the detriment of their long-term profitability. Indeed, empirical research on golden share type regulations in China (Sun et al., 2002), Egypt (Omran, 2009) and Europe (Boardman and Laurin, 2000) indicates a negative relationship with corporate performance.

However, as the government perceives GLCs with golden shares to be of strategic importance to the economic and social development of Malaysia, they might benefit from government protectionist measures. Related to this, golden shares are used not only to support the government's economic and social policies, but also as a means of monopoly regulation, as some of the GLCs with golden shares tend to benefit not only from economies of scale but also monopoly power. This monopoly power remains from the time when they were operated directly by Government departments before privatization as well as financial support (Woon, 1989). For example, in 2008, Telekom Malaysia Berhad, a GLC with golden shares was awarded USD3.3 billion government contract to develop Malaysia's nationwide high-speed broadband network project without going through an open tender (The Star, September 17, 2008). These sorts of protectionist measures are expected to contribute positively on the financial performance of GLCs with golden shares.

We therefore hypothesise that:

Hypothesis 5: There is a positive significant relationship between GLC performance and the existence of golden share provisions.

2.5.4 The impact of the presence of senior civil servants and politicians in GLCs' boards on GLCs' performance

In Malaysia, business and politics are comparatively closely related (Gomez and Jomo, 1999). Therefore, senior civil servants and politicians are often appointed to the boards of directors of GLCs (Azmi, 2008).

From a perspective of resource dependency theory, senior civil servants and, particularly, politicians might act as boundary spanners for companies and provide them with preferential access to government contracts and subsidies, or support their lobbying of market regulators (Lester, Hillman, Zardkoohi, and Cannella, 2008). They might also help reduce firm's uncertainty about political developments by providing expert insights into relevant decision processes (Hillman, 2005). This is likely to be particularly beneficial to firms that operate in resource-constrained environments, such as emerging economies. Previous research (Johnson and Mitton, 2003; Mitchell and Joseph, 2010) on listed companies in Malaysia suggests that political connections may be beneficial, particularly in times of adverse economic circumstances, as politicians can use their influence to facilitate preferential treatment regarding financial support or protectionist measures.

However, from a theoretical perspective, politicians and civil servants might be less capable of controlling managers or giving advice on strategic decisions due to their often limited business expertise (Chen et al., 2009). As such, their appointment to GLC boards might affect financial performance negatively. In addition to lack of

expertise, theoretical considerations suggest that as politicians and government officials do not benefit personally from increased profitability of the firms, they might suffer from control apathy (Cuervo and Villalonga, 2000). Chen et al. (2009) suggest that if politicians and senior civil servants are able to derive career benefits from being linked to the supervision and control of successful GLCs, they might be incentivised to contribute positively to firms' corporate governance; this only applies in a very limited fashion in Malaysia.

Politicians are therefore likely to have stronger control incentives than civil servants, but politicians, who are subject to elections, might be tempted to use their influence over GLCs to pursue business policies beneficial to key interest and voter groups (Shleifer and Vishny, 1994; Cuervo and Villalonga, 2000). This may adversely affect the company's financial results.

We therefore expected a negative association between senior civil servants and politicians on GLC performance. This leads us to hypothesize:

Hypothesis 6: The proportion of senior civil servants on the board of GLCs is negatively related to financial performance.

Hypothesis 7: The proportion of politicians on the board of GLCs is negatively related to financial performance.

2.6 Literature review: ownership structure and earnings management

2.6.1 Theoretical background: ownership structure and earnings-management

Issues related to earnings-management practices are important subjects of debate in corporate finance literature, especially after a series of accounting scandals involving the earnings restatement and financial statement fraud by corporate management as exemplified by Enron and Worldcom (Elias, 2004; Razaee, 2005). However, the dominant paradigm in academic literature is that most public companies are widely held or diffused and earnings-management views, as agency problems arise from the misalignment of interest between owners and managers (Jensen and Meckling, 1976; Davidson III, Jiraporn, Kim and Nemec, 2004). Many discussions on the earnings-management are associated with this conflict (Bhaumik and Gregoriou, 2010) and earnings-management is generally driven by a desire to influence the share price to benefit the managers themselves, as market performance usually associated with the various incentives provided to them (Ronen and Yaari, 2008).

Various studies on the ownership structure, for example, La Porta, Lopez-De-Silanes and Shleifer (1999) and Classens et al.(2000), indicate that in many markets, especially in emerging economies, most listed companies do not have a widely dispersed ownership structure. They have one or more blockholders who may be categorized as government or private blockholders. In firms controlled by private blockholders, the top management of these companies is comprised of the blockholders themselves or represents their interests (Ding et al., 2007; Tam and Tan, 2007). Thus in such markets the issue of earnings-management in listed firms is

geared more to the conflict of interest between blockholders and minority shareholders (Ding et al., 2007).

From the agency theory viewpoint, the ownership structure of a firm is expected to have noticeable implications both for the incentive alignment between managers/insiders and directors and the supervision and control incentives of investor (Jensen and Meckling 1976; Fama and Jensen, 1983; Shleifer and Vishny, 1986; Himmelberg, Hubbard and Palia, 1999). However, in circumstances where there is an information asymmetry gap between information held by manager/insiders and what is known by outside (minority) shareholders, managers/insiders might take advantage to promote their own benefits at the costs of outside (minority) shareholders.

To overcome the problems caused by information asymmetry as discussed above, and particularly to constrain earnings-management activities in firms, corporate governance frameworks are established as a mechanism to monitor and control the managers and compel them to act in an efficient, trustworthy, accountable and transparent way through quality financial reporting. Quality financial reporting is expected to overcome the problem of inequality of information between outside shareholders and management, which in turn can reduce earnings-management activities within the firm.

Past studies by Klein (2002), Park and Shin (2004), Xie, Davidson and Dadalt (2003) and Peasnell et al., (2005) highlight some key corporate governance variables that are expected to play an important role in minimizing the earnings-management

activities in firms. These include board of director characteristics, board independence, audit committee characteristics, knowledge of financial accounting and audit committees as well as a separation of powers between the Chairman and the company's CEO. These corporate governance mechanisms are expected to reduce earnings-management and increase the accountability of the company.

For example, the presence of an independent non-executive director might help improve a firm's financial information disclosure through more transparent and informative financial reporting. This is because they are expected to carry out a monitoring role more objectively and in the best interests of shareholders and not to be influenced by the management. Therefore, the greater the percentage of independent directors, the more effective are efforts to control and limit earnings-management.

In addition, appointment of a well-qualified external audit firm providing quality services may enhance confidence and trust of shareholders in the financial statements prepared by the manager of the company. This is for the reason that the financial statement users believed the external auditor's responsibility is not only to provide assurance to them regarding the truth and fairness of the information presented in the audit client's financial statements, but also responsible for detecting and preventing fraud in firms including the earnings management activities.

However, from the perspective of external auditors, the responsibility to detect and preventing fraud is not their main attention as the responsibility of fraud detection lies upon management (board of directors and CEO) and not external auditors

(Kassem and Higson, 2012) . In actual fact, the main duties of external auditors are to plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether caused by error or fraud. Thus, auditors are not directly responsible for detecting every fraud in an organization including earnings management, but only the material misstatements arising from them

Another important step to minimize agency problems related to earnings-management, which are closely related to the ownership structure of firms, is the use of managerial ownership and blockholders' ownership concentration strategy.

Managerial ownership. The traditional agency theory argues that managerial ownership helps to align managers' interest with shareholders (Jensen and Meckling, 1976). This incentive alignment effect is expected to have more impact as managerial ownership increases, suggesting that increasing ownership by management will be followed by an increase in corporate performance and opportunistic managerial behaviour decrease monotonically (Teshima and Shuto, 2008). This is because managers are expected to have incentives to work hard to increase firm value as they are also firm shareholders. In addition, they might also try to convince shareholders about their ability in order to continue to lead the company.

Blockholders' Ownership concentration. Property rights and agency theory suggest that, the higher the degree of share ownership by a blockholder, the greater the incentive and ability to participate in the supervision and control of the firm's management (Rock, 1991; Holderness, 2003). This leads to more effective

monitoring activities by blockholders which could mitigate agency problems in firms (Jensen and Meckling, 1976; Shleifer and Vishny, 1986). Moreover, according to Gomes (2000) and Kao, Wu and Yang (2009), highly concentrated ownership may also serve as a signal for reputation-building by blockholders because they know expropriation will not only cause minority shareholders to discount share prices that reduce their wealth but may also negatively affect their image. Thus ownership concentration creates alignment effects which are expected to encourage blockholders to minimize earnings-management in the firms they invest in.

2.6.2 The importance of corporate reporting in firm performance

Francis, Schipper and Vincent (2003) found that reported earnings numbers are more closely associated with shares prices than cash flows, sales and other financial statement data. In other words, earnings figures are important as they affect share prices. In the same vein, Ronen and Yaari (2008) stressed that earnings are the ultimate object of managing the accounting numbers and valuable in making decisions that require estimating future earnings and assessing risk.

Against this background, preparers and users of corporate reporting have different perspectives on the importance of corporate reporting on firm performance. From the perspective of managers, financial reporting is important to the company as it contributes to attracting investment in the company and provides funds for investment activities. In addition, earnings figures in financial reporting help a company secure loans from financial institutions or refinancing for capital expenditure. It also give a positive image to the managers that run the company and provide them with financial incentives such as performance bonuses, increments and

allowances as well as the opportunity to own shares of the company through management incentives schemes, as proposed in the agency theory (Jensen and Meckling, 1976).

Meanwhile, for the majority investors or blockholders, corporate reporting is essential to the performance of the company as it may propel share price; as the largest shareholders, they will see the greatest profit. Moreover, accounting performance, particularly earnings reported in corporate reporting, are commonly used in determining dividends and other payouts for shareholders. In this case they are the most profitable.

For minority investors such as equity investors that do not have private access to corporate information and rely heavily on public information (Burgstahler, Hail and Leuz, 2006), corporate reporting is a very crucial element in their investment decisions. As discussed above, accounting performance reported in corporate reporting influence firm's share prices and as minority investors, they can make immediate profits by selling the shares owned by them.

Finally, as managing earnings in corporate reporting for the purpose of minimizing taxes reduces government revenue, the government also has an interest in ensuring high quality corporate reporting, as it is not only provides lasting benefits to firms in terms of accounting profitability, but also in ensuring consistent revenue to government in term of taxes. Due to this, tax authorities need financial statements in corporate reporting to ascertain the appropriateness and accuracy of taxes and other duties declared and paid by the company. Other than that, profitable companies

provide employment opportunities and contribute to economic development which is the main focus of responsible government.

2.6.3 Incentive to manipulate or improve corporate reporting

In spite of the above discussion on the importance of corporate reporting to firm performance, different actors (insiders; either managers or blockholders) might also have an incentive to manipulate the corporate reporting or to improve the validity of the reports.

Managers. For managers, corporate reporting is an important way for them to communicate their private information to report earnings that more accurately reflect firm performance and give more informative to outside parties (Burgstahler et al., 2006). Corporate reporting also offers the opportunity for them to provide a view “through the eyes of insiders” regarding the firm’s overall financial position and prospects that investors highly value. This explained the incentive or motivations for managers to improve the validity of corporate reporting.

However, opportunistic managers may take advantage of the information asymmetry gap to manipulate reported earnings in corporate reporting. Given that financial reports provide value-relevant information, particularly to external users, the reliance on accounting figures presented in the reports leads to a strong incentives for managers to manipulate the figures through earnings-management to the advantages of themselves at the detriment of shareholders in the long-run (Ronen and Yaari, 2008).

In particular, managers might have incentives to manipulate earnings as their tenure, promotions and compensation are tied to firm accounting performance (Ronen and Yaari, 2008) or if their additional financial incentives (performance bonuses, manager's share options, annual increment etc.) are tied to the share prices. In other words, the better the firm's accounting performance the higher the post of manager will be and the better financial compensation provided by the company to them. In addition, the shareholders are also likely to continue their contract. Similarly, the higher the share price, the higher the financial benefits derived by the manager such as performance bonus, annual salary increases, additional allocations of shares and so on.

Moreover, in today's market environment, efficient market hypothesis suggest that, share prices react rapidly to information when information becomes available. Favourable reactions are evidenced by increases in share prices and *vice versa*. In this situation, managers might have incentive to manipulate corporate reporting especially if they are also shareholders of the firms as they can benefit personally from an increase in share prices. Gao and Shrieves (2002) find that the sizes of stock options and bonuses are positively related to the intensity of earnings-management, measured by absolute value of discretionary accruals. Similar results were reported by Cohen, Dey and Lys (2005).

Some researchers argue that while managerial ownership helps to align interest of managers and shareholders, too high managerial ownership can also adversely affect the company. Morck et al. (1988) argue that greater managerial ownership would provide managers with deeper entrenchment and therefore, greater scope of

opportunistic behaviour. At high levels of managerial ownership, the entrenchment effect will take place where at this point managerial ownership becomes ineffective in aligning managers to take value-maximizing decisions and in the context of earnings-management they are more likely to manipulate earnings (Yeo, Tan, Ho and Chen, 2002) and may choose accounting options that reflect personal motives rather than the firm's economic interests (Sanchez-Ballesta and Garsa-Meca, 2007). This is partly because, with a high ownership stake, managers become too powerful and cannot be dismissed by other shareholders, as their voting power guarantees future employment.

In relation to this, managers might have incentives to engage in three types of earnings-management. First, managers might have an interest in income-increasing earnings-management in order to for example raise share prices where they, as part of firm's shareholders, will benefit not only from higher share prices but also from financial incentives provided by board of directors as discussed above. Other than that, they may also have incentive to increase reported earnings to enhance the share performance to avoid hostile takeover target (Easterwood, 1998).

Second, managers may have incentives to engage in income-decreasing earnings-management where they act to report lower earnings in financial reports, if they have a personal interest to reduce the company's share prices so that they can control the company through management buyouts at a lower cost (DeAngelo, 1986). In addition, managers may also have incentives to decrease earnings because of tax avoidance motivations. For example, firms can trade off tax savings and meet their earnings target for financial reporting purposes by delaying discretionary

expenditures or they can reduce taxes by accelerating discretionary expenditures (Lee and Swenson, 2011). Similar approaches can be done with regard to the timing of revenue recognition to avoid higher tax.

Third, by means of smoothing earnings, they may have incentive to use accounting techniques to hide the true company performance in the period in order to level out net income fluctuations from one period to the next. According to Grant, Markarian and Parbonetti (2007), managers used this approach to reduce risk that related to their compensation plan such as the incentives for executive stock option. Additionally, by deferring income through the use of the accrual method when the target earnings for the bonus plan cannot be reached or when the bonus has reached the maximum level, managers can maximize their long-term bonus income (Cornett, McNutt and Tehranian, 2009)

Government blockholders. As previously discussed, when GLICs become controlling shareholders in listed firms, they might have incentives to curtail earnings-management activities in those firms, particularly because of their long-term of investment objectives. Moreover, this is in-line with government objective to improve corporate governance in GLICs portfolio companies to ensure the continuing confidence of foreign investors in Malaysian capital market. This is particularly important as domestic sources of outside finance are limited, as in Malaysia and other emerging economies face the problem of mobilizing internal saving to provide capital for investment by companies. Access to savings from spreading middle classes is also limited. To reduce domestic credit constraints, there is a need to raise funds from foreign investors as they can play an important role in funding corporations (Shimomoto, 2002; Leuz et al., 2008). Therefore, to increase

the confidence of foreign investors and attract investment towards Malaysian capital market, there is a need to implement good corporate governance in firms as firms with problematic governance structures, particularly those with high level of insider control receive less foreign investment (Leuz et al., 2008).

However, in the context of government blockholders in Malaysia that are dominated by senior politicians and senior civil servants on the board of some GLICs, namely FGLIC and SEDCs, they may also have political incentives to influence reported earnings of the portfolio companies to pursue business policies beneficial to key stakeholders and voter groups. There is a possibility that GLCs owned by FGLIC and SEDCs engage more in earnings-management activities than federal government sponsored pension and investment funds who has less influence by politicians and senior civil servants. By being able to differentiate between different types of GLICs, this study provides evidence, from a principal-agent perspective, determining if different organizations' objectives and control structures of GLICs might have different impact on earnings-management activities of their portfolio companies.

Private blockholders. Other than government block ownership, private block ownership in listed firms in Malaysia is dominated by family-controlled firms (Claessens et al., 2000). Two opposing arguments exist as to the effect of their control (through share ownership or the appointment of family members to corporate board) on the earnings-management activities in firms.

On one hand, family-controlled firms will limit the ability of managers to manipulate earnings as they have a better knowledge of their business activities which enable them to detect manipulation of accounting numbers (Anderson, Mansi and Reeb,

2003). In addition, there will be less pressure on managers to engage in earnings-management solely to show good performance in the short term while the controlling families will have a long-term interest in the firm (Jiraporn and DaDalt, 2009). Additionally, they should protect their investment interests because compared to small shareholders that can sell their shares quickly if they detect account misstatement in reported earnings, blockholders selling a block of shares often trigger share price to plunge; that will be detrimental to the value of their investment.

On the other hand, blockholders who own a large portion of company shares and require a higher return from their investment will also benefit from favourable reported earnings such as the increases in shares prices. As such they might put pressure on managers to conduct income-increasing earnings-management (Zhong, Gribbin and Zheng, 2007; Alzoubi and Selamat, 2012; Halioui and Jerbi, 2012). In addition, Ding et al. (2007) suggested that in situations where expropriation of blockholders would result in lower actual earnings (such as losses due to related party transactions), they will exercise pressure on managers to manage earnings upward, to avoid any leakage of information (hiding exploitation) on their misbehaviour. Reducing the tax burden is another reason why blockholders might have an interest in encouraging earnings-management in the companies controlled by them (Ronen and Yaari, 2008).

The incentive of blockholders to manipulate earnings is partly due to the entrenchment effect, particularly in countries in which the ownership concentration is higher and there is weak investor protection (Leuz. et al., 2003). In this case, the greater control that blockholders have by virtue of their equity ownership, may lead

them to enjoy private benefits that are not enjoyed by other shareholders, especially minority shareholders (Denis and McConnell, 2003). As the results, private benefits enjoyed by blockholders have the potential to increase the earnings-management activities in firms thus reduce the value of the firms in the long-term. This argument is in line with firms that operate in the institutional environment in which the Type II agency problem (the conflict between controlling shareholders and minority shareholders) are more common.

Discussion in this section focuses on the theoretical underpinnings underlying this study. It also touches on the relationship between ownership structure and earnings-management and the used of corporate governance mechanisms to minimize earnings-management in company. It also discusses the importance of corporate reporting to firm performance from the perspective of the parties who have an interest as well as their incentive especially the insiders to manipulate or improve corporate reporting. The next section presents previous empirical studies in connection with the relationship between ownership structure and earnings-management.

2.6.4 Empirical evidence on the relationship between ownership structure and earnings-management

Empirical evidence on the relationship between ownership structure and earnings-management provides inconclusive results. Studies on the impact of blockholders on earnings-management activities, such as those by Yeo et al., (2002); De Bos and Donker (2004) suggest that blockholders can effectively control the process of preparing financial statements and improve its credibility by exercising meticulous

control of earnings-management practice which reduces the tendency to manipulate the results by managers. Related to this, research using both country-level and cross-country analysis has shown that ownership structures can have a positive impact on the quality of financial reporting due to insider influence (e.g. Fan and Wong, 2002; Haw, Hu, Hwang and Wu, 2004; Burgstahler et al., 2006).

However, Leuz et al., (2003) in their research on the differences in the level of earnings-management across 31 countries based on financial accounting data from 1990 to 1999 for over 8,000 listed firms, found that countries with relatively concentrated ownership, weak investor protection and less developed stock markets exhibit high levels of earnings-management. This explained different level of minority investor protection and ownership level matter in the study on earnings-management activities. In addition, findings from their study are also consistent with their argument that managers and controlling owners have incentives to manage reported earnings in order to mask true firm performance and limit information disclosure for the benefit of controlling parties.

Studies on the relationship between ownership and earnings-management in emerging markets mostly support the findings in Leuz et al. (2003). For example, Al-Fayoumi et al., (2010) examined the relationship between earnings-management and ownership structure for a sample of Jordanian industrial listed firms during the period 2001-2005. Based on the final sample of 195 firm-year observations, they found that insider ownership¹⁵ (managerial ownership) significantly and positively affects earnings-management; this is consistent with the entrenchment effect as

¹⁵ Al-Fayoumi et al., (2010) defined insider ownership as the percentage of shares held by officers or directors within the firm and their families.

previously discussed in this study. They also find insignificant role for institutions and blockholders in monitoring earnings-management behaviour in firms.

Halioui and Jerbi (2012) also suggested similar results. They studied the impact of blockholders on earnings-management in 31 Tunisian listed firms during the period from 1998 to 2009 or 257 firm-year observations. They find that firm controlled by blockholders manage their earnings more than firm not controlled by them where in the context of Tunisia, blockholders are not effective in monitoring earnings-management activities in the firms they invest in.

Recently, a more comprehensive study was performed by Gopalan and Jayaraman (2012). They examined earnings-management practices of insider-controlled firms across 22 countries that involved 48,410 firm-year observations for the period from 1992 to 2006. Similar to Luez et al., (2003), they found that insider-controlled firms are associated with more earnings-management than non-insider controlled firms in weak investor protection countries.

With regards to the research on the relationship between government ownership and earnings-management in emerging markets, much of the empirical literature is in the context of China. For example, Ding et al. (2007) investigated the impact of both ownership concentration and different ownership types, specifically the difference between government blockholder and private blockholders in Chinese market. They employed a total of 273 matched samples comprising portfolio companies owned by government blockholder and privately-owned listed companies (government-owned versus privately-owned). Findings from their study show that the higher the degree of

ownership concentration the lower earnings-management activities in their portfolio companies and suggest that “when the ownership concentration reaches a high level, large shareholders become the true owners of the firm, and are thus more likely to seek to preserve its future growth potential by minimising accounting earnings”. With regards of the ownership types, their analysis shows that privately-owned listed firms involved in income-increasing earnings-management more than their government-owned counterparts.

Later Wang and Yung (2011) examined the impact of government ownership on earnings-management in Chinese market with a bigger sample size. They constructed a balanced panel data of listed firms on the Shanghai Stock Exchange and Shenzhen Stock Exchange over a nine-year period from 1998 to 2006 that involved 2,833 firm-year observations of government-owned listed firms and 2,239 firm-year observations of privately-owned listed firms. Consistently with Ding et al., (2007), they found that lower level of earnings-management among government-owned firms than privately-owned firms. They suggested that the protection of government-owned firms by the government might have played important role in mitigating the pressure on managers to manipulate firm-specific information.

In the Malaysian context, literature published on the relationship between ownership structure and earnings-management is scarce particularly on government ownership. Yen et al. (2007) examine the association between block ownership by GLCs and Chinese family-linked companies. Based on 25 matched samples of listed companies of each group of blockholders¹⁶ for the years from 2004 to 2005, they found that

¹⁶Yen et al., (2007) select their sample of GLCs and Chinese family-linked companies from the 100 indexed companies of composite index in Bursa Malaysia

earnings-management activities are lower in the firms owned by Chinese family linked companies as compare to their GLCs counterpart. However, they found a negative relationship between GLIC ownership concentration and earnings-management, suggesting that government blockholders are effective in mitigating earnings-management activities in their portfolio companies.

We noticed that while their study is not comprehensive, as only 25 listed federal GLCs were involved (listed GLCs owned by SEDCs excluded from sample as they not part of 100 indexed companies of composite index in Bursa Malaysia), the main concern is the use of finance-related companies as part of the sample, even though Yen et al. (2007) mentioned that these firms have unique characteristics and different compliance and regulatory requirements. This raises questions about the validity of the results obtained since the majority of previous studies on earnings-management exclude finance-related companies from sample as they are subject to different compliance and regulations (Haniffa and Hudaib, 2006; Ab Razak et al., 2011) and more importantly their behaviour of accruals differs from other industries (Klein, 2002; Park and Shin, 2004; Mohd Ali et al., 2008). To our knowledge, this is the only published study that focuses on the issue of earnings-management in the context of GLCs in Malaysia.

Johari, Mohd Saleh, Jaffar and Hassan (2008) examined the role of independent boards, CEO duality, board competency and managerial ownership on earnings-management practices of Malaysian listed companies. Based on 598 firm-year observation of listed firms for the financial year ended in 2002 and 2003, they suggested that high ownership by managers (more than 25% shareholdings) may induce managers to manage earnings. However, corporate governance variables such

as CEO duality, independent board and board competency as well as interaction between the variables do not influence the practices of earnings-management in firms.

Meanwhile, Mohd Ali et al., (2008) examined the association between the levels of ownership by different shareholders and earnings-management activities in Malaysian listed companies by taking into account the effect of firm size. They divided ownership into three types; namely, managerial ownership, block ownership and foreign ownership¹⁷. The sample is based on secondary data obtained from annual reports of firms listed on Bursa Malaysia for the years ending 2002 and 2003 that involved final sample of 1,001 firm-year observations. The results show a low magnitude of association between ownership variables and earnings-management where managerial ownership can be an effective monitoring mechanism on earnings-management activities in small firms. Their results also indicate that ownership by holding companies helps in reducing earnings-management in large or small firm's sizes.

Generally, previous empirical studies produced mixed results regarding the association between ownership structures and earnings-management. In Malaysia, while literature published on this issue is lacking, particularly on the association between government ownership and earnings-management, existing studies are also not comprehensive and thus are unable to help determine how serious earnings-management practice among the different types of ownership of listed firms.

¹⁷In this paper, Mohd Ali et al., (2008) sub-divided managerial ownership into shareholdings held by executive and non-executive. For block ownership they sub-divided into shareholdings by individual, institutional and holding companies.

2.7 Hypotheses development

The following hypotheses are designed to test the impact of ownership structures on the magnitude of earnings-management of listed companies in Malaysia.

2.7.1 Types of GLICs and GLC earnings-management

As previously discussed, GLICs in Malaysia can be categorized into (i) federal government sponsored pension and investment funds (PIF GLIC); (ii) federal government owned GLICs (FGLIC) charged with promoting the federal government's economic and social policies; and (iii) State Economic Development Corporations (SEDC) charged with promoting state governments' economic and social policies.

The primary objective of the PIF GLIC is to provide pension benefits or maximize savings returns for their depositors or unit holders. In terms of control structures, the majority of board members in PIF GLIC are representatives of depositors or unit holders as well as independent directors or specialist advisors.

Research on the impact of institutional investors¹⁸ on earnings-management activities of their portfolio companies generally supports the role of institutional investors in preventing earnings-management (Ronen and Yaari, 2008; Cheng and Reitenga, 2009). A study by Park and Shin (2004) in Canada listed firms shows that large public pension funds have a greater influence on the reduction of the earnings-

¹⁸Pension and investment funds included in the category of institutional investors (Zouari and Rebaï, 2009)

management by playing an active role in deterring earnings-management activities due to the earnings-management behaviour that can negatively affect their long-term investment performance. They also found that the representatives from large public pension funds on the board further reduce earnings-management.

Similar results are suggested by Zouari and Rebaï (2009) in the US market where the involvement of pension funds in firms capitals limits managers' earnings-management behaviours due to the fact that they are better informed than individual investors due to their informational advantages. Burns, Kedia, and Lipson (2010) also reported that monitoring by institutional investors in the US reduces earnings-management.

In addition, institutional investors might also have an incentive to deter earnings-management as their investment is long-term investment which aims to provide continuing benefits to their depositors or unit holders. According to Chung, Firth and Kim (2005), institutional investors want managers to focus on firm long-term profitability rather than being pre-occupied with managing earnings on a year-by-year basis. This for the reason that among other issues, while small investors can sell their shares quickly, for example if they expect a financial scandal due to earnings-management practices, the situation is not the same for institutional investors that normally hold shares in large amounts. Selling shares on a large scale would further decrease the share prices thus producing a loss on their investment.

In Malaysia, Abdul Jalil and Abdul Rahman (2010) examined the impact of institutional shareholdings on earnings-management activities of their portfolio firms

using sample of listed firms between 2002 until 2007. They suggest that institutional investors in Malaysia are effective in mitigating self-serving earnings-management behaviour in their portfolio firms and one of the government-owned institutional investors, namely Permodalan Nasional Berhad, is the most effective institutional shareholder in mitigating opportunistic earnings-management behaviour.

By contrast, the boards of directors of FGLIC, such as the Khazanah Nasional Berhad, are appointed by the government and dominated by senior politicians, in particular the prime minister and senior ministers, as well as senior civil servants. The fact that government representatives have various other demands on their time and tend to have little experience in business or finance is likely to limit their ability to contribute effectively to the supervision and control of FGLIC or their portfolio companies thus might open space for managers to engage in earnings-management practices. Moreover, there is also the possibility for politicians on the board of FGLIC to use their portfolio companies for political purposes such as to boost share prices, particularly during an election year. In relation to this, empirical study by Piotroski, Wong and Zhang (2008) on the impact that political forces have on the financial reporting practices in China find that the government-controlled listed firms are significantly less likely to experience negative share price crashes around the years of the National Congress, in advance of political promotion decisions and during the course of corruption investigations relative to non-event year. Despite the political system in China and Malaysia is different, it is probable that the same issues occur in Malaysia cannot be ignored as FGLICs' influence on their portfolio companies is likely to be politically motivated rather than commercially motivated (Najid and Abdul Rahman, 2011). Finally, we argue that in the context of emerging

economies like Malaysia, the presence of senior politicians on the board of FGLIC may also create extra pressure on managers in GLCs to engage in income-increasing earnings-management.

This consideration suggests:

Hypothesis 1: The magnitude of earnings-management of GLCs controlled by PIF GLIC is lower than the magnitude of earnings-management of GLCs controlled by FGLIC.

Although there are similarities between FGLIC and SEDC with regards to the organizations' objectives and the composition of their board members, the performance of SEDC and their portfolio companies is under less scrutiny as laws and regulations are more difficult to enforce the further entities are away from the centre of power (Chen et al., 2009). Moreover, the Putrajaya Committee on GLC High Performance rarely scrutinises the performance of SEDCs' portfolio companies, although SEDCs themselves fall under the scrutiny of the relevant state's parliamentary Public Accounts Committee and the Auditor General. In these circumstances, there is a potential for SEDC to take into account the political considerations to influence the companies under their control to report higher earnings and this put pressure on managers of their portfolio companies to engage in earnings-management practices. Research by Chen, Lee and Li (2008) on earnings-management activities of local government-owned firms in China (equivalent to GLCs owned by SEDCs in Malaysian context) found that earnings-management exists mainly in listed firms controlled by local governments than those controlled by federal government.

Our next line of argument is that FGLIC may also be concerned more about lack of transparency and volatility of the share returns resulting from earnings-management in their portfolio companies (Yang, Chi and Young, 2011) that may hinder foreign investment to Malaysian capital market. This is because, for many foreign investors, quality of financial reporting and stability of the financial markets are the main considerations in determining investment decisions (see OECD White Paper, 2003; Kothari, 2001; Leuz et al., 2008). Thus, the desire to help in implementing federal government policy in attracting foreign investment has the potential to be the main incentive for FGLIC in deterring earnings-management activities in their portfolio companies.

We therefore expect that:

Hypothesis 2: The magnitude of earnings-management of GLCs controlled by FGLIC is lower than the magnitude of earnings-management of GLCs controlled by SEDC.

Given our earlier discussion regarding the objectives and corporate governance of PIF GLIC, we also hypothesise that:

Hypothesis 3: The magnitude of earnings-management of GLCs controlled by PIF GLIC is lower than the magnitude of earnings-management of GLCs controlled by SEDC.

2.7.2 Private blockholders and earnings-management (*PRIVATE*)

Following Ding et al., (2007) and Wang and Yung (2011), we consider blockholders other than government blockholders as private blockholders. Majority of previous empirical studies particularly in Chinese markets that compare earnings-management between government and private blockholders suggest that listed firms controlled by private blockholders involved in earnings-management more than their government-owned counterparts (Ding et al., 2007; Wang and Yung; 2011).

In Malaysia, Yen et al. (2007) found that earnings-management activities are lower in the firms owned by Chinese family-linked companies as compare to their GLCs counterpart. However, since we doubt the validity of their results as previously discussed, further evidence is needed. In the meantime, while listed firms controlled by private blockholders have to compete to keep growing, some GLCs, particularly those in strategic industries, might benefit from protectionist measures and financial support (Tan, 2007). Related to this, Wang and Yung, (2011) suggested that the protection of government-owned firms by the government might have played important role in mitigating the pressure on managers to manipulate firm-specific information.

GLCs, particularly those owned by federal GLICs, are monitored by various government institutions such as Auditor General, the federal parliamentary Public Accounts Committee and the Putrajaya Committee on GLC High Performance that routinely assesses the performance and corporate governance of key GLCs. These monitoring activities might help in minimizing earnings-management practices in

GLCs. Moreover, GLICs in fact are explicitly charged with improving the corporate governance in their portfolio companies (Malaysia Ministry of Finance, 2010) that is in line with government policy to attract foreign investment. Therefore, to implement the mandate and to support government policy on foreign investment, GLICs might have incentive to mitigate earnings-management practices in their portfolio companies. All these considerations unfortunately are not part of the objectives of private blockholders that are more inclined to maximizing profits.

This consideration suggests:

Hypothesis 4: The magnitude of earnings-management of listed firms controlled by private blockholders is higher than the magnitude of earnings-management of GLCs controlled by PIF GLIC, FGLIC and SEDC.

2.7.3 Managerial ownership and earnings-management (MANSHARE)

One of the ways suggested by agency theory to solve the agency problem between owners and managers is through share ownership by managers (Jensen and Meckling, 1976). In this way, the manager will be part of the company's ownership (managerial blockholders) and in practice should act in conformity with the interests of other shareholders in order to protect their long-term investment objectives in firms. This will reduce the agency cost in organization and from an earnings-management viewpoint this incentive alignment effect will minimize manager incentive to manipulate accounting figures in financial reporting for their personal interests.

Empirical studies show mixed results on the relationship between managerial ownership and earnings-management practices. Research in developed stock markets mostly suggest effects that are consistent with contention in agency theory that managerial ownership helps in reducing earnings-management activities in firms {see for example, Dhaliwal, Salamon and Smith, 1982 (US markets); Warfield, Wild and Wild, 1995 (US markets); Teshima and Shuto, 2008 (Japan markets); Yang, Lai and Tan, 2008 (Taiwan markets); Alves, 2012 (Portugal markets)}.

However, in emerging markets with high ownership concentration along with comparatively weak degree of investor protection as well as a less developed stock market (La Porta et al., 1999; Claessens and Fan, 2002; Leuz et al., 2003; Haniffa and Hudaib, 2006; Rachagan and Satkunasingam, 2009), the effect of managerial ownership on earnings-management may give opposite results.

Related to this, Limpaphayom and Manmettakul (2004) examined the relationship between managerial ownership and earnings-management proxied by discretionary accruals of listed firms in Thailand for the period from 1998 to 2000 that involved 207 firm-year observations. They found that managerial ownership is positively related to the use of discretionary accruals in financial reporting. They argued that unique institutional settings such as high ownership concentration and poor corporate governance structure in Thailand is leading to relatively high agency conflicts and information asymmetry contributes to these findings.

Al-Fayoumi et al., (2010) investigated the relationship between earnings-management and ownership structure for a sample of Jordanian industrial listed firms

involving 195 firm-year observations during the period 2001-2005. Their results showed that managerial ownership is significant and positively affect earnings-management.

Meanwhile, in Malaysia, Johari et al., (2008) examined the role of corporate governance variables and managerial ownership on earnings-management practices of Malaysian listed companies. Based on 598 firm-year observation of listed firms for the financial year ended in 2002 and 2003, they suggested that managerial ownership is associated positively with earnings-management practices.

Although our hypothesis competes with the agency theory, it takes into account the ownership structure and market discipline that differs between developed markets and emerging markets. This hypothesis is worth to be proposed.

We therefore expect that:

Hypothesis 5: There is a significant positive relationship between managerial ownership and earnings-management

2.7.4 Blockholders ownership concentration and earnings-management

Property rights and agency theory suggest that, the higher the degree of share ownership by a blockholder, the greater the incentive and ability to participate in the supervision and control of the firm's management (Rock, 1991; Holderness, 2003). Like in many other East Asian countries, Malaysian companies generally have a high level of ownership concentration and dominant insider investors (La Porta et al., 1999; Liew, 2007). Given the comparatively weak degree of minority shareholder

protection in the country (Claessens and Fan, 2002; Haniffa and Hudaib, 2006; Rachagan and Satkunasingam, 2009), ownership concentration by blockholders might lead to tighter supervision and control of managers and, therefore might reduce the risk of accounting manipulations by opportunistic managers. This is for the reason that the higher interest of blockholders in firms, the greater their incentives to monitor management (Ramsey and Blair, 1993). This is practical particularly when the costs associated with monitoring management are less than the expected benefits to their large equity holdings in the firm.

Gomes (2000) suggested that high concentrated ownership by blockholders is a signal to the blockholders commitment to develop a reputation for not expropriating minority shareholders. Moreover, blockholders' large stakes may give them greater access to information: given their voting power, management is more willing to meet with them (Edmans and Manso, 2011).

Empirical research by Ding et al. (2007) in Chinese market on the relationship between earnings-management measures and ownership concentration found that the higher the degree of ownership concentration the lower the level of abnormal accruals in their portfolio companies. They suggested that "when the ownership concentration reaches a high level, large shareholders become the true owners of the firm, and are thus more likely to seek to preserve its future growth potential by minimising accounting earnings." Similar findings were suggested by Wang and Yung (2011). In other markets, Abdoli (2011) reported a significant and negative association between blockholders' ownership concentration and earnings-management in the Tehran Stock Exchange and recently Alves (2012) found that

discretionary accrual as a proxy of earnings-management is negatively related to ownership concentration by the largest shareholders in Portuguese listed firms.

However, while a higher degree of ownership by blockholders might benefit minority shareholders by undertaking the monitoring role of management, and has potential to alleviate the governance problem, there is a possibility that they could actually do more harm than good when they become entrenched; they might expropriate the wealth of minority investors (Fama and Jensen, 1983; Morck, Shleifer and Vishny, 1988; Shleifer and Vishny, 1997). Ding et al., (2007) argued that, in situations where expropriation of blockholders would result in lower actual earnings, they may exercise pressure on managers to manage earnings upward, to avoid any leakage of information on their misbehaviour. Similar arguments are found in Ely and Song (2000) and Leuz et al., (2003) where blockholders, in order to hide firm's real economic situation, may increase manager incentive to conduct income-increasing earnings-management as they might put more pressure on managers to report favourable accounting performance. This discussion suggests that when blockholders become entrenched, mainly caused by too high ownership concentration, this may result in higher earnings-management activities.

As the impact of blockholders ownership concentration on earnings-management can be discussed in both positive and negative associations, we therefore predict a significant relationship between the variables without specifying the direction of the relationship. Therefore, the proposed hypothesis is:

Hypothesis 6: There is a significant relationship between ownership concentration by blockholders and earnings-management

TABLE 2-1: Major Characteristics of GLICs in Malaysia

No.	Criteria	Federal Government Sponsored Pension and Investment Funds	Federal Government Owned GLICs	State Economic Development Corporations
1.	GLICs name	The Employee Provident Fund, the National Equity Corporation (<i>Permodalan Nasional Berhad</i>), the Armed Forces Fund Board (<i>Lembaga Tabung Angkatan Tentera</i>) and the Pilgrimage Fund Board	Khazanah Nasional Berhad, Ministry of Finance (Incorporated) etc.	State Economic Development Corporation of Johor, Perak, Kedah, Pahang and Selangor etc.
2.	Statute/Act	Established under the Parliament Act	Established under the Malaysian Companies Act 1965 as a company limited by shares	Established under the State Legislation
3.	Shareholders and ownership	Technically owned by depositors or unit holders as the ultimate beneficiaries. However, since these GLICs had been established under the Parliament Act and the Malaysian government also provides funding and capital guarantees, they are under the purview of specific government ministries.	Malaysia Ministry of Finance: 100%	State-owned statutory body
4.	Primary Objective	To provide pension benefits or maximize savings returns for their depositors or unit holders	(e.g. Khazanah Nasional Berhad) Investment holding arm of the Government of Malaysia and is empowered as the Government's strategic investor in new industries and markets as well as to serve the country's national interests, particularly with regards to the control of strategic assets and industries deemed crucial to Malaysia's economic growth and its social development plan.	Promoting the state government's economic and social development policies particularly in exploiting their own natural resources and supporting new industries as well as to ensure <i>Bumiputera's</i> participation in the ownership and control of the corporate wealth of the state.

5.	Board Composition	<p>(e.g. Employee Provident Fund)</p> <p>i. A Chairman;</p> <p>ii. 5 government representatives;¹⁹</p> <p>iii. 3 employers' representatives;</p> <p>iv. 3 employees' representatives;</p> <p>v. 3 professional representatives; and</p> <p>vi. 1 ex-officio (CEO)</p>	<p>(e.g. Khazanah Nasional Berhad)</p> <p>i. A chairman; (Malaysia's Prime Minister and Minister of Finance)</p> <p>ii. Minister in the Prime Minister's Department;</p> <p>iii. Second Finance Minister;</p> <p>iv. 5 professional representatives;</p> <p>v. 1 ex-officio (CEO)</p>	<p>All SEDCs have a similar board composition where the Chief Minister of the particular state is the Chairman of the board and other members are mostly senior civil servants or political representatives from the relevant state. For example below is board composition of Kedah SEDC:</p> <p>i. Chairman: Kedah Chief Minister</p> <p>ii. 3 officials of the Kedah Civil Service;</p> <ul style="list-style-type: none"> • The State Secretary • The State Legal Adviser • The State Financial Officer <p>iii. 3 officials of the Federal Government;</p> <ul style="list-style-type: none"> • Representative from the Ministry of Finance; • Representative from the Prime Minister's Department; • Representative from the Ministry of International Trade & Industry <p>iv. 5 other members;</p> <ul style="list-style-type: none"> • Three politicians from Kedah • One ex-senior civil servant • One representative from Kedah SEDC <p>v. 1 ex-officio (CEO)</p>
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Source: Memorandum & Article of Association of SEDCs, Khazanah Nasional Berhad and various of GLICs under the Federal Government Sponsored Pension and Investment Funds group

¹⁹ All government representatives are senior civil servants

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

All research is based on some underlying philosophical assumptions about what constitutes valid research and which research method is suitable for the development of knowledge in the study performed. This chapter outlines the research methodology employed in this research project and discusses various research paradigms and possible approaches to our study. In addition, this chapter also discusses the two main research methods which are quantitative research methods and qualitative research methods as well as their adaptations for the Malaysian context.

3.2 Research Paradigm

There are various paradigms in research but the two primary research paradigms are:

- 3.2.1 **Positivism** – this paradigm associated with quantitative research. It involves hypothesis testing to obtain “objective” truth and also used to predict what may happen at a future date. Critical realism is a sub-type of positivism that

incorporates some value assumptions on the part of the researcher. It involves looking at power in society. In this paradigm, researchers primarily rely on quantitative data; and

3.2.2 **Interpretivism** – this paradigm associated with qualitative research. It used to obtain an understanding of the world from an individual perspective and critical humanism is a sub-type of the interpretive paradigm. The critical humanism approach is one in which the researcher involves people studied in the research process.

TerreBlance and Durrheim (1999) stated that the research process has three main dimensions, namely ontology, epistemology and methodology. According to them, a research paradigm is an all-encompassing system of interconnected practice and thinking that define the nature of enquiry along these three dimensions of research process.

Kuhn (1962) defines a paradigm as “an integrated cluster of substantive concepts, variables and problems attached with corresponding methodological approaches and tools.....”. He refers paradigm as a research culture with a set of beliefs, values and assumptions that a research community has in common regarding the nature and conduct of research (Kuhn, 1977).

Ontological and epistemological aspects concern what is commonly referred to as a person's world view. Ontology consists of two syllables, ie. ontos and logos. Ontos mean something tangible and logos meaning knowledge. So the principal area of

philosophy ontology is questioning the fact of the existence of things that are according to the systematic relations order based on law of causality. Ontology can be also interpreted as knowledge or theory about the existence of any fact. Thus, the object of knowledge is experience that can be seen. In other words, ontology is the study of things that exist in reality based on logic alone.

Meanwhile, epistemology is the part of philosophy that deals with the occurrence of knowledge, sources of knowledge, origin of knowledge, the limits, the nature, method, and the authenticity of knowledge. So the material object from epistemology is knowledge and its formal object is the fact of the knowledge.

Lastly, methodology refers to the most appropriate method to conduct research and determine an effective procedure for answering the research problem. In order to effectively implement a research, the methodology must involves the formation of hypotheses formulated, the selection of the study design, data collection methods, the determination of the population and selection sample, test pilot if necessary and data analysis methods.

3.3 Quantitative and qualitative research method

Many debates discuss the use of both of these methods in research. If researchers are too obsessed and realistic with numerical analysis, they assume that the quantitative method is the best. However, some are not satisfied with the quantitative study. They felt that not all things mechanical in nature. They agree with the view that the

qualitative research is the better way to understand the social world phenomenon and human interaction.

Quantitative studies hold the perspective of positivism and post-positivism. Positivism pioneered by Aristotle, Francis Bacon, August Comte and Kant Immanuel. After World War two, the flow of post-positivism began to grow to replace the notion of positivism.

Through post-positivism paradigm, the researchers tried to carry out research to test theories and hypotheses of the study and measurement of research conducted more on objectives measurement that can be seen.

In the meantime, researchers in qualitative research sticking with constructivism that understands the reality of human experience based on their own life. Measurement is more subjective in qualitative study. This means that researchers are able to interpret the meaning of diversity depending on each individual differently.

3.3.1 Qualitative research

Qualitative research more focused to observe the phenomenon from different perspectives, and the construction of meaning is from the perspective of the subject. Thus, qualitative researchers are more accepting interpretivism perspective that growing when there are some group of researcher who are not satisfied with the post-positivist perspective view.

They argued that post-positivism was too mechanical in nature, especially in explaining human interaction. They argue that people should have a better understanding of the world to provide more open space for interaction between human beings and also emphasizes how people should behave in a social world (Miller, 2005). The fact is, there are some research question that are cannot be easily answered through quantitative research but requires qualitative explanation in interpreting human phenomena.

Qualitative research also not focused on large data collection. However, the focus is on the acquisition of quality information even with a small sample selection. As such, the advantages of qualitative research selection as a very effective method in discussing factors that are not backed by numerical.

In this type of research, the researcher is the main instrument, particularly in the data collection process. This contrasts with the quantitative study which many researchers rely on questionnaires as used in the survey design. This also means that the researcher's role in qualitative research is more important and sometimes risky. This is because as the main instrument, the main challenge faced by researchers is to refrain from making an unbiased assessment particularly when interpreting the data such as the results from statistics analysis.

Qualitative data collection is also quite risky if researchers are not careful because even a small mistake is certainly caused the data invalid. Thus, qualitative researchers need to master the skills of data collection along with strategies to maximize data collection means. Phenomenology, ethnography, grounded theory and

case studies are among the design in qualitative study that often carried out by researchers.

In the meantime, the data collection methods that are commonly used include observation methods (participant observation), in-depth interviews, focus groups and document analysis

3.3.2 Quantitative research

In the meantime, quantitative research is research that required numerical data and involve statistical analysis to understand and explain the phenomenon being studied. Through this method, researchers should collect data formally and systematically.

For example, if researchers use questionnaires as research tools, they must ensure that each survey conducted to meet the objectives and research questions and has a validity of measuring instruments and have practical reliability. Through quantitative research, the problem is stated in the form of hypotheses.

Quantitative research is divided into two types: the intervention study and non-intervention study. For the intervention study, the appropriate study design is experimental studies, while for non-interventional study the appropriate study designs are correlation study and survey. Experimental studies describing whether intervention influence the outcome of one group compared with the other groups, while the correlation study is to predict the relationship or relationships between variables. Finally the survey study describes trends for a population.

3.3.3 The main differences between quantitative and qualitative study

To see the difference between these two methods of study, we can learn from some of their research aspects as follows:

i) Paradigm research Used

In qualitative research, the paradigm used is sourced from a natural paradigm phenomenological view and unlike quantitative research, this paradigm derived from positivism views. Among the assumptions of qualitative method are research question is socially developed, prioritize areas of research, involve complex variables that related to one another and are difficult to measure.

It also uses a hypothesis-based approach that based on grounded theory that appear and can be described. Research used as the main instrument for finding patterns, pluralism, complexity and little use of numerical indicators. Reporting was descriptively and most important role is personal involvement by the researcher to create the empathic understanding of the problem being studied.

Contrast to this, quantitative research paradigms have assumed that social facts have objective reality. It prioritize those variables that can be identified and based on a view from outside that have general meaning, can be expected as well as have a causal explanation. Quantitative research used hypotheses and theoretical, manipulation and control, experimentation, deductive, analytical components,

finding consensus and summarized data by using numerical methods in its research methodology.

Here, the role of the researcher is not bound where they do not have to identify themselves. Quantitative study also provides an objective view of a question that going to be studied.

ii) Research purposes

Quantitative methods are able to create an objective description on the limited phenomenon and determine whether the phenomenon can be controlled through multiple interventions. On the flip side, qualitative methods means to develop an understanding on individuals and events by taking into account the relevant context.

iii) Problem Identification

Quantitative methods describe the problem in the form of relationship between variables, cause-effect relationships, comparative relationships or associative relationship²⁰. Meanwhile, the problem identification in qualitative methods is usually formulated in general and broad, but at the time of data collection, the problem will be detailed out.

²⁰ Associative relationship is a relationship that positive in nature that can strengthen or reinforce links or solidarity between social groups

Table 3.1 shows the summary of differences between quantitative and qualitative study

3.4 Validity and reliability in research

Validity and reliability are very important instrument to defend the accuracy of the instrument from exposed to defects. The higher the value of the validity and reliability instrument, the more accurate the data will be obtained for produce good-quality studies. A researcher must concern with the validity and reliability of the instrument and research data as it will determine the validity and reliability of the results.

3.4.1 Validity of research

Validity is defined as the appropriateness, truthfulness, meaningfulness and usefulness for instruments that enable data to be inference. Validity also means the agreement between two attempts to measure the same trait in maximum with different method (Fraenkel and Wallen (1996). According to them, there are three techniques in determining the validity of the instrument.

i. Content-related evidence of validity

The technique refers to the accuracy of the content and format of the instrument, the comprehensive nature of instruments and usability variables. The accuracy and adequacy of the contents of the items and its consistency are important to be

measured and evaluated by the sample. This technique uses expert judgment to prove the accuracy of the content item when evaluating the instrument.

ii. Criterion-related evidence of validity

This technique refers to the relationship between the scores or results obtained from an instrument with a score or results derived from one or more other instruments to see how the relationship of these instruments. This way requires researchers to compare the predictions with the results of the initial analysis to final analysis.

It also requires researchers to do concurrent validity which means that the same two tests, administered to two different samples in the same time period yielded two scores equal or nearly equal. This method requires reading index correlation coefficient (r), which shows the degree of relationship between the scores obtained in the two instruments.

iii. Construct-related evidence of validity

This technique refers to the degree of proof consistently derived from variety of different evidence. There are three steps to finding Construct-Related Evidence; (a) variables to be measured must be clearly defined; (b) hypothesis built should be based on the underlying theory to variables; and (c) hipotesis was logically and empirically tested.

3.4.2 Reliability of research

Reliability of the instrument is a measure to determine the consistency of the scores or results of each item. Consistency means that when the same items tested several times on the same subject at different time intervals but still give a decision or answer equal or nearly equal. According to Campbell and Fiske (1959), reliability defined as agreement between two efforts to measure the same trait in maximum by using the same method.

The concept of reliability of measurement in quantitative methods, especially the use of questionnaires designed to test batches of questionnaires through the means test pilot which is one small-scale testing. The pilot study represents a preliminary trial before the items of the actual test applied to real samples.

The purpose of the pilot study made is to get the transparency of data from the trial by a small group of individuals. Another purpose is to assess the reliability, objective and usability of the item itself. In general there are three ways to test the degree of reliability of items under study:

i. Test-retest reliability

This test describes the degree of score that should be always consistent every time when it is tested. The same instrument repeatedly tested to the same sample group but at different times. Two sets of data obtained will be analyzed through correlation analysis to see strength of the relationship. If the correlation coefficient reliability

near to the value of one, then the two sets of data have a strong relationship or connection or the instrument has high value of reliability.

ii. Equivalent-form reliability

In this test, two different tests sets but have the same content (variables), the same number of items, the same structure, the same level of difficulty and the same direction. The two instruments will be given to the same group of sample at the same time. Two sets of data collected will be analyzed to get the reliability coefficients.

The scores from the two samples must be correlated each other. Average scores obtained from both test is an indication of the degree of reliability. It is also referred to as alternate-form reliability scores that show diversity from one form to another form. Test-retest and Equivalent-form reliability test can be combined to assess the stability of scores obtained at each time and administered to a small number of samples. This technique is very good because the items can be generalized in a set of items.

iii. Internal consistency

Internal consistency method is used to assess the internal consistency of the instrument. Only one item is set to be tested to a small number of samples. There are three procedures in this method:

a) **Split-half procedure**

For a long and difficult to run instruments, it requires division into two categories according to the odd and even number of items that administered at two different times with two test forms in a group samples. Correction Spearman-Brown formula is used in this procedure.

b) **Rationale equivalent reliability**

This technique is to determine how all of the items in a test related to each other items including the relationship between the sub items and the total items.

c) **Cronbach's alpha procedure**

It is commonly-used for evaluate the correlation coefficient based on the average correlation of items in a test where each item is assume to be in a standard form. If the items are not standardized, then average covariance then be used in the analysis.

3.5 The adaptations of quantitative analysis in this study

This study investigates the impact of government ownership on corporate performance and earnings management activities of their portfolio companies. In detail, this examined the impact of different GLICs on financial performance of GLCs and whether different GLICs have different impact on earnings management practices of GLCs controlled by them.

To measure financial performance among GLCs and earnings management practices among GLCs and non-GLCs, we need to employ data from reliable sources to ensure the validity and reliability of our research as previously discussed. Therefore, we

decided to employ published data from annual reports of all firms in our sample. The published data in annual reports are considered from reliability source as the data has been verified and audited by external auditors. Moreover, various internal mechanisms such as board of directors, audit committee as well as internal auditor has been carefully review the data before it can be released to public.

Therefore, the data collected from published reports as we employed in this study can be considered as data from a reliable source and has high degree of data reliability and validity. Moreover, as nature of this study is on corporate performance and earnings management, we cannot use other sources of data such as interview or questionnaires as those approaches might lead to bias results because of unreliability source of data. This is for the reason that, if we used for example questionnaires as a tool of data collection, we might risk of data been manipulated by managers as they usually try to show good firm's financial performance and at the same time try to hide all information on earnings management practices.

Table 3.1: Summary of differences between quantitative and qualitative study

Research features	Quantitative study	Qualitative study
Data form	The numerical Data that can be measured.	Data in the form of words or sentences collected through interviews or recorded in the form of pictures or videos.
Research instrument	Researchers using instruments such as questionnaires and achievement tests to collect data. The instrument functions as a measuring tool and a tool intermediary between researchers and study participants.	Researcher is the main instrument for data collection. Researchers need to be in the situation under study, listen and observe the phenomenon to be studied directly.
Research design	Research design set before data collection.	Research designs are flexible, can be adjusted according to the conditions and requirements of the situation
Study participant	Researchers are not participants in the study. Study participants were selected sample using specific sampling techniques	Research is part of the research participants. Information is obtained directly from study participants
Research methodology	Researchers study population or a representative sample of the population. Large sample size and selected based on probability.	Small sample size and selected based on the intended and not probabilities.

CHAPTER 4

THE IMPACT OF GOVERNMENT-LINKED INVESTMENT COMPANIES IN MALAYSIA ON THE PERFORMANCE OF THEIR PORTFOLIO COMPANIES

4.1 Introduction

According to the Organisation for Economic Co-operation and Development (OECD, 2010: 5) “the scale and scope of state-owned enterprises in many Asian economies calls for specific attention to be given to their corporate governance.” In Malaysia, Government-linked Companies (GLCs), i.e. listed firms in which government linked investment companies (GLICs) hold a controlling stake (Malaysia Ministry of Finance, 2010:100), produce 10 per cent of the country’s economic output, employ more than 300,000 people and account for 49 per cent of the total stock market capitalisation of the Bursa Malaysia (Malaysia Ministry of Finance, 2010).

The OECD (2010: 5-6) states that such state-owned enterprises “often suffer both from passive ownership by the state and, at the same time, from undue political interference.” This can lead to poorer corporate governance and performance. However, improvements in the corporate governance of these companies are expected to facilitate not only economic efficiency gains for individual firms but also to help attract foreign investors and domestic depositors to domestic capital markets.

While many emerging economies have introduced reforms aimed at increasing minority shareholder protection and increasing the transparency and efficiency of their capital markets, the ability to enforce minority shareholder protection rights often remains rather limited (Claessens and Fan, 2002; Rachagan and Satkunasingam, 2009). As blockholders in listed firms, GLICs can potentially mitigate this problem by improving the supervision and control of their portfolio firms (Wade, 2004; Lau and Tong, 2008). In Malaysia, for instance, federal GLICs are explicitly charged with improving the corporate governance of their portfolio companies (Malaysia Ministry of Finance, 2010)²¹. This is expected not only to improve the financial performance of the individual firms but also to encourage the mobilisation of private domestic savings as well as foreign direct and portfolio investment to improve domestic firms' access to outside capital (Malaysia Putrajaya Committee on GLC High Performance, 2006a; 2006b; Malaysia Ministry of Finance, 2010).

This is of particular importance as limited access to external funds is frequently identified as one of the key problems which hampers the economic development of emerging economies both at national and at an individual business level (Hearn, Piesse, and Strange, 2010; Tsoukas, 2011; Fan, Wei, and Xu, 2011). Portfolio investors tend to avoid companies and countries with weak investor protection laws and weak enforcement regimes (La Porta, Lopes-De-Silanes, and Shleifer, 1997; Shleifer and Vishny, 1997; Gibson, 2003; Fan et al., 2011).

²¹ Corporate Governance Survey Report (2008) conducted by Minority Shareholder Watchdog Group and Nottingham University Business School involving all listed companies in Bursa Malaysia Securities revealed that, GLCs were the leaders in terms of implementing recommended corporate governance best practices as suggest in Malaysian Code on Corporate Governance 2001.

In the past, enquiries into the impact of government ownership on the performance of listed companies largely treated government investment as homogeneous (Shleifer and Vishny, 1994; Boycko, Shleifer, and Vishny, 1996; Sun, Tong, and Tong, 2002; Tam and Tan, 2007; Azmi, 2008; Shen and Lin, 2009; Mohd Ghazali, 2010; Ab Razak, Ahmad, and Joher, 2011; Le and Buck, 2011; Najid and Rahman, 2011; Wang and Yung, 2011).

However, research by Chen, Firth, and Xu (2009) into the impact of government ownership on listed firms in China first examined whether differences in objectives and motivations of the government investment organisations have an impact on government ownership in listed companies' performance. In relation to this, what distinguishes our study from the study by Chen et al. (2008) is mainly that we focus on Malaysia. Malaysia's political and economic systems differ from China. These differences certainly affect how the respective governments influence the affairs of their government investment organisations as well as the portfolio companies owned by them. For example, while all government investment organisations in China (at central or local government level) must comply with the regulations and directives from the same government (one-party systems), GLICs in Malaysia are subject to policies of the ruling political party.

Previously, researchers often suggested that government block ownership has a negative influence on firm performance due to politicians' incentives to use their influence over firms to pursue political, social or economic objectives to the detriment of other shareholders (Shleifer and Vishny, 1994; Cuervo and Villalonga, 2000; Sun et al., 2002; Le and Buck, 2011; Wang and Yun, 2011). However, there

has been little consideration of how politicians' direct or indirect role in the corporate governance of portfolio companies affects the firms' performance.

By taking into account different types of government investment companies, their ownership concentration, the existence of golden share provisions and the participation of politicians and senior civil servants in the boards of directors of GLCs in Malaysia, this project aims to contribute to a more detailed understanding of the impact of government ownership and political representation in boards on the performance of listed GLCs. This topic is of particular importance for emerging and developing economies, which aim to develop their stock markets by mobilising domestic savings and attracting foreign investors to facilitate firms' access to external funds (Tsoukas, 2011).

Malaysia is an interesting case in this context, as the government explicitly expects its federal GLICs to facilitate good corporate governance and minority shareholder protection in their portfolio companies (Malaysia Ministry of Finance, 2010; Malaysia Putrajaya Committee on GLC High Performance, 2006a; 2006b). Moreover, in Malaysia, GLICs can be differentiated into three distinct types, with different objectives and control structures.

The remainder of the paper is organised as follows. Section 4.2 explains the data and the research approach employed. Section 4.3 discusses the empirical results and finally section 4.4 concludes the chapter.

4.2 Research Approach

4.2.1 Sample Selection

Our initial sample consisted of all GLCs listed on the Main Board of Bursa Malaysia between 2004 and 2008 in which a single GLIC held at least 20 percent of the outstanding share capital and is the largest investor, in line with Ang and Ding (2006), Lau and Tong (2008), Ab Razak et al., (2011). This takes account of the Malaysian government's own definition of GLCs as "companies that have a primary commercial objective and in which the Malaysian Government has a direct controlling stake" (Malaysia Putrajaya Committee on GLC High Performance, 2006c: A1-1). While not specifying a certain percentage of ownership, the government suggests that its control rights should be sufficient to appoint board members and influence major decisions in relation to such matters as the awarding of contracts, strategy development, restructuring and financing, acquisitions and divestments.

Research investigating the impact of block ownership on corporate performance tends to use a variety of thresholds, generally ranging from 3 per cent to 20 per cent (Gadhoun, Lang, and Young, 2005; Florackis and Ozkan, 2009). Given our research objective, we opted for a 20 per cent threshold, in line with previous research by La Porta et al. (1999), Ang and Ding (2006) and Setia-Atmaja (2009). At this level of ownership, we expected that individual GLICs have sufficient voting rights to control the GLCs' management if they choose to engage in the supervision and control of their portfolio companies. According to Holderness (2003) in his survey of

blockholders and corporate control, 20 percent is the best available estimate of the current level of block ownership of public corporations.

As they are subject to different regulatory requirements, firms in the financial industry (such as the banking sector, insurance, securities and unit trust) were subsequently excluded (Ab Razak et al., 2011; Haniffa and Hudaib, 2006; Ibrahim and Samad, 2011). In addition, following Ibrahim and Samad (2011), we excluded companies which fail to comply with obligations under Practice Note 17²² and also firms with incomplete data. This leaves 224 firm-year observations for the sample period. Table 4-1 presents the sample selection process.

TABLE 4-1: The sample selection process

Descriptions	2004	2005	2006	2007	2008
Total GLCs listed on the Main Board of Bursa Malaysia Securities	58	59	60	57	52
Companies that are classified by Bursa Malaysia Securities in the financial industry	(12)	(12)	(12)	(10)	(10)
Companies in PN17 status	(0)	(0)	(0)	(1)	(1)
Incomplete data set*	(0)	(0)	(0)	(2)	(2)
Total firms (Pool=224)	46	47	48	44	39

* Companies information is not available either due to annual reports are not available because of merger and acquisitions, delisting, PN17 status or no data available on Datastream, Thomson One Banker or FAME.

²² PN17 stands for Practice Note 17/2005 and is issued by Bursa Malaysia Securities; relating to companies that are in financial distress. Companies that fall within the definition of PN17 will need to submit their proposal to the Approving Authority to restructure and revive the company in order to maintain the listing status.

All non-financial data were collected from the companies' audited annual reports and all financial data were collected from *DataStream*. The number of GLCs varied over the period of 2004 until 2008 mainly due to mergers and acquisitions particularly in 2006/07, such as by Kumpulan UEM Berhad and Kumpulan Sime Darby Berhad.

This final sample of 224 firm-year observations represents 78.32 percent of the whole population of GLCs is comparable to those used in previous studies in Malaysia. For example, Lau and Tong (2008) used data from 15 GLCs under Khazanah Nasional Berhad from 2000 until 2005 (90 firm-year observations total) in their research on GLCs ownership concentration and performance. Meanwhile, Tam and Tan (2007) employed 150 listed firms in the year of 2000/2001 in their research on the relationship between ownership structure and firm performance. In similar research, Chu and Cheah (2006) were satisfied with 147 listed firms on the Main Board of Bursa Malaysia Securities.

Previous studies in other developing countries also employed sample sizes that were almost similar with this research. For example, Jackling and Johl (2009) utilized 180 firm-year observations in their research on the issue of board structure and firm performance in India and Zeitun (2009) employed 167 Jordanian listed companies in their study on the issues of ownership structure, corporate performance and failure in Jordan market.

4.2.2 Year of observations

The observation period of 2004 until 2008 was chosen to reflect a phase of relative economic stability in Malaysia, because the period is after the Asian financial crisis and before the global financial crisis, which started in the second half of 2008 (IMF, 2008; Fidrmuc and Korhonen, 2010).

Table 4-2 reports the distribution of samples by industry, where 45 percent of firms in the sample belong to trading/services industry, followed by the properties and plantations industries.

TABLE 4-2: The sample distribution according to industry classification

No.	Industry Group	Number of firms (<i>N</i> =224)	Percentage (%)
1.	Trading/Services	101	45.1%
2.	Consumer products	20	8.9%
3.	Infrastructure project company	3	1.3%
4.	Plantations	26	11.6%
5.	Industrial Products	19	8.5%
6.	Properties	48	21.4%
7.	Technology	3	1.3%
8.	Construction	4	1.8%
	Total	224 firms	100%

4.2.3 Control variables

In line with previous research (Demsetz and Lehn, 1985; Demsetz and Villalonga, 2001; Carney and Gedajlovic, 2002; Anderson and Hamadi, 2007; Chen et al., 2009), we control for a range of variables which are expected to impact corporate performance.

(i) Firm size (*Size*)

Firm size is measured as logarithm of total assets. In general, larger firms are expected to be more profitable due their access to new technology, greater economies of scale, and diversification (Leng, 2004). However, the ultimate goals of owners and managers differ; managers tend to maximise personal income and owners tend to maximise profits and in large firms it is impractical for the owner to exercise control over managers for strategic and operational activities (Himmelberg, Hubbard and Palia, 1999; Sarkar and Sarkar, 2000). This situation allows for greater managerial discretion, thus increasing agency cost in organizations that impact the firm's long-term performance (Jensen and Meckling, 1976).

In Malaysia, study by Lau and Tong (2008) on GLC's performance finds insignificant association between firm size and performance. Recently, Mohd Ghazali (2010) in his research on the ownership structure of 87 non-financial listed companies in Malaysia also found no relationship between firm size and performance. Therefore, based on the above discussion and consistent with most of the empirical results, we expect a significant association between firm size and corporate performance without specifying direction of the relationship. The natural

log of total assets is used as a proxy for firm size that controls for differences in firm size. This usage is consistent with a long line of previous research (e.g. Ang and Ding, 2006; Maury, 2006; Al-Farooque et al., 2007; Karaca and Eksi, 2012).

(ii) Monopoly / market power (*Monopoly*)

For GLCs involved in strategic industries and need time to develop the ability to compete, the government provides them with exclusive monopoly licences which afford them market dominance. These monopolies are often remnants from the time before privatisation (Woon, 1989). We control for the existence of such licenses as for their probable impact on corporate performance.

(iii) Liquidity (*Liquidity*)

Liquidity is measured as a ratio of current assets to current liabilities. To meet a short term obligations such as paying short-term debt and creditors, as well as reserve for emergencies, the firm needs cash. A higher liquidity ratio shows that a firm has resources to meet short-term obligations (Williamson, 1988). Liquidity also measures the availability of firms to convert assets into cash for investment; the more liquid the assets, the more potential for company to earn higher income from investment and therefore contribute to better firm performance.

Empirical studies have found inconclusive results about the impact of liquidity on corporate performance. For example, Dionne and Garand (2003) found a negative relationship between the liquidity ratio and performance. However, a study by Cho (1998) of Fortune 500 manufacturing firms on the issue of managerial ownership and performance finds a positive association between the variables. Recently, An and

Naughton (2009), in their study of the impact of family ownership on performance of Korean listed firms from 2000 to 2005, found significant positive relationship between liquidity and firm performance. Liquidity that measures as a ratio of current assets to current liabilities is predicted to impact significantly on corporate performance.

(iv) Financial leverage (*Leverage*)

Leverage is measured as proportion of debts to shareholder's equity. It might influence corporate performance into two ways. On one hand, high leverage may be a sign of resource constraints in a firm. Firms with high leverage may be at risk of bankruptcy if they are unable to make payments on their external debt financing.

On the other hand, higher leverage can also be used to control opportunistic managers through additional monitoring activities by lenders (Jensen and Meckling, 1976). Banks, for example, can provide an effective monitoring function to control manager's opportunistic behaviour such as earnings-management activities. Ismail and Weetman (2008) found a highly significant negative relationship (at a 1% level) between leverage and earnings-management and suggest that highly geared firms in Malaysia manage earnings less than lower geared firms due to close scrutiny by the banks, who are acting both as creditors and advisers. Results of empirical studies on the relationship between leverage and corporate performance are mixed. For example, a study by Hu and Izumida (2008) on the relationship between ownership concentration and corporate performance using Japanese panel data found a negative relationship between leverage and performance measures. Similar results were suggested by Jackling and Johl (2009) in their study in Indian market.

However, in the context of Malaysian listed firms, Haniffa and Hudaib (2006) in their research on the relationship between corporate governance structure and performance of Malaysian listed companies from 1996 to 2000 find a significant positive relationship between leverage and performance. The use of leverage as one of the control variables is consistent with a long line of previous research (see Davies, Hillier and McColgan, 2005; Haniffa and Hudaib, 2006; Hu and Izumida, 2008; Bhagat and Bolton, 2008; Setia-Atmaja, 2009). Hence, we expect a significant relationship between leverage and performance.

(v) Corporate governance variables

Effective corporate governance systems are expected to reduce agency problems and thereby improve economic efficiency. Rhoades *et. al* (2000) suggested that the selection of appropriate corporate governance mechanisms inside an organization helps align the interest of shareholders and managers. As contended in agency theory, the board of directors, as the highest-level of control mechanism in the organization, plays an important role in aligning and controlling managers' activities. This is because the board has power to compensate for managers' decision making (Fama and Jensen, 1983). Zahra and Pearce (1989) suggested that agency theory is the most comprehensive explanation of board monitoring function. Related to this, Fama and Jensen (1983) suggested that a functioning board of directors is one of the major devices that limits agency costs and is the most important internal control monitoring mechanisms in firms that ratify the decisions initiated by management. This effectively creates a separation between "decision management" and "decision control."

Evidence from previous literature suggests several characteristics of boards such as board size, board meeting frequency and the presence of independent directors may influence the effectiveness of boards in their monitoring role²³. Therefore, consistent with previous studies in this area (e.g. Dalton, Daily, Ellstrand and Johnson, 1998; Pearce and Zahra, 1992; Haniffa and Hudaib, 2006; O'Connell and Cramer, 2010), we control for other standard corporate governance variables related to board of directors such as board size (*BODSIZE*), the number of board of directors meetings per year (*BODMEET*) and the percentage of independent non-executive directors on the board of directors (*BODINED*) as their probable effects on GLCs' corporate performance.

Board size. Generally, each firm will have its own individually appropriate board size if labour, goods and capital markets are sufficiently efficient, as size of the board will depend on the firm's characteristics (such as size, complexity and risk of business) and the characteristics of its business environment (such as multinational vs. national, industry risks, etc.). If markets are not efficient, as in most emerging economies (Zattoni et al., 2000), the firm's board size might not be appropriate. Firms might benefit from a large board size in terms of information and expertise advantage (Dalton, Daily, Johnson and Ellstrand, 1999). This argument is consistent with the resource-dependence theory which suggests that a larger board size would

²³ We do not employ the audit committee characteristics as part of corporate governance features mainly because there was doubt as to the direct link between the audit committee and company performance with regards of whether their effect on performance due to the existence of the audit committee or due to other features of corporate governance (see discussion in Turley and Zaman, 2004). According to Klein (2002: 378), the primary role of the audit committee under the board of directors is overseeing the firm financial reporting process, the review of financial reports, internal accounting control, the audit process and recent responsibilities of the audit committee also covers risk management issues. This explains the indirect relationship between audit committee characteristics and performance.

lead to better corporate performance because of the different skills, knowledge and expertise brought into the boardroom discussion.

However, Jensen (2010) argues that larger board size is easily controlled by CEOs who may take advantage on this situation and use their influence to ensure the board decisions in line with their needs. Board size was widely used in previous research on the relationship between corporate governance and corporate performance (e.g. Bhagat and Black, 2002; Elsayed, 2007; Ivengar and Zampeli, 2009; Marimuthu and Kolandaisamy, 2009; Jackling and Johl, 2009).

However, empirical studies showed mixed findings on the relationship between board size and firm performance. For example, Pearce and Zahra (1992) as well as Jackling and Johl (2009) found board size to be positively related to firm corporate performance. However, Eisenberg, Sudgren and Wells (1998) and Yermack (1996) found a significant negative relationship between board size and performance.

In Malaysia, Haniffa and Hudaib (2006) studied the impact of corporate governance structure on performance of listed companies. Based on sample of 347 companies listed on the main board of Bursa Malaysia Securities, they found board size to be significantly and positively related with accounting performance. Recently, Mohd Ghazali (2010), who studied the impact of ownership and corporate governance structure on performance of listed companies in Malaysia, found no significant association between board size and performance. We expect large board sizes to benefit the GLCs, as they not only provide expertise and experience to the company but also can act as boundary spanners for companies. This is particularly evident in

the context of GLCs, where politicians and senior civil servants are normally part of the board members. Therefore, a positive relationship between board size and performance is expected and the total number of directors on the board per year is used to measure board size.

Number of board meetings. The Malaysian Code on Corporate Governance (2007) outlined six principal responsibilities of the board such as reviewing and adopting a strategic plan for the company, identifying and managing risks, as well as playing an important duty in a monitoring role on behalf of shareholders. The number of board meeting might indicate the effort of directors as well as regular, close monitoring and provision of advice. It might also indicate an inefficient, poorly run board which does not get through its tasks effectively. Industry and business complexity are also likely to affect board meeting frequency. Moreover, firms which are planning risky ventures (e.g. mergers and acquisitions, entering new markets), or which are in financial trouble, are likely to have more board meetings than firms which do not face many risks or which are performing well.

Related to this, Jensen (1993) suggested that board meetings should serve as efficient monitoring device to resolve firm's major problem rather than meeting too frequent. However, Conger, Finegold and Lawler (1998) suggested that board meetings frequency improves board effectiveness since the meeting indicates the effort put in by the directors and showed their commitment in monitoring management activities. Hence, we predict number of board meeting significantly related to performance.

*The proportion of independent directors on the board*²⁴. To ensure the effective monitoring role of the board on managerial activities, agency theory suggests that board composition should include independent directors and that a higher proportion of independent directors leads to a better monitoring role that eventually leads to better corporate performance. According to Vance (1983), the independent directors are required as part of the board because they can provide unbiased assessment and “checks and balances” between other board members that represents shareholders on one hand and management on the other hand. Peasnell, Pope and Young (2005) suggested that the presence of independent board members who are also senior executive managers in other firms and familiar financial reporting issues, has the potential to reduce agency costs. For example, they may be able to constrain earnings-management activities in firms and so positively impact firm performance in the long run.

In the meantime, the Malaysia Code on Corporate Governance (2007) recommends that independent directors should make up at least one third of board membership and Bursa Malaysia Listing Requirements defines an independent director as “one who is independent of management and free from any business or other relationship which could interfere with the exercise of independent judgement or the ability to act in the best interest of a listed company.” The positive impact of the presence of independent directors on the boards to corporate performance can be found from numerous empirical studies in different markets such as Baysinger and Butler (1985); Rosenstein and Wyatt (1990) and Jackling and Johl (2009), as well as Setia-Atmaja (2009). Based on the discussion above and in line to agency theory, this study

²⁴ Appendix 1 describes definition of board independence based on Bursa Malaysia Main Market Listing Requirement

predicts that a higher proportion of independent directors on the board the lead to better corporate performance. The percentage of independent non-executive directors on the board of directors is used to measure this variable.

(vi) Year and industry dummies

Because this study employs panel data, it is important to take into account changes in the macroeconomic-environment. As corporate performance may have altered significantly over the study time period, year dummies that represent a time trend are included in the model. The approach is consistent with prior literature such as Elsayed (2007). In addition, as firm performance may be affected by industry affiliation, and different industries respond differently to macroeconomic developments (Hanniffa and Hudaib, 2006), we employ dummies for the five largest industries (*Trade and Services, Property, Plantations, Consumer Products and Industrial Products*) in our sample based on Bursa Malaysia Securities sector definitions. They account for 95.5 percent of the firms in our sample. According to Klapper and Love (2004), controlling for industry effect can help identify unobserved heterogeneity at the industry level.

4.2.4 Corporate performance measures

This study examines the relationship between corporate performance and government ownership, as well as various governance factors. To determine if there are any differences in performance of GLCs that owned by different types of GLICs and whether various governance factors have any significant impact to GLCs' performance, accounting and market-based performance measures are used as

proxies for corporate performance. Following prior literature (e.g. McConnell and Servaes, 1990; Haniffa and Hudaib, 2006; Najid and Rahman, 2011), we use return on assets, return on equity and Tobin's Q as alternate proxies for corporate performance.

4.2.4.1 Accounting-based performance measures

Return on assets (ROA) and return on equity (ROE) are used as proxies for accounting-based performance measures. ROA²⁵ is measured as net income divided by end of year total assets. ROA provides a measure for how efficient management is at using its assets to generate earnings. According to Chang and Choi (1988), this index is a more accurate measure for emerging economies, where the capital market is imperfect and the level of debt-equity ratio is usually high.

Meanwhile, ROE²⁶ shows how much profit a company generates with the money shareholders have invested. According to Thompson and Yeung (2001), ROE can accommodate the effects of different accounting procedures across industries and can minimize multi-linearity between companies' specific characteristics such as size, age and profitability.

ROA and ROE are displayed as a percentage; the higher their number, the better the company performance. Both of these variables widely employed in measuring firm performance by Vafeas (1999); Abdullah (2004); Bhagat and Black (2002); Rahman and Haniffa (2005); Ang and Ding (2006); Bhagat and Bolton (2008) and Chu (2009).

²⁵ ROA = net income/total assets

²⁶ ROE = net income/total shareholder's equity

They are also frequently used in assessing firm performance by market and financial analysts.

4.2.4.2 Market-based performance measure

Accounting-based performance proxies (ROA and ROE) only measure the past and current performance of a firm. However, market-based performance captures the expected future performance of a firm (Omran, 2009). One of the most common measure of firm's market performance is Tobin's Q (Welch, 2003).

The Tobin's Q ratio was introduced by James Tobin, who hypothesized that the combined market value of all the companies on the stock market should be about equal to their replacement costs. The actual definition of Tobin's Q by James Tobin is the market value of a firm divided by its replacement costs of assets (Lindenberg and Ross, 1981). It is usually possible to get an accurate estimate for the market value of a firm's assets by summing the values of the securities that a firm has issued, such as stocks and bonds. It is much more difficult to obtain an estimate of the replacement costs of its assets, unless markets for used equipment exist. However, since the information of replacement costs of assets is unavailable for Malaysian companies, we follow Elsayed and Paton's (2005)²⁷ and Chung and Pruitt's (1994)²⁸

$$^{27} \text{Tobin's Q} = \frac{\text{MV}(\text{CS}) + \text{BV}(\text{PS}) + \text{BV}(\text{LTD}) + \text{BV}(\text{INV}) + \text{BV}(\text{CL}) - \text{BV}(\text{CA})}{\text{BV}(\text{TA})}$$

Where; MV(CS)= market value of the commons stocks BV = book value
PS = preferred stocks LTD = firm long-term debt
INV = Inventory CL = Current liability
CA = Current assets TA = Total assets

²⁸ Chung and Pruitt (1994) approximated Tobin's Q, implicitly assuming that the replacement values of a firm's assets such as plant, equipment and inventories were equal to their book values (Ang and Ding, 2006)

approach and use book value instead. According to Chung and Pruitt (1994), at least 96.6 percent of the variability of Tobin's Q is explained by this approximate Q.

While there were advantages of the used of Tobin's Q as firm's market performance, this measure also had been critics as this ratio only emphasis on tangible assets such as plants, machines and inventory but neglects others importance intangibles assets, including brands and intellectual property. This is because, expenditures on advertising and research and development create intangible assets that may be hard to value. Typically, researchers who construct Tobin's q ignore the replacement costs of these intangible assets in their calculations. For that reason, q typically exceeds 1. In today's business environment, intangible assets such as goodwill have become a major consideration not only for management and companies but for potential investors on their decision making process. The importance of such assets as determinant of a company's value is well- recognized by the financial markets and become primary concerned in financial reporting standards.

Nevertheless, Tobin's Q is a more stable approach to estimate firm market value since the value of a firm's assets are not subjected to the same volatility as would share prices when valuation proxies such as price to book value or price to earnings are used (Ang and Ding, 2006). Therefore, this study employed Tobin's Q as our measure for market performance and as an indicator, a low q ratio implying that the firm's stock is currently undervalued and *vice versa*.

4.2.5 Model specifications and variable measurement

This study uses the following model (performance model) to test the hypotheses outlined above:

$$\begin{aligned} \text{PERFORMANCE}_{it} = & \alpha + \beta_1 \text{PIF_GLIC}_{it} + \beta_2 \text{FGLIC}_{it} + \beta_3 \text{GLIC_share}_{it} + \\ & \beta_4 \text{Golden_Share}_{it} + \beta_5 \text{BOD_SCS}_{it} + \beta_6 \text{BOD_POL}_{it} + \\ & \beta_7 \text{Size}_{it} + \beta_8 \text{Monopoly}_{it} + \beta_9 \text{Liquidity}_{it} + \beta_{10} \text{Leverage}_{it} + \\ & \beta_{11} \text{BODSIZE}_{it} + \beta_{12} \text{BODMEET}_{it} + \beta_{13} \text{BODINED}_{it} + \\ & \beta_{14} \text{Year2005}_{it} + \beta_{15} \text{Year2006}_{it} + \beta_{16} \text{Year2007}_{it} + \\ & \beta_{17} \text{Year2008}_{it} + \beta_{18} \text{Services}_{it} + \beta_{19} \text{Property}_{it} + \\ & \beta_{20} \text{Plantations}_{it} + \beta_{21} \text{Consumer}_{it} + \beta_{22} \text{PIndustrial}_{it} + \varepsilon_{it} \end{aligned}$$

In line with previous studies on the issue of ownership types and performance (see Chen et al., 2009; Ang and Ding, 2006; Ab Razak et al., 2011), we use dummy variables for our key variables which are PIF GLIC and FGLIC²⁹. For example, PIF GLIC is a dummy variable coded 1 for firm years in which the biggest shareholder is a PIF GLIC. Due to the use of dummy code (1 and 0), we have to drop one group of GLICs. In our study's case, we dropped GLCs owned by SEDCs from our regression model and they form the control sample for comparative purposes. This approach is a standard procedure related to the used of dummy code in comparing between variables in a regression model.

As previously discussed, BOD_SCS and BOD_POL denote the percentage of board members who are senior civil servants and politicians respectively. Meanwhile, GLIC_share is calculated as the shareholding percentage of the largest shareholder in a GLC. The golden share is a dummy variable coded 1 for firm years in which the

²⁹ In the additional analysis section, we use actual numerical ownership level of the GLICs as an alternative to dummy code.

MOF Inc. held a golden share in a firm. Table 4-3 explains the variable definitions and operationalisation for all variables employed in the regression model.

TABLE 4-3: Variable definitions and operationalisation

Variables	Acronym	Operationalisation
Dependent variables:		
Firm performance:		
i. return on assets	ROA	Net income divided by total assets
ii. return on equity	ROE	Net income divided shareholder's equity
iii. Tobin's Q	Tobin's Q	Firm market value (see section 3.4.4.2)
Independent variables:		
Federal government sponsored pension and investment funds owned GLCs	PIF GLIC	PIF GLIC is a dummy variable coded 1 for firm years in which the biggest shareholder is a PIF GLIC
Federal government owned GLCs	FGLIC	FGLIC is a dummy variable coded 1 for firm years in which the biggest shareholder is a FGLIC
GLIC ownership	GLIC_share	The shareholding percentage of the largest shareholder in a GLC
Golden share	Golden share	Golden Share is a dummy variable coded 1 for firm years in which the MOF Inc. held a golden share in a firm
Senior civil servants as directors on GLCs' board	BOD_SCS	BOD_SCS denote the percentage of board members who are senior civil servants
Politicians as directors on GLCs' board	BOD_POL	BOD_POL denote the percentage of board members who are politicians
Control Variables:		
Firm size	Size	Natural logarithm of GLC total assets that controls for differences in firm size
Market power/monopoly	Monopoly	Dummy variable coded 1 for firm years in which the MOD Inc. held a golden share in a firm
Liquidity	Liquidity	Current assets divided by current liability
Financial Leverage	Leverage	Proportion of debt to shareholder equity
Board size	BODSIZE	Total number of board members per year
Board meeting frequency	BODMEET	Total number of board meetings per year
Independent Non-Executive director on board	BODINED	The proportion of independent non-executive directors to the total number of directors on the board
Year dummies	Year_dummy	Dummy variables coded 1 for years within the test period (2004 to 2008)
Industry sector	Industry	Dummy variables coded 1 according to which sectors the company belongs to according to Bursa Malaysia Securities sector classifications

4.2.6 Data analysis procedures³⁰

This section discusses data analysis procedures and statistical tests employed in this study. Basically, the nature and characteristics of the sample data will determine which statistical method should be employed. As a first step, we performed several tests in order to fulfil several critical assumptions under the parametric test. Five important assumptions under parametric analysis are assumption of normality, linearity, multicollinearity, heteroscedasticity and autocorrelation. This is important to ensure that the model is able to predict part of the variability in the data and the test is extremely critical for the validity of the interpretation of the regression estimates (Gujarati, 2003). Under the violation of these assumptions, the main analysis under parametric test that is ordinary least square (hereafter OLS) can be statistically inefficient or even give misleading inferences (Baltagi, 2005; Greene, 2008).

In the second step, we discuss the empirical results from our statistical analyses. To summarize the data in a clear and understandable way, analysis starts with a descriptive statistic containing mean, median, standard deviation, minimum, maximum, skewness and kurtosis of 224 firm-year observations in the study. Then, we performed univariate analysis that involve Pairwise correlation matrix, two sample T-test of differences in means and Mann-Whitney U-test of differences in medians for our main variables which is the different type of GLICs.

³⁰ All continuous variables were winsorized at the top and bottom at 1% in order to reduce the effect of outliers and this method is consistent with previous studies such as Cornett, Marcus and Tehrani (2008) and Dhaliwal et al. (2009).

In the next step, we performed multivariate analysis to see the impact of our key variables on performance after controlling firm specific characteristics such as corporate governance, profitability, agency cost and industry. As the problem of endogeneity can limit the validity of empirical testing models (Chenhall and Moers, 2007) we performed a statistical test namely “Durbin-Wu-Hausman test” to detect the presence of endogeneity. The endogeneity of ownership structure and performance is a serious concern for a regression model. This is because if firm ownership structure based on input is related to corporate performance, then the residuals in regression would be correlated with the ownership variables and the coefficient estimates would be biased.

In addition, since the issue of ownership structure as argued and proved by various studies has the potential of reverse causality, as corporate performance might influence shareholders’ investment behaviour (Demstet and Lehn, 1985; Demstet and Villonga, 2001; Chang, 2003 and Al-Farooque, Zijl, Dunstan and Karim, 2007), we considered what drives ownership concentration of GLICs using an alternative model. We also performed various additional analyses including robustness checks to provide reasonable assurance for the current findings as well as to tackle several minor issues. Finally, we end our chapter with discussion on the contribution from the study, its limitations and our recommendations for future research.

4.2.7 Data diagnostic

Most of the multivariate regression in the prior literature used the OLS estimator to examine the relationship between a single dependent variable and several independent variables (predictors). Before using OLS estimation, there are five

fundamental assumptions need to be fulfilled for OLS regression models to be valid (Gujarati, 2003; Hair et al., 2010). These assumptions include:

- (i) Normality - The errors (residuals) should be normally distributed
- (ii) Linearity - The relationship between the predictors and the response variable should be linear.
- (iii) Homoscedasticity - The errors variance should be constant
- (iv) Independent - The errors associated with one observation are not correlated with errors of other observation.
- (v) Multicollinearity - There is no exact collinearity among predictors.

Each of these assumptions are tested using various statistic analyses and the next five sub-sections outline the results and discussions.

i) Assumption of normality

One of the important assumptions underlying OLS regressions is that the data must be drawn from normally distributed populations. It is assumed that residuals in a model are randomly and normally distributed with a mean of zero. Following the example of checking normality of residuals by Chen, Ender, Mitchell and Wells (2003), we conducted both graphical and numerical tests³¹ for testing normality and detect the presence of outliers. The graphic tests used Kernel density estimate, normal probability plot and quantiles plot. Meanwhile, for numerical test we employed the statistical test namely Shapiro-Wilk test (Swilk test) and Inter-quartile range test to check this assumption. According to Chen et al., (2003), the Swilk test

³¹ Numerical test is the test that expressed in or counted by numbers

is the most powerful normality test available as it is able to detect a small departure from normality.

The graphic test using Kernel density estimate is presented in Figure 4-1. In the test, the normal density line should be overlaid on the kernel plot as an indication of data normality. However, the results show a serious deviation from normal and indicated that the residuals in the model are not normally distributed. The standardized normal probability plot test (P-P plot) and quantiles plot test are in Figure 4-2 and Figure 4-3 respectively. While standardized normal probability plot test sensitive to non-normality in the middle range of the data, the quantiles plot is sensitive to non-normality near the tails. In both plots, there are clearly significant deviations from the normal plot. This indicates that based on graphic tests, the data of this study are not normally distributed.

In the first numerical test, the null hypothesis of Swilk test is that the residuals are normally distributed. If the p -value is significant, then the null hypothesis would be rejected, suggesting the residuals are not independently distributed. Table 4-4 confirm that the normality of residuals are not being fulfilled since the p -value is significant at $p < 0.000$. This indicates that the residuals are not normally distributed.

In the second numerical test, the inter-quartile range (IQR) test assumes symmetry of distribution. Severe outliers consist of those points which are either 3 inter-quartile-ranges below the first quartile or 3 inter-quartile-ranges above the third quartile. The presence of any severe outliers should be sufficient evidence to reject normality at a

5% significance level. In our case, we have severe outliers (Table 4-5) and therefore, the assumption of data normality is not fulfilled.

FIGURE 4-1: Kernel density estimate test

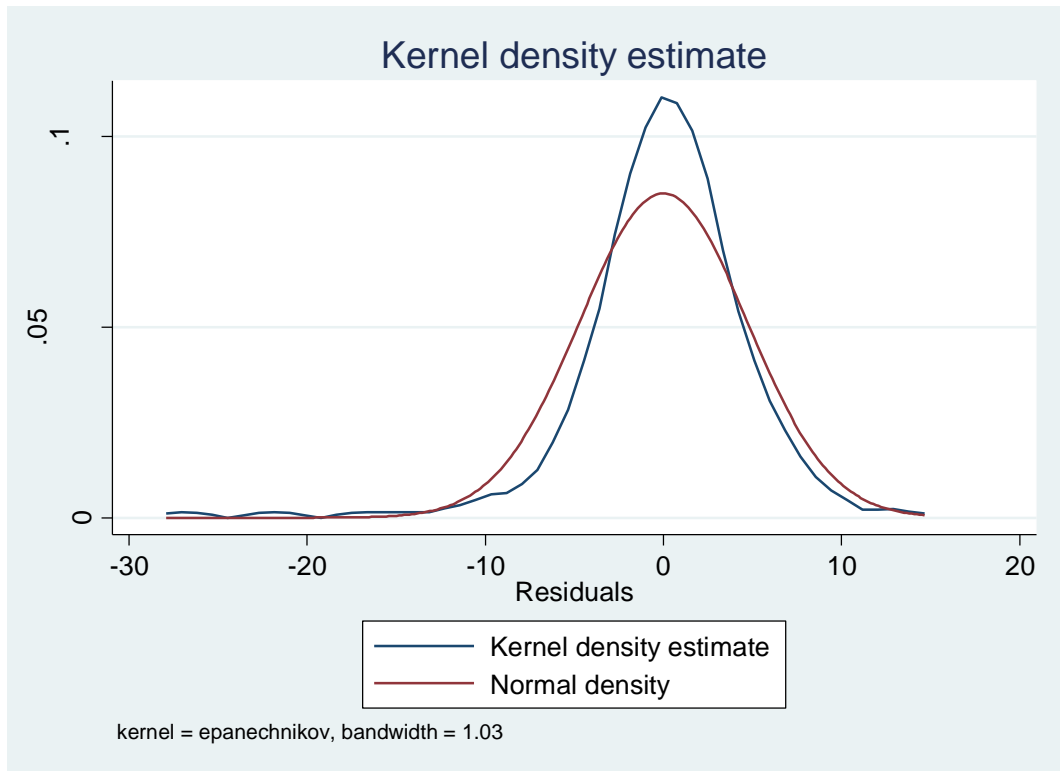


FIGURE 4-2: Standardized normal probability plot test (P-P plot)

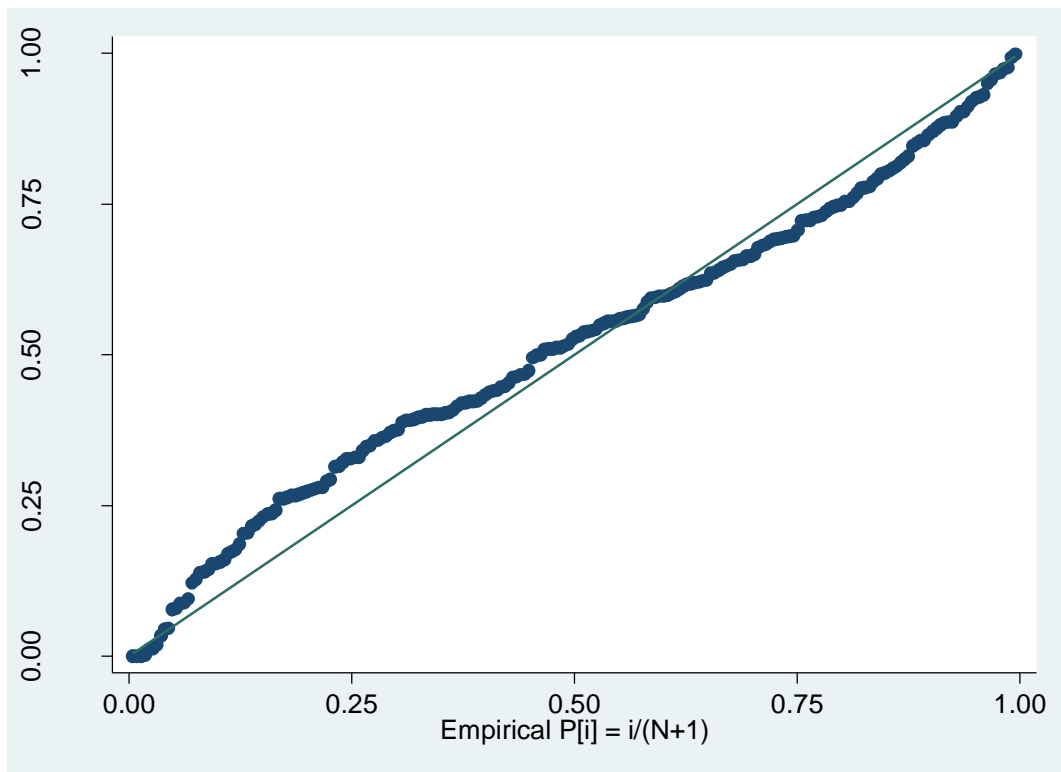


FIGURE 4-3: Quantiles plot test

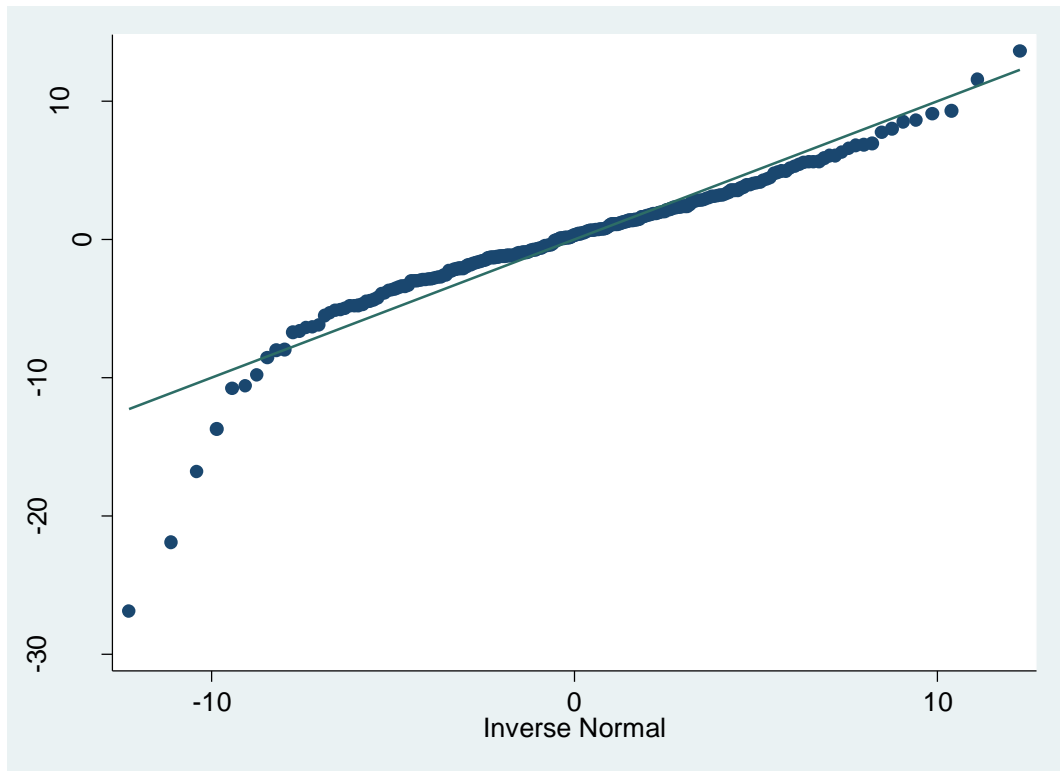


TABLE 4-4
Checking Normality - Swilk Test

Variable	Observation	W	V	z	Prob>z
r	224	0.90565	15.540	6.348	0.00000

TABLE 4-5
Checking Normality of Residuals Using Inter-Quartile Range Test

Mean = -3.70	std.dev.= 4.69	(n= 224)	
Median = 0.3306	pseudo std.dev.= 3.387	(IQR= 4.569)	
10 trim = 0.2306			
		low	high

	inner fences	-8.938	9.339
	# mild outliers	4	2
	% mild outliers	1.79%	0.89%
	outer fences	-15.79	16.19
	# severe outliers	3	0
	% severe outliers	1.34%	0.00%

ii) Assumption of linearity

This assumption suggests that the model should have linear parameters where the relationship between dependent and independent variables follows a straight line or linear. To check the linearity assumption, the graphs of standardised residuals plotted against each of the independent variables in the regression model and visual method determine whether a linear pattern exists between the variables.

Augmented partial residual plot for non-dummy independent variables (GLIC_share, BOD_SCS and BOD_POL) in Figure 4-4, Figure 4-5 and Figure 4-6 respectively, shows that data points asymmetrically scattered from the ordinary regression line in the plot with serious outliers. Further investigation on the pattern of the relationship between response variable (using ROA as an example) and predictors using Graph matrix test is performed as presented in Figure 4-7, Figure 4-8 and Figure 4-9 for the above variables. The Graph matrix test shows the entire pattern (e.g. GLIC_share vs ROA, BOD_SCS vs ROA and BOD_POL vs ROA) seems not uniform thus confirmed the non-linear relation between these variables with one of the performance measures. Therefore, the assumption of a linear relationship between response variables and predictors is not fulfilled.

FIGURE 4-4: Augmented partial residual plot for GLIC SHARE

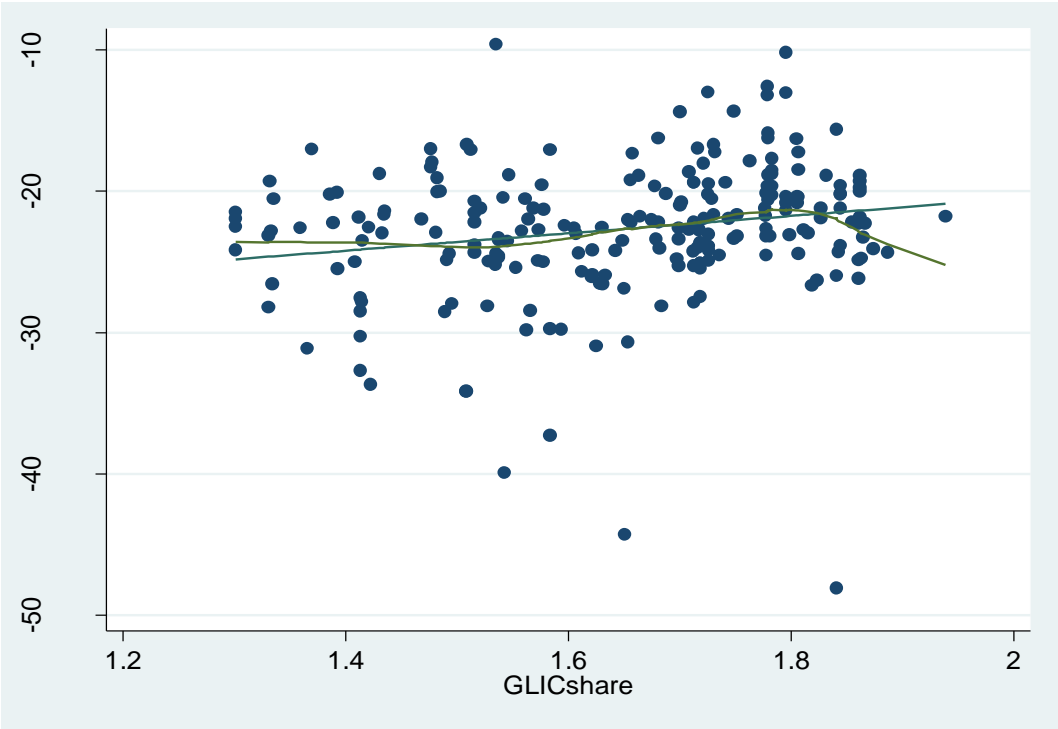


FIGURE 4-5: Augmented partial residual plot for BOD_SCS

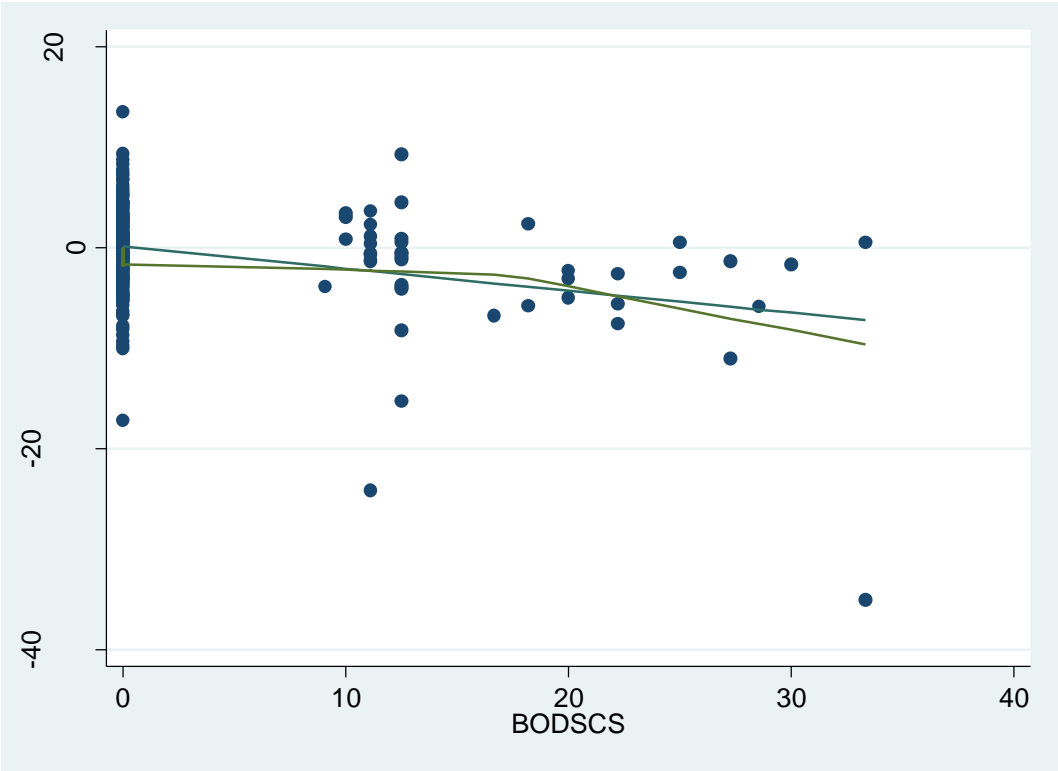


FIGURE 4-6: Augmented partial residual plot for BOD_POL

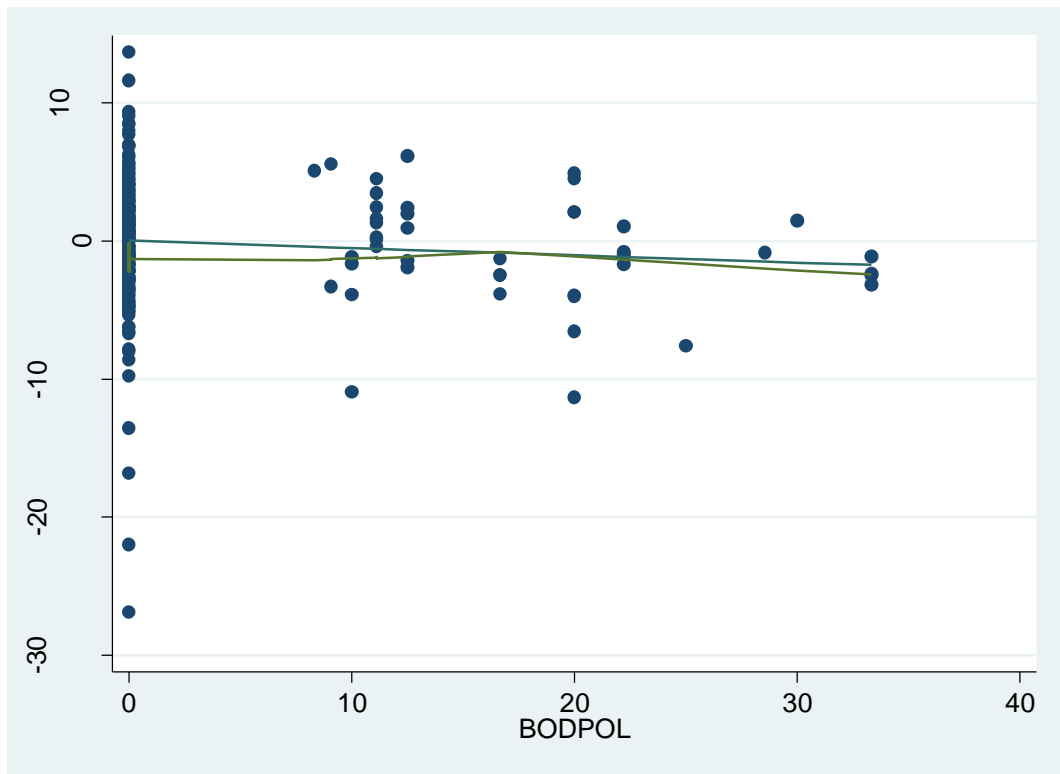


FIGURE 4-7: Graph Matrix GLIC SHARE vs ROA

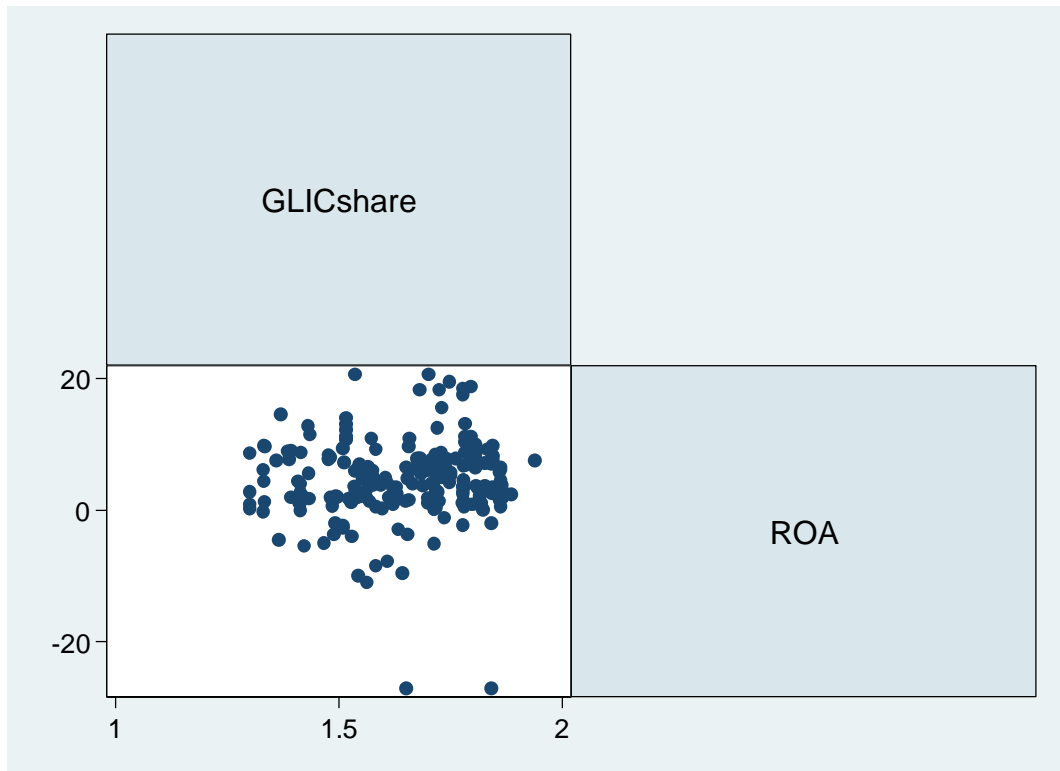


FIGURE 4-8: Graph Matrix BOD_SCS vs ROA

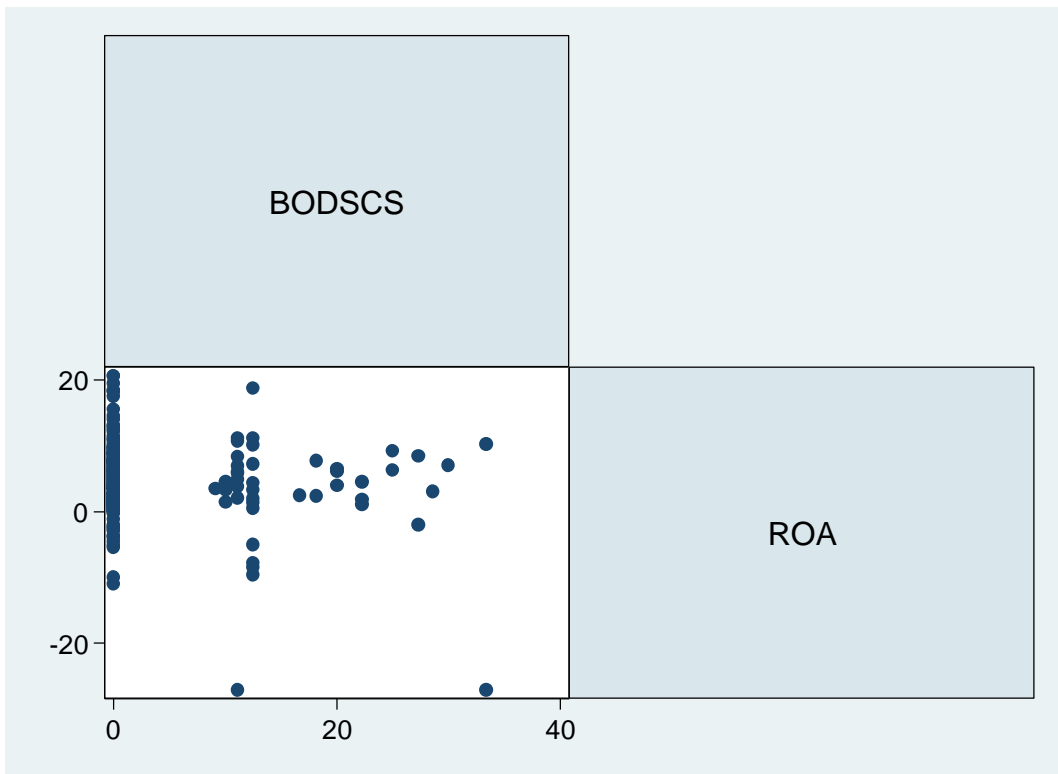
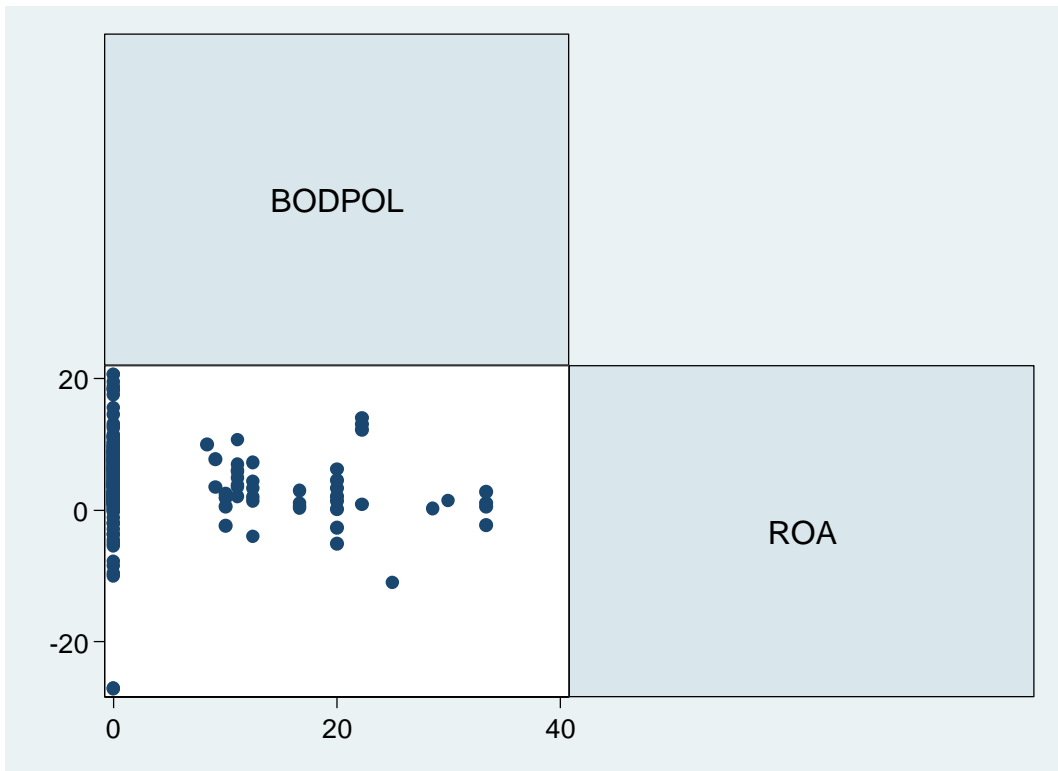


FIGURE 4-9: Graph Matrix BOD_POL vs ROA



iii) Assumption of homoscedasticity

Another important assumption in a regression model is that the standard deviation (or variance) of error terms is constant or homogeneous where the error terms all have the same variance (Gujarati, 2003). In the case of unequal variance (heteroscedasticity), the OLS estimators are no longer efficient and would make the usual hypothesis-testing procedure of dubious value (Gujarati, 2003). The presence of outliers and skewness in the distribution of one or more regressors included in the model are among the sources of heteroscedasticity. To test the presence of heteroscedasticity problem, scatter plots, White's test and Breusch-Pagan test are performed as recommended by Chen et al., (2003) and Baum (2006).

Figure 4-10 illustrates the heteroscedasticity test using a scatter plot. The plot shows that most of the x value (in our case ROA value) is not concentrated around the mean of y in our main model and the pattern of distribution also does not look like an oval shape (the rules of homoscedasticity may have been violated if the other geometric shape other than oval shape appears) with extreme outliers in both directions of y line. Since the scatter plot alone does not show strong evidence of the presence of heteroscedasticity, further investigation is needed using numerical tests.

The numerical tests for heteroscedasticity employed in this study are White's Test and Breusch-Pagan/Cook-Weisberg Test which is widely used to detect heteroscedasticity. In White's Test, if the p -value is significant, then the null hypothesis that the variance of the residuals is homogenous would be rejected, suggesting that heteroscedasticity exists. Meanwhile, in Breusch-Pagan/ Cook-

Weisberg test, a large chi-square value plus significant p -value of chi-square would indicate the present of heteroscedasticity.

Table 4-6 presents the results of White's tests. The results suggest that no heteroscedasticity in all model as the p -value is insignificant ($p > 0.01$) suggesting no heteroscedasticity. However, further investigation using Breusch-Pagan/ Cook-Weisberg test (Table 4-7) shows a significant p -value ($p < 0.01$) in ROA model ($p = 0.0532$) and significant p -value ($p = 0.0000$) together with a large chi-square value (37.33) in Tobin's Q model, indicating the presence of heteroscedasticity in two of our regression models, namely ROA and Tobin's Q model.

FIGURE 4-10: Heteroscedasticity Test for ROA model – Diagnostic plot

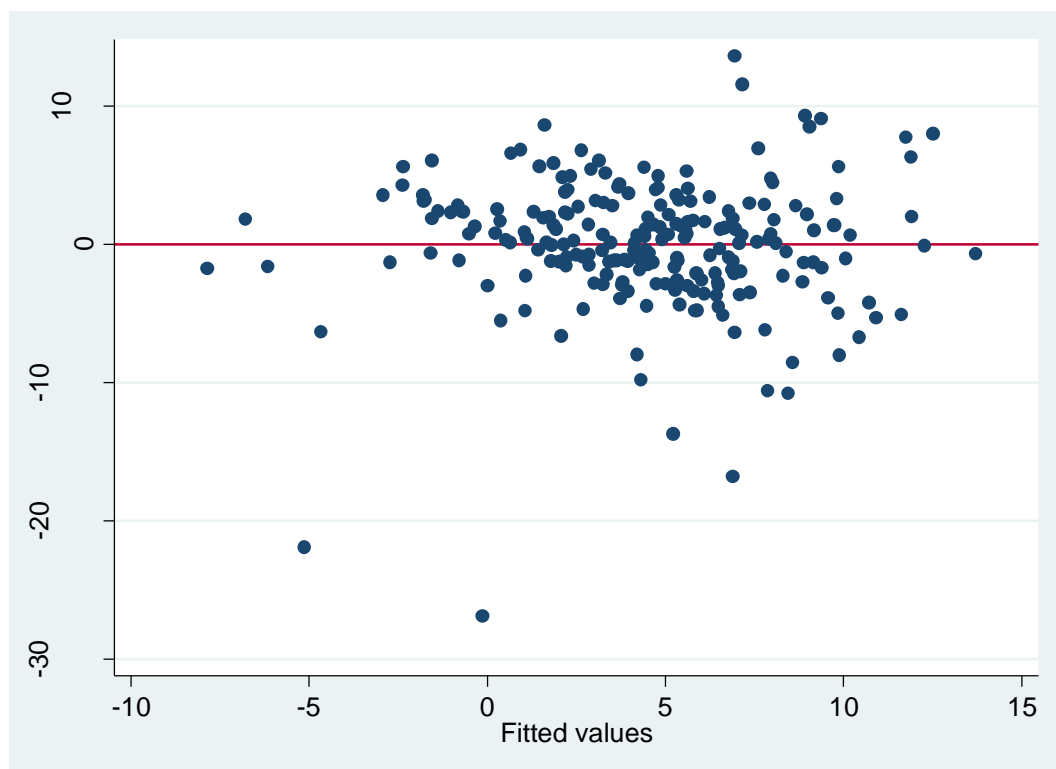


TABLE 4-6:
Numerical Test for Heteroscedasticity using White's Test

<i>White's Test</i>			
H ₀ = The variance of the residuals is homogenous Reject H ₀ if p-value is significant			
Source	chi2	Df	p-value (significant)
ROA MODEL			
Heteroskedasticity	222.71	220	0.4363
Skewness	37.38	22	0.0215
Kurtosis	2.45	1	0.1175
Total	262.53	243	0.1858
ROE MODEL			
Heteroskedasticity	220.14	220	0.4846
Skewness	20.40	22	0.5578
Kurtosis	3.88	1	0.0490
Total	244.42	243	0.4623
TOBIN'S Q MODEL			
Heteroskedasticity	223.87	220	0.4147
Skewness	28.27	22	0.1670
Kurtosis	1.80	1	0.1800
Total	253.94	243	0.3019

TABLE 4-7:

**Numerical Test for Heteroscedasticity using Breusch-Pagan/
Cook-Weisberg Test**

<i>Breusch-Pagan/Cook-Weisberg Test</i>			
H ₀ = The variance of the residuals is homogenous Reject H ₀ if chi-square is significant			
Source	chi2 (1)	Prob > chi2	
ROA MODEL	3.74	0.0532	
ROE MODEL	2.62	0.1056	
TOBIN'S Q MODEL	37.33	0.0000	

iv) Assumption of no autocorrelation (independent error terms)

Another important OLS assumption is that error terms are independent. Autocorrelation (serial correlation) is a condition where there is correlation between error terms of dataset of one period (t) with previous period ($t-1$). In this situation, the error terms are not independent and could give incorrect t values and confidence intervals in regression. To test the presence of autocorrelation in the model, we performed Durbin-Watson d-statistic. In addition, the Breusch-Godfrey Lagrange Multiplier tests were also performed to detect the presence of serial correlation in regression. As a rule of thumb, if the value of Durbin-Watson d-statistic approaches a value of 2 (value of 1 or -1 are perfect autocorrelation), there is no autocorrelation among error terms. For Breusch-Godfrey Lagrange Multiplier tests, a large chi-square value plus significant p -value of chi-square would indicate the presence of autocorrelation.

Results of Durbin-Watson d-statistic indicate there is autocorrelation in the model as the value approaches 1, particularly in ROE and TOBIN'S Q models. Full results of Durbin-Watson d-statistics are as follows:

ROA model = 1.434129

ROE model = 1.152762

TOBIN'S Q model = 0.846083

Further tests using Breusch-Godfrey Lagrange Multiplier tests in Table 4-8 confirmed the presence of autocorrelation with a large chi-square value that is highly significant ($p < 0.001$). Therefore we must reject H_0 suggesting there are serial correlations in the models. Therefore, the OLS assumption of error terms being independent is not fulfilled.

TABLE 4-8

Test for Autocorrelation using Breusch-Godfrey Lagrange Multiplier Test

Breusch-Godfrey Lagrange Multiplier Test			
H_0 = no serial correlation Reject H_0 if chi-square is significant			
Lags (1)	chi2	df	Prob > chi2
1	18.384	1	0.0000
1	42.983	1	0.0000
1	76.002	1	0.0000

v) Assumption of no multicollinearity

Table 4-12 in Section 4.3.2.1 (p. 143) presents the Pairwise correlation matrix for the variables used in the regression analysis. The results show that variables *BOD_SCS* and *Golden share* are highly correlated with correlation coefficient of more than 80%. According to Gujarati (2003), the rule of thumb for checking the serious problem of multicollinearity is that no correlation between independent variables must be greater than 0.80. Since correlation coefficient between *BOD_SCS* and *Golden shares* exceeds this threshold, further investigation is needed.

To further investigate whether our model would be free from multicollinearity problems, we calculated the variance inflation factor (VIF) and conducted a tolerance value test. The VIF is used to test whether an independent variable has a strong linear relationship with another independent variable. In the presence of multicollinearity, the variance of an estimator is inflated and, as a rule of thumb, if the value of VIF of a variable exceeds 10 or tolerance value (1/VIF) lower than 0.10, that variable is said to be highly collinear (Gujarati, 2003). As shown in Table 4-9, VIF values of all variables show figures below 10 and tolerance values above 0.10. The VIF ranges between 1.30 and 5.29.

Moreover, our regression results in main findings show that we don't have a problem of "few significant *t* ratios, but a high overall R^2 and a significant *F* value" (Gujarati, 2003) as one of the signal of multicollinearity. Therefore, we can conclude that multicollinearity is not a problem for this study.

TABLE 4-9: Test for multicollinearity

Variable	Variance inflation factor (VIF)	Tolerance value (1/VIF)
Services industry	5.29	0.189174
Golden share	5.13	0.194909
BOD_SCS	4.10	0.243996
Properties industry	4.06	0.246030
FGLIC	3.81	0.262463
Plantations industry	3.23	0.309406
PIF GLIC	2.67	0.374991
Industrial product industry	2.55	0.391585
Consumer industry	2.52	0.397049
Monopoly	1.98	0.505379
Firm size	1.94	0.514816
BOD_meeting	1.77	0.563757
Year 2008	1.66	0.602211
Year 2006	1.64	0.610554
Year 2007	1.63	0.613531
Year 2005	1.60	0.623593
GLIC share	1.57	0.638062
BOD_POL	1.56	0.640874
BOD_INED	1.38	0.726367
Gearing	1.37	0.730092
Liquidity	1.30	0.769712
BOD_size	1.30	0.769809
Mean VIF	2.46	

4.2.8 Dealing with outliers and missing data

Generally we find in our model that most of the assumptions under parametric test cannot be met. As previously discussed, one of the main cause of data non-normality

and heteroscedasticity problem is the presence of outliers in the data set (Gujarati and Porter, 2009).

However, the decision to remove outliers from the data set in a regression analysis can be difficult because it may affect regression interpretation in undesirable ways (Wooldridge, 2000) and usually generates new extreme outliers. This issue is common as deletion of outliers often results in the generation of further outlying cases (Coakes and Steed, 1999).

Alternatively, to soften the impact of outliers, Hamilton (1992) suggested data transformation where individual variables with extreme outliers are transformed into most commonly used transformations to normalize the data such as logarithm and square-root. However, while data transformation makes a distribution less skewed, it also alters the relationship between the original variables in the model. Moreover, many commonly used transformations require non-negative data or data that is greater than zero, which limits their applications.

We observed that the outliers in our data are genuine and drawn from reliable sources (e.g. annual reports). In this instance, we rely on Hair et al. (2010) that the deletion of outliers is not favourable unless if there is a strong justification based on researchers' evaluation and judgement. In addition, according to Hair et al., (2010) as outliers are deleted, the researcher runs the risk of improving the econometric analysis but limiting its generalizability. This is because the outliers of some variables might represent a segment of the population and should be retained to ensure generalizability to the entire population.

Based on the above discussion, we decided not to remove outliers from our dataset. However, to mitigate the impact of extreme outliers in our dataset, following Cornett et al. (2008) and Dhaliwal et. al, (2009), we winsorized all the continuous variables in our dataset at the top and bottom at 1%. In this method, we convert the values of data points that are outlyingly high to the value of the highest data point not considered to be outliers. All the data points involved in this exercise must be within the range of 1% at the top and bottom of dataset.

In relation to the missing data, we found that there are some random cases where data are missing, particularly the financial data (involved less than 10 cases). Following Hair et al., (2010), we replace the missing data with the mean of the valid data of that particular variable.

4.2.9 Robust regression as alternative to the OLS regression methods

As previously discussed, under the violation of parametric assumptions, the OLS regression methods are statistically inefficient or even give misleading inferences, for example incorrect estimates of coefficients and standard errors (Baltagi, 2005; Greene, 2008; Gujarati and Porter, 2009). To deal with the issue, robust regression methods seem alternatives to the OLS regression methods when the fundamental assumptions are unfulfilled by the nature of the data. Hamilton (1992) argued that robust regression method have better statistical properties than OLS in term of efficiency, more accurate confidence intervals and tests. This is for the reason that, robust regression methods resist extreme values and do not assume normality.

Furthermore, the results of robust regressions generally more convincing because they should visualize the entire data and not just a few outliers as OLS regression.

One of the robust regressions test under the family of robust regression methods is robust (Eicker-Huber-White heteroskedastic-consistent) standard errors³² (hereafter referred to as robust standard errors). As part of the robust family, robust standard errors not only take into account issues concerning heterogeneity and lack of normality but also can deal with some observations that exhibit large residuals, leverage or influence (Chen et al., 2003). In the robust standard errors option, the point estimates of the coefficients are exactly the same as in OLS.

Taking into account the advantages of robust regression over OLS regression method under the violation of parametric assumptions, this study applies a robust standard errors method in our main analysis to examine the association between ownership structure and corporate governance variables with financial performance in our model. In our robustness analysis, we also compare results from robust standard errors with other regression estimators to ensure our model robust to the specifications of various regression estimators.

³² In StataSE 10, we use the *regress* command which includes a robust option (*vce*) and we select best for heteroskedastic (*hc3*). The selection of *hc3* is recommended strongly by Davidson and MacKinnon (1993) particularly in the presence of heteroscedasticity and when the study used small sample size (MacKinnon and White, 1985; Davidson and MacKinnon, 1993).

4.3 Empirical results and analysis

4.3.1 Descriptive Statistics

Tables 4-10 and Table 4-11 summarize key descriptive statistics of the variables containing mean, median, standard deviation, minimum, maximum, skewness and kurtosis of a 224 firm-year observation in the study for the period of 2004 until 2008.

The data shows that average mean for ROA and ROE as around 4.49 percent and 10.73 percent respectively, which is higher than the mean of 2.56 percent for ROA in the study by Haniffa and Hudaib (2006). The difference might be because the study by Haniffa and Hudaib (2006) covered a period from 1996 to 2000, when most firms were severely hit by economic downturn during the Asian Financial Crisis that started in 1997/98, whereas our study covers the period of post-Asian Financial Crisis. Firm values measured by Tobin's Q reported a mean of 0.85 implying that firm stock is currently undervalued. The value is slightly lower than the value of 1.13 found in the Haniffa and Hudaib (2006) study. This is partly because, until 2006, Bursa Malaysia Securities still had some 200 companies trading at a more than 50 percent discount to their book values following the Asian Financial Crisis (James, 2006).

The data also show a large difference between accounting performance, ROA and ROE (e.g. median ROA=4.12 and median ROE=8.08). However, these are comparable to other studies in Malaysia. For example, a recent study by Najid and Rahman (2011) on the relationship between government ownership and performance

of GLCs in Malaysia found a big difference between the median of ROA and ROE. Based on the sample of listed GLCs covering the period of 2001 to 2006, they found the all-year median of ROA is 0.0407 as compared to 8.1300 for ROE. Interestingly, they also found that this trend exists in non-GLCs where the median of ROA is 0.0475 compared to 10.5450 for ROE.

In relation to ownership, the data show that the average degree of ownership of controlling GLICs (*GLIC_share*) is about 47.09 percent with maximum of 86.81 percent. This confirmed earlier findings by Tam and Tan (2007) that ownership concentration is prominent and entrenched in Malaysia. However, the average ownership stake above is slightly lower than found by Najid and Rahman (2011) in their study on the relationship between government ownership and performance of Malaysian GLCs where the average ownership stake of controlling GLICs is about 51 percent. Differences in sample periods may explain the decline in average ownership stake of the GLICs above, where Najid and Rahman (2011) use the 6-year period of 2001-2006 in their study whereas this study using 5-year period of 2004-2008. There is the possibility of divestment activities through initiatives under the GLC Transformation Programmed which aims to transform GLCs into high-performing entities to be among the cause of the decrease in the average of GLICs shareholdings in GLCs.

The maximum number of senior civil servants and politicians on the board of GLCs is 4 and 3 respectively. The data also suggest that there is a high degree of variation in the percentage of senior civil servants (*BOD_SCS*) and politicians (*BOD_POL*) on the boards of directors of GLCs where in some GLCs there is no board of members

at all from senior civil servants or politicians but in some GLCs, the percentage up to 33.33 percent of the total size of the board of directors.

With regards to control variables related to firm's specific financial data, the mean of total assets is £1.2 billion and the mean for liquidity is 2.74 with minimum and maximum value of 0.36 and 18.36 respectively. The mean for leverage is 0.60, suggesting that on average GLCs have a relatively higher percentage of leverage.

In relation to the control variables related to corporate governance variables, we find that the corporate board size ranges between 5 and 12 with an average of 8.30. This average size of the board almost the same as that found in studies by Haniffa and Hudaib (2006) of 7.94 and Mohd Ghazali (2010) of 8.83.

However, the average of 8.30 is lower than the average board size of 11.33 in the US as documented by Laksmana (2008). In terms of board meeting frequency, there is a big difference between the minimum numbers of meetings, 3 times per year with a maximum number of meeting, 19 times per year with the average number of meetings is about 7.73 times per year. The average board meeting of 7.73 times per year indicates that board of GLCs in Malaysia meet less frequently than their counterparts in the UK who were reported by Zaman, Hudaib and Haniffa (2011) meet in average 8.78 times per year.

In term of board composition, the mean number of independent non-executive directors on the board for all years is 3.69 (44 percent) which complied with the recommendation by Malaysia Code on Corporate Governance (2007) that

independent directors should make up at least one third from total number of board of directors.

In Table 4-11, the majority of GLCs are owned by federal government sponsored pension and investment funds (PIF GLIC) (39 percent), followed by federal government owned GLICs (FGLIC) (35 percent), and SEDCs (25 percent). 42 observations or 18 percent of GLCs have golden share provisions.

TABLE 4-10:**Descriptive statistics for non-dummy variables (N=224)**

Variables	Mean	Median	Standard Deviation	Minimum	Maximum	Skewness	Kurtosis
ROA	4.49	4.12	5.97	-27.03	20.55	-1.04	9.50
ROE	10.73	8.08	14.37	-32.55	49.97	0.33	4.27
Tobin's Q	0.85	0.68	0.59	-0.04	4.21	1.71	7.76
GLIC_share	47.09	48.14	15.39	20	86.81	0.06	2.02
BOD_SCS	3.22	0	7.21	0	33.33 (no. = 4)	2.30	7.65
BOD_POL	3.40	0	7.64	0	33.33 (no.= 3)	2.28	7.46
Size	£1.2b	£0.36b	1.19	£0.16b	£13.9	3.49	16.16
Liquidity	2.74	1.70	3.06	0.36	18.36	2.93	12.42
Leverage	0.60	0.35	0.86	0	5.46	2.97	14.06
BODSIZE	8.30	8	1.57	5	12	0.02	2.63
BODMEET	7.73	7	3.57	3	19	1.02	3.48
BODINED	3.69	3	1.14	2	8	1.26	4.65

The variables are the following: ROA (return on assets); ROE (return on equity); Tobin's Q (market value); GLIC_share (the degree of GLIC share ownership in GLC); BOD_SCS (the number of senior civil service on the board of GLCs), BOD_POL (the number of politicians on the board of GLCs), Size (firm's total assets); Liquidity (the proportion of current assets to current liability); Leverage (the proportion of debts to shareholder's equity); BODSIZE (the numbers of board members per year); BODMEET (the number of board meeting per year); BODINED (the number of independent non-executive director on the board of GLCs).

TABLE 4-11:**Descriptive statistics for dummy variables**

Variables	Mean	Median	Standard Deviation	Min	Max	Skewness	Kurtosis	N
PIF GLIC	0.39	0	0.49	0	1	0.41	1.17	89
FGLIC	0.35	0	0.47	0	1	0.61	1.38	79
SEDC	0.25	0	0.43	0	1	1.15	2.33	56
Golden share	0.18	0	0.39	0	1	1.60	3.56	42

The variables are the following: PIF GLIC (GLCs owned by federal government sponsored pension and investment funds), FGLIC (GLCs that owned by federal government owned GLICs); SEDC (GLC that owned by State Economic Development Corporations); Golden share (GLCs with golden shares provisions).

4.3.2 Univariate analysis

4.3.2.1 Pairwise correlation matrix

Table 4-12 presents the Pairwise correlation for the independent variables. It indicates that all independent variables are moderately inter-correlated, except the variables *BOD_SCS* and *golden share*. The high correlation coefficient (0.80) between these variables is not unexpected, since one of the means by which the Ministry of Finance Incorporated monitors these firms is to appoint senior civil servants to their boards to act as the “eyes and ears” of government. However, it poses a potential multicollinearity problem. This issue has been discussed previously in the data diagnostic section, where after further tests we conclude that the multicollinearity is not detrimental to the results of the multivariate analysis.

It is interesting to highlight that there is a negative correlation ($p < 0.01$) between all performance measures with GLCs owned by SEDC. Similar results are found in the univariate relationship between variable politicians on the board of GLCs and performance where all performance measures are negatively correlated with politicians.

TABLE 4-12: Pairwise correlation matrix

		1	2	3	4	5	6	7	8
1	ROA	1.000							
2	ROE	0.79 (0.00)	1.000						
3	TOBIN'S Q	0.42 (0.00)	0.48 (0.00)	1.000					
4	PIF GLIC	0.24 (0.00)	0.14 (0.02)	0.10 (0.11)	1.000				
5	FGLIC	-0.03 (0.55)	0.10 (0.11)	0.18 (0.00)	-0.59 (0.00)	1.000			
6	SEDC	-0.23 (0.00)	-0.28 (0.00)	-0.32 (0.00)	-0.46 (0.00)	-0.42 (0.00)	1.000		
7	GLIC Share	0.07 (0.29)	0.13 (0.03)	-0.13 (0.03)	0.00 (0.89)	-0.10 (0.10)	0.11 (0.09)	1.000	
8	Golden share	0.02 (0.74)	0.12 (0.07)	0.05 (0.40)	-0.39 (0.00)	0.65 (0.00)	-0.27 (0.00)	0.00 (0.92)	1.000
9	BOD_SCS	-0.14 (0.03)	-0.04 (0.46)	-0.05 (0.45)	-0.36 (0.00)	0.56 (0.00)	-0.21 (0.00)	0.13 (0.03)	0.80 (0.00)
10	BOD_POL	-0.15 (0.02)	-0.13 (0.05)	-0.18 (0.00)	-0.32 (0.00)	-0.01 (0.79)	0.39 (0.00)	0.04 (0.51)	0.16 (0.01)
11	SIZE	-0.04 (0.45)	0.16 (0.01)	0.17 (0.01)	-0.02 (0.74)	0.30 (0.00)	-0.31 (0.00)	0.32 (0.00)	0.42 (0.00)
12	Monopoly	-0.04 (0.51)	0.04 (0.50)	0.04 (0.55)	-0.14 (0.03)	0.33 (0.00)	-0.20 (0.00)	-0.11 (0.08)	0.55 (0.00)
13	Liquidity	0.28 (0.00)	0.09 (0.14)	0.04 (0.47)	0.30 (0.00)	-0.17 (0.00)	-0.15 (0.01)	-0.00 (0.94)	-0.08 (0.21)
14	Leverage	-0.09 (0.14)	-0.04 (0.47)	-0.09 (0.16)	-0.11 (0.07)	0.18 (0.00)	-0.06 (0.31)	0.01 (0.79)	-0.06 (0.32)
15	BOD_SIZE	0.02 (0.66)	0.01 (0.79)	-0.03 (0.65)	-0.09 (0.14)	0.04 (0.53)	0.06 (0.32)	0.21 (0.00)	0.20 (0.00)
16	BOD meeting	-0.19 (0.00)	-0.20 (0.00)	-0.04 (0.54)	-0.22 (0.00)	0.46 (0.00)	-0.25 (0.00)	-0.02 (0.70)	0.45 (0.00)
17	BOD INED	0.04 (0.51)	0.03 (0.56)	0.13 (0.04)	-0.00 (0.89)	-0.03 (0.65)	0.04 (0.51)	-0.14 (0.03)	0.01 (0.87)

		9	10	11	12	13	14	15	16	17
9	BOD_SCS	1.000								
10	BOD_POL	0.01 (0.87)	1.000							
11	SIZE	0.35 (0.00)	-0.00 (0.92)	1.000						
12	Monopoly	0.52 (0.00)	0.07 (0.28)	0.31 (0.00)	1.000					
13	Liquidity	-0.13 (0.04)	-0.08 (0.23)	-0.16 (0.01)	-0.07 (0.25)	1.000				
14	Leverage	-0.09 (0.16)	-0.04 (0.51)	0.22 (0.00)	-0.02 (0.67)	-0.18 (0.00)	1.000			
15	BOD_SIZE	0.19 (0.00)	0.12 (0.06)	0.09 (0.17)	0.24 (0.00)	-0.06 (0.30)	-0.13 (0.04)	1.000		
16	BOD meeting	0.40 (0.00)	0.11 (0.09)	0.32 (0.00)	0.42 (0.00)	-0.09 (0.15)	0.19 (0.00)	0.24 (0.00)	1.000	
17	BOD INED	-0.02 (0.65)	-0.08 (0.18)	0.06 (0.36)	-0.06 (0.35)	-0.13 (0.03)	0.12 (0.06)	-0.11 (0.08)	-0.03 (0.58)	1.000

4.3.2.2 The impact of different types of GLICs on GLC performance (H₁, H₂ and H₃)

Table 4-13 provides a comparison of differences of mean and median corporate performance of GLCs according to different types of controlling GLICs. These preliminary tests support our prediction that corporate performance of portfolio companies owned by PIF GLIC and FGLIC is higher than corporate performance of portfolio companies owned by SEDC. For example, in Panel 1, portfolio companies owned by PIF GLIC recorded higher mean and median Tobin's Q of 0.93 and 0.75 respectively compared to lower values of Tobin's Q for portfolio companies owned by SEDCs, which have both a mean and median of 0.51. The results are supported statistically ($p < 0.01$) as shown in our Pairwise comparison table in Panel 2 with the t -value in the result of Two-Sample t -test of differences in means of 5.6743 and the z -value in the results of Mann-Whitney U-test of differences in medians of 4.755. Similar trends are found for corporate performance measures by ROA and ROE. As indicated above, these results largely support hypothesis 2 and hypothesis 3.

Concerning hypothesis 1, although mean ROA and ROE performance of GLCs owned by PIF GLIC (ROA=6.36%, ROE=13.34%) is slightly higher than mean ROA and ROE performance of GLCs owned by FGLIC (ROA=5.03%, ROE=12.24%), the opposite results were recorded for mean and median Tobin's Q performance which suggests the market performance of GLCs owned by FGLIC outperformed the market performance of GLCs controlled by PIF GLIC.

In terms of the median performance of PIF GLIC and FGLIC, the median ROE of GLCs owned by PIF GLIC (9.88%) is slightly better than median ROE GLCs

controlled by FGLIC (9.56%) but opposite results were found for ROA (PIF GLIC = 6.04%; FGLIC = 6.97%).

Even though the Two-Sample *t*-test for the differences in means of the ROA performance (PIF GLIC versus FGLIC) shows that the difference in means between both groups is statistically significant (*t*-value of 2.1537, $p < 0.05$), the difference in medians between PIF GLIC and FGLIC is not significant. Moreover, both differences in means and medians for ROE and Tobin's Q between these two groups of GLICs are also insignificant.

Therefore, based on the above statistics tests, we conclude that while the results support hypothesis 2 and hypothesis 3, they fail to support hypothesis 1. The results of multivariate regression in the next section clarify this issue more clearly.

TABLE 4-13

Corporate performance of GLCs by different types of controlling GLICs

Panel 1: Means and medians corporate performance for GLCs with different type of GLICs

	PIF GLIC (N=89)		FGLIC (N=79)		SEDC (N=56)	
	Mean	Median	Mean	Median	Mean	Median
ROA	6.36%	6.04%	5.03%	6.97%	2.04%	2.09%
ROE	13.34%	9.88%	12.24%	9.56%	3.47%	4.87%
TOBIN'S Q	0.93	0.75	1.00	0.78	0.51	0.51

Panel 2: Pairwise comparison of differences in means and medians by different types of controlling GLICs using Two Sample *t*-test and Mann-Whitney U test

	PIF GLIC vs. FGLIC		PIF GLIC vs. SEDC		FGLIC vs. SEDC	
	Mean ^a	Median ^b	Mean ^a	Median ^b	Mean ^a	Median ^b
ROA	2.1537**	1.619	5.9460***	5.515***	2.2163**	3.367***
ROE	0.2361	0.408	5.5663***	5.312***	4.0384***	3.769***
TOBIN'S Q	-0.7487	-0.580	5.6743***	4.755***	5.5298***	5.002***

Notes: (a) *t*-value from the two sample *t*-test of differences in means; and

(b) *z*-value from the two-sample Mann-Whitney U-test of differences in medians.

Significance level: **p* < 0.1, ***p* < 0.05, ****p* < 0.01 (two-tailed test)

4.3.3 Multivariate analysis

The results reported in Table 4-14 support our earlier findings regarding hypotheses 2 and 3, which suggest that GLCs owned by federal government sponsored pension and investment funds and GLCs owned by federal government owned GLICs outperform GLCs owned by SEDCs (ROA: PIF GLIC $\beta = 3.99$, $p < 0.01$, FGLIC $\beta = 3.47$, $p < 0.01$; ROE: PIF GLIC $\beta = 10.59$, $p < 0.01$, FGLIC $\beta = 12.09$, $p < 0.01$; Tobin's Q: PIF GLIC $\beta = 0.29$, $p < 0.05$, FGLIC $\beta = 0.53$, $p < 0.01$)³³.

With regard to hypothesis 1, our results indicate that GLCs owned by federal government sponsored pension and investment funds outperform GLCs owned by federal government owned GLICs when performance is measured using ROA (PIF GLIC $\beta = 3.99$, $p < 0.01$, FGLIC $\beta = 3.47$, $p < 0.01$). However, the results are reversed when performance is measured using ROE (PIF GLIC $\beta = 10.59$, $p < 0.01$, FGLIC $\beta = 12.09$, $p < 0.01$) and Tobin's Q (PIF GLIC $\beta = 0.29$, $p < 0.05$, FGLIC $\beta = 0.53$, $p < 0.01$).

Our findings indicate that the objectives and control structures of GLICs affect how government ownership influences the performance of GLCs. One possible explanation for our results regarding PIF GLICs and FGLICs might be that the increased scrutiny by the parliamentary Public Accounts Committee, the Auditor General and the Putrajaya Committee on GLC High Performance on their activities.

³³ As previously mentioned, SEDC used as a comparative purpose and our multivariate regression that included SEDC (not reported in Table 3-14) but excluded FGLIC shows the coefficient for SEDC as follows: (ROA: $\beta = -3.47$, $p < 0.01$; ROE $\beta = -12.09$, $p < 0.01$; Tobin's Q: $\beta = -0.53$, $p < 0.01$)

This might be a substitute for the representation of the interests of beneficiaries on the boards of federal government-sponsored pension and investment funds.

Our results also show a significant positive association between the proportion of shares owned by the controlling GLIC and GLC performance based on accounting based performance measures (ROA: $\beta = 6.33$, $p < 0.05$; ROE: $\beta = 20.01$, $p < 0.01$). However, market based performance measures show a negative association; the result is insignificant (Tobin's Q: $\beta = -0.34$, $p > 0.1$). These findings support hypothesis 4 and suggest that the stakes GLICs control affect both their incentive and ability to control the management of GLCs. These results are consistent with findings by Lau and Tong (2008) and Najid and Rahman (2011), who also found a positive association between GLIC ownership and GLC performance using ROA and ROE as performance measures.

With regard to hypothesis 5, our results show a positive and significant association between golden share provisions and corporate performance based on accounting performance measures (ROA: $\beta = 6.33$, $p < 0.05$; ROE: $\beta = 16.21$, $p < 0.01$). While the market performance shows a negative relationship (Tobin's Q: $\beta = -0.05$, $p > 0.1$), but the association statistically insignificant. This suggests that GLCs with golden shares may benefit from financial support, preferential access to government contracts, or tight supervision of management by relevant ministries, the Auditor General and the MOF Inc.

Our results differ noticeably from findings on golden share type regulations in China (Sun et al., 2002), Egypt (Omran, 2009) and Europe (Boardman and Laurin, 2000), which indicate a negative relationship with corporate performance. This

inconsistency in findings could be an indication of differences in the objectives and organisational characteristics of government organisations that administer golden shares. However, the results of previous studies could also be affected by omitted variable bias, as they control for a very limited range of government ownership characteristics.

With regards to the impact of board membership of senior civil servants and politicians in GLCs our findings provide limited support for hypotheses 6 (ROA: $\beta = -0.27$, $p > 0.1$; ROE: $\beta = -0.77$, $p < 0.1$, Tobin's Q: $\beta = -0.02$, $p < 0.05$) and hypothesis 7 (ROA: $\beta = -0.05$, $p > 0.1$, ROE: $\beta = -0.11$, $p > 0.1$, Tobin's Q: $\beta = -0.00$, $p < 0.05$), which suggested that senior civil servants' and politicians' limited control incentives and limited expertise in the supervision and control of managers negatively affect firm's performance.

These findings contradict earlier research on Malaysian firms by Johnson and Mitton (2003) and Mitchell and Joseph (2010), which indicated a positive relationship between political connections and firm performance. The divergence in results might be due to methodological differences, as our model controls not only for the presence of politicians on boards but also for golden shares and block ownership by different types of GLICs.

Our results also indicate that control variables related to profitability such as liquidity and leverage have limited impact on GLCs' financial performance. Liquidity is positively associated across all performance measures but only significantly related to ROA (ROA: $\beta = 0.33$, $p < 0.05$, ROE: $\beta = 0.17$, $p > 0.1$, Tobin's Q: $\beta = 0.01$, $p > 0.1$). In the meantime, our results show a negative and significant association

between leverage and Tobin's Q but insignificant with both accounting performance measures (ROA: $\beta = 0.16$, $p > 0.1$, ROE: $\beta = -0.28$, $p > 0.1$, Tobin's Q: $\beta = -0.14$, $p < 0.01$). The results for leverage indicate that investor more cautious to make investment in highly leveraged GLCs. Generally, the results for these variables are in line with previous research, which also finds no or no consistent relationships (e.g. see Bennedsen and Nielsen, 2010; Najid and Rahman, 2011).

Monopoly licences have no association to financial performance across all performance measures (ROA: $\beta = -1.02$, $p > 0.1$, ROE: $\beta = -1.86$, $p > 0.1$, Tobin's Q: $\beta = 0.11$, $p > 0.1$). This might suggest that monopoly licenses do not provide GLCs with the possibility to exploit customers or suppliers, but rather that the license conditions are so restrictive that they negatively affect firm performance.

Firm size is negatively and significantly associated with ROA (ROA: $\beta = -1.83$, $p < 0.05$, ROE: $\beta = 0.77$, $p > 0.1$) but the direction is reverse with Tobin's Q (Tobin's Q: $\beta = 0.22$, $p < 0.05$). Previous research suggests that large state owned enterprises tend to encounter more government bureaucracy and suffer from more agency problems, which impact their corporate performance (Sun et al., 2002; Najid and Rahman, 2011).

With reference to the control variables related to board characteristics, we find a significant negative association between board of directors' meeting and financial performance across all performance measures (ROA: $\beta = -0.38$, $p < 0.01$, ROE: $\beta = -1.53$, $p < 0.01$; Tobin's Q: $\beta = -0.03$, $p < 0.05$). The result is contradictory to our expectations and generally suggests that while board of GLCs meet regularly but ineffective in playing their role as part of firm's monitoring mechanism. It also

indicates that poorly performing boards might meet frequently because the firms are in trouble.

However, other board characteristics variables, namely board size and proportion of independent directors, are insignificantly related to firm performance (board size: ROA: $\beta = 0.23$, $p > 0.1$, ROE: $\beta = 0.61$, $p > 0.1$; Tobin's Q: $\beta = 0.01$, $p > 0.1$; proportion of independent directors: ROA: $\beta = 0.58$, $p > 0.1$, ROE: $\beta = 2.91$, $p > 0.1$, Tobin's Q: $\beta = 0.65$, $p > 0.1$). Interestingly, while both variable showed consistent positive association across all performance measures, that in line with research on companies which are suffering from resource constraints and operate in less efficient capital markets (Dalton et al., 1999), insignificant association prevents us from making this conclusion.

The adjusted R-Square statistics found in this study (ROA: 31.5%, ROE: 32.9% and Tobin's Q: 26.5%) are slightly higher than those reported in previous studies on Malaysia. For example, in ROA measurement, Chu and Cheah (2006) reported an adjusted R-Square of 25.7% and similar percentage was documented in Haniffa and Hudaib (2006) of 26.5%. For Tobin's Q, Lau and Tong (2008) documented adjusted R-Square of 15.7% and later Haniffa and Hudaib (2006) reported adjusted R-Square of 27% that similar to our findings in this study. Recently, Najid and Rahman (2011) reported adjusted R-Square of 14.7%. This suggests that taking into account different types of GLICs and considering the participation of senior civil servants and politicians on the board of directors of GLCs improves the predictive power of the empirical model.

TABLE 4-14**Robust standard errors regression of GLCs corporate performance, GLICs investment and control variables**

Variables	ROA	ROE	Tobin's Q
PIF GLIC	3.99 (3.69)***	10.59 (4.17)***	0.29 (2.62)**
FGLIC	3.47 (2.63)***	12.09 (3.80)***	0.53 (3.35)***
GLIC_share	6.33 (2.41)**	20.01 (3.28)***	-0.34 (-0.85)
Golden share	6.33 (2.18)**	16.21 (2.63)***	-0.05 (-0.26)
BOD_SCS	-0.27 (-1.40)	-0.77 (-1.96)*	-0.02 (-2.54)**
BOD_POL	-0.05 (-1.39)	-0.11 (-1.00)	-0.00 (-2.18)**
Size	-1.83 (-2.17)**	0.77 (0.38)	0.22 (2.25)**
Monopoly	-1.02 (-0.60)	-1.86 (-0.41)	0.11 (0.81)
Liquidity	0.33 (2.54)**	0.17 (0.67)	0.01 (1.20)
Leverage	0.16 (0.30)	-0.28 (-0.15)	-0.14 (-2.90)***
BOD_size	0.23 (0.87)	0.61 (1.08)	0.01 (0.77)
BOD_meeting	-0.38 (-2.72)***	-1.53 (-4.76)***	-0.03 (-2.32)**
BOD_INED	0.58 (0.16)	2.91 (0.35)	0.65 (1.53)
Services	5.84 (2.97)***	7.61 (2.10)**	0.24 (1.56)
Property	3.61 (2.04)**	2.72 (0.86)	0.06 (0.48)
Plantations	4.67 (2.43)**	0.93 (0.26)	-0.20 (-1.41)
Consumer	5.19 (2.26)**	0.14 (0.04)	-0.00 (-0.01)
Industrial	5.96 (3.09)***	10.08 (2.26)**	-0.01 (-0.07)
Year 05	-1.05 (-0.83)	-1.86 (-0.70)	-0.02 (-0.23)
Year 06	1.26 (1.24)	3.71 (1.52)	0.11 (0.96)
Year 07	1.99 (1.76)*	5.71 (2.30)**	0.17 (1.56)
Year 08	0.69 (0.60)	0.43 (0.15)	-0.17 (-1.56)
Intercept	-2.92 (-0.55)	-36.95 (-2.86)***	-0.48 (-0.82)
<i>F</i> -value	5.90***	5.26***	5.62***
Adjusted R-Square	0.315	0.329	0.265
Observations	224	224	224

t-statistics reported in parentheses. Asterisks indicate significance level: *p < 0.1, **p < 0.05, ***p < 0.01

4.3.4 Tests of endogeneity and reverse causality

If capital, goods, and labour markets are efficient, corporate governance systems of individual companies might be endogenously determined. This suggests that market pressures force each firm to develop a corporate governance system consisting of different corporate governance mechanisms which minimize principal-agent costs and are specific to its particular circumstances (Demsetz and Lehn, 1985). In this case, it would be unlikely to observe a pattern between ownership concentration and firm performance which is consistent across the market (Demsetz and Villalonga, 2001; McConnell, Serveas, and Lins, 2008).

Since emerging economies tend to be characterised by inefficient capital, labour and goods markets (Zattoni, Pedersen and Kumar, 2009), it is unlikely that endogeneity is a problem in our research. However, since the presence of endogeneity would lead to biased results, we applied the Durbin-Wu-Hausman test (Hausman, 1978) to investigate the presence of endogeneity and the appropriateness of using parametric test methods in the regression analysis. Generally, the endogeneity problem arises when an explanatory variable is correlated with the error term mainly because of model specification errors and it would lead to biased estimators (Adkins and Hill, 2007).

Following Larcker and Rusticus (2010) the instrumental variables are the lagged values of the endogenous variables.³⁴ Durbin-Wu-Hausman tests the null hypothesis that the residual values of firm performance and ownership concentration are jointly

³⁴ We assume firm performance and GLIC ownership concentration are endogenous

equal to zero. If the F-statistic is significant, the null hypothesis would be rejected, suggesting that endogeneity is present. Table 4-15 presents the results of the Durbin-Wu-Hausman test. As expected, our results do not indicate an endogeneity problem since the F-statistics are insignificant in Durbin-Wu-Hausman test³⁵.

TABLE 4-15: Durbin-Wu-Hausman test results

H ₀ = the residual of performance and GLIC ownership concentration are exogenous	
Reject H ₀ if F-statistic significant	
Variables	Chi2 value (p-value of F-statistics)
<u>Model 1 (Performance = ROA)</u>	
Return on assets	1.66161 (p=0.2169)
GLIC ownership concentration	1.00174 (p=0.3470)
<u>Model 2 (Performance = ROE)</u>	
Return on equity	0.115724 (p=0.7450)
GLIC ownership concentration	0.856669 (p=0.3845)
<u>Model 3 (Performance = Tobin's Q)</u>	
Tobin's Q	5.30459 (p=0.1267)
GLIC ownership concentration	4.43223 (p=0.1470)

³⁵ Example of procedure in Durbin-Wu-Hausman test using STATA (e.g. Model 1): Firstly, we run regression of **performance model** using *ivregress 2sls* command and we replaced the value of GLIC_share with its lagged value. After that, we used *estat endogenous* command for Durbin-Wu-Hausman Test (tests of endogeneity) to examine whether GLIC_share is endogenous in this model. In step two, we run regression of **GLIC ownership concentration model** using *ivregress 2sls* command and we replaced the value of ROA with its lagged value and used similar command of *estat endogenous* for Durbin-Wu-Hausman Test to examine whether ROA is endogenous in this model.

While we found no evidence for endogeneity in our models based on Durbin-Wu-Hausman test, the corporate governance literature frequently acknowledge the possibility that corporate performance might influence blockholders' investment behaviour, i.e. the reverse causality effects (Demsetz and Lehn 1985; Demsetz and Villalonga, 2001). In this case, for example, blockholders might invest more in firms with better financial performance and therefore accumulate higher stakes.

Relating to this, agency theory predicts a causal relation between ownership concentration and performance where the concentrated ownership has the capacity to limit the agency problem (Jensen and Meckling, 1976). The theory argues that a higher concentration serves large shareholders with stronger incentives and power to play an effective role in monitoring management activities thus improved firm performance. However, previous studies on ownership structure-performance relationship (Demsetz, 1983, Demsetz and Lehn, 1985, Demsetz and Villalonga, 2001, Chang, 2003 and Al Farooque *et al*, 2007) argue that the causation could, in some circumstances, run in the opposite direction where the performance that caused ownership concentration and not *vice versa*. In the context of GLCs in Malaysia, there is possibility that the GLICs used corporate performance as main indicator to increase or reduce their shareholding in one particular GLC.

This raises the question: What, other than firm performance, impacts on ownership concentration of GLICs. Based on existing literature, we use the following model (GLIC ownership concentration model) to investigate the determinants of ownership concentration of GLICs in their portfolio companies:

$$\begin{aligned}
GLIC_share_{it} = & \alpha + \beta_1 PERFORMANCE_{it} + \beta_2 Golden\ Share_{it} + \beta_3 BOD_SCS_{it} + \\
& \beta_4 BOD_POL_{it} + \beta_5 Size_{it} + \beta_6 Liquidity_{it} + \beta_7 Leverage_{it} + \\
& \beta_8 Services_{it} + \beta_9 Property_{it} + \beta_{10} Plantations_{it} + \\
& \beta_{11} Consumer_{it} + \beta_{12} PIndustrial_{it} + \beta_{13} Year2005_{it} + \\
& \beta_{14} Year2006_{it} + \beta_{15} Year2007_{it} + \beta_{16} Year2008_{it} + \varepsilon_{it}
\end{aligned}$$

In line with previous literature we control for firm performance, firm size, liquidity, leverage and industry (Demsetz and Villalonga, 2001; Carney and Gedajlovic, 2002; Anderson and Hamadi, 2007) as well as the presence of golden shares and the membership of politicians and senior civil servants on GLC boards.

As golden shares provide the Ministry of Finance Incorporated (MOF Inc.) with extensive control rights over the firm, golden shares may be a substitute for high ownership stakes. This in turn suggests that in GLCs with golden shares, the proportion of shares held by the controlling GLIC is lower than in other GLCs.

Similarly, in companies whose boards are dominated by senior civil servants and politicians, their ability to influence board strategies and board proposals submitted to the shareholders' general meeting might substitute for high ownership stakes by the controlling GLIC. Alternatively, GLICs may be influenced by senior civil servants and politicians to invest in GLICs in which they or their colleagues control board seats, to facilitate the firms' access to capital.

Table 4-16 presents the results of robust standard errors regression on ownership stakes of controlling GLICs in GLCs. Although the results suggest that GLIC

ownership is statistically significant and positively related to firm performance, with regard to ROA and ROE, the correlation coefficients are exceedingly low (ROA: $\beta = 0.004$, $p < 0.05$; ROE: $\beta = 0.002$, $p < 0.01$ and TOBIN's Q: $\beta = -0.033$, $p > 0.10$). This actually explains why the Durbin-Wu-Hausman test (Hausman, 1978) did not indicate the presence of endogeneity in our earlier model.

As expected, ownership concentration of GLICs is negatively related to the existence of golden shares (ROA: $\beta = -0.235$, $p < 0.01$; ROE: $\beta = -0.242$, $p < 0.01$ and TOBIN's Q: $\beta = -0.205$, $p < 0.01$). This suggests that golden share provisions do substitute for GLIC ownership concentration; however, there appears to be no similar substitution effect between board membership of senior civil servants and politicians and GLIC ownership concentration. Rather, GLICs tend to invest in particular in companies with high degrees of board membership by senior civil servants and politicians. The results for BOD_SCS are (ROA: $\beta = 0.012$, $p < 0.01$; ROE: $\beta = 0.012$, $p < 0.01$ and TOBIN's Q: $\beta = 0.009$, $p < 0.01$) and BOD_POL (ROA: $\beta = 0.003$, $p < 0.01$; ROE: $\beta = 0.003$, $p < 0.01$ and TOBIN's Q: $\beta = 0.002$, $p < 0.05$).

One interesting finding is that while senior civil servants and politicians appear to have no positive impact on firm performance (refer to main analysis results in Table 4-14), there is a positive relationship between ownership concentration and senior civil servants and politicians. This could mean either that: i) The senior civil servants and politicians on the board of GLCs can facilitate government investment (access to resources) for these firms - though without positively affecting performance, which might suggest a poor use of the additional funds; or ii) Government investors which own a large stake appoint politicians and senior civil servants to the boards to protect their investment, although they do not seem to help

as shown by no positive impact of these variables on firm performance as discussed above. As such, there is an indication that our earlier argument regarding lack of expertise and performance incentives of politicians and senior civil servants serving on the boards of GLCs is indeed justified.

While both liquidity and leverage are insignificantly related with GLIC ownership concentration, our findings indicate that firm size is positively related to GLIC ownership concentration (ROA: $\beta = 0.082$, $p < 0.01$; ROE: $\beta = 0.071$, $p < 0.01$ and TOBIN's Q: $\beta = 0.085$, $p < 0.01$). This contradicts previous research into the relationship between firm size and (largely private) ownership concentration in developed market economies (Demsetz and Lehn 1985; Demsetz and Villalonga, 2001), but is in line with previous research into GLCs in emerging economies (Ang and Ding, 2006; Le and Buck, 2011). Because one of the objectives of GLICs, in particular FGLIC and SEDCs, is to use their influence over GLCs to achieve key government policies in relation to the development of strategic industries and the creation of employment opportunities as well as economic and social restructuring, this concentration on larger firms is not surprising in the Malaysian context.

TABLE 4-16**Robust standard errors estimates of the relationship between GLIC ownership concentration and GLC performance**

Variables	Coefficient (<i>t</i> -statistic)	Coefficient (<i>t</i> -statistic)	Coefficient (<i>t</i> -statistic)
ROA	0.004 (2.35)**		
ROE		0.002 (3.04)***	
Tobin's Q			-0.033 (-1.31)
Golden Share	-0.235 (-6.60)***	-0.242 (-6.72)***	-0.205 (-5.82)***
BOD_SCS	0.012 (6.09)***	0.012 (6.18)***	0.009 (5.59)***
BOD_POL	0.003 (3.78)***	0.003 (4.00)***	0.002 (2.19)**
Size	0.082 (5.05)***	0.071 (4.31)***	0.085 (4.54)***
Liquidity	0.000 (0.19)	0.001 (0.56)	0.002 (0.99)
Leverage	-0.003 (-0.35)	-0.001 (-0.14)	-0.008 (-0.87)
Services	0.075 (1.71)*	0.081 (1.93)*	0.111 (2.61)**
Property	0.108 (2.70)***	0.116 (3.05)***	0.123 (3.13)***
Plantations	0.149 (3.05)***	0.165 (3.60)***	0.162 (3.18)***
Consumer	0.066 (1.37)	0.084 (1.80)*	0.096 (1.82)*
Industrial	0.091 (1.68)*	0.091 (1.73)*	0.117 (2.23)**
Year 05	0.001 (0.05)	0.000 (0.03)	-0.004 (-0.15)
Year 06	-0.014 (-0.51)	-0.015 (-0.55)	-0.008 (-0.28)
Year 07	-0.002 (-0.08)	-0.004 (-0.16)	0.007 (0.26)
Year 08	0.044 (1.46)	0.046 (1.55)	0.038 (1.22)
Intercept	1.009 (9.62)***	1.061 (9.91)***	1.011 (8.74)***
Adj. R ²	0.233	0.246	0.226
<i>F</i> -value	7.07***	6.35***	5.88***
Observations	224	224	224

T-statistics are reported in parentheses. Asterisks indicate a significance level: *p < 0.1, **p < 0.05, ***p < 0.01

4.3.5 Additional analysis and robustness checks³⁶

4.3.5.1 Different regression estimators

The result in main findings so far is based on robust standard errors regression analysis. However, to provide reasonable assurance that our main findings are robust to the specifications of various regression estimators, alternative regression estimators namely; robust regression, clustered robust and quantile regression are presented in Table 4-17 (Model ROA), Table 4-18 (Model ROE) and Table 4-19 (Model Tobin's Q).

Generally, we find that the results of these estimators are consistent with main findings in terms of the direction of the relationship between independent and control variables with dependents variables in all models. Our key variables, PIF GLIC, FGLIC are positively and significantly related across all estimators except that PIF GLIC is found insignificant for TOBIN'S Q model using clustered robust regression (TOBIN'S Q: $\beta = 0.29$, $p > 0.1$).

The results of other important variables, such as Golden shares, are also consistent across all estimators in terms of direction of the association as well as the significance of its relationship. Interestingly, while the negative direction of BOD_SCS and BOD_POL consistent across all estimators in all models, we find that BOD_SCS highly significant for ROA model in Quantile regression estimator (ROA: $\beta = -0.28$, $p < 0.05$) which is opposite to its insignificant relationship in the main

³⁶ Although not reported in additional analysis, all the regressions in this section included variables years and industry dummies.

findings. In relation to our control variables, they might be different in terms of levels of significance, but this does not change the context of the main findings.

TABLE 4-17

**The results of different regression estimators of GLCs corporate performance,
GLICs investment and control variables
(Model ROA, N=224)**

Variables	Coefficient (<i>t-statistics</i>)		
	Robust regression	Clustered robust	Quantile regression
PIF GLIC	3.99 (3.93)***	3.99 (2.64)**	3.25 (2.36)**
FGLIC	3.47 (2.80)***	3.47 (1.95)*	3.44 (2.06)**
GLIC_share	6.33 (2.56)**	6.33 (1.59)	3.27 (0.99)
Golden share	6.33 (2.39)**	6.33 (2.16)**	6.13 (2.61)**
BOD_SCS	-0.27 (-1.56)	-0.27 (-1.51)	-0.28 (-2.48)**
BOD_POL	-0.05 (-1.48)	-0.05 (-1.15)	-0.07 (-1.10)
Size	-1.83 (-2.37)**	-1.83 (-1.71)*	-1.02 (-1.18)
Monopoly	-1.02 (-0.66)	-1.02 (-0.55)	0.48 (0.27)
Liquidity	0.33 (2.78)***	0.33 (2.09)**	0.34 (2.21)**
Leverage	0.16 (0.33)	0.16 (0.32)	-0.55 (-1.02)
BODSIZE	0.23 (0.95)	0.23 (0.86)	0.33 (1.14)
BODMEET	-0.38 (-2.95)***	-0.38 (-2.50)**	-0.32 (-2.08)**
BODINED	0.58 (0.17)	0.58 (0.12)	-0.01 (-0.00)
Intercept	-2.92 (-0.58)	-2.92 (-0.38)	-0.96 (-0.13)
Adj. R ² / Pseudo R ²	0.315	0.315	0.264

T-statistics are reported in parentheses. Asterisks indicate a significance level: *p < 0.1, **p < 0.05, ***p < 0.01

TABLE 4-18

**The results of different regression estimators of GLCs corporate performance,
GLCs investment and control variables
(Model ROE, N=224)**

Variables	Coefficient (<i>t-statistics</i>)		
	Robust regression	Clustered robust	Quantile regression
PIF GLIC	10.59 (4.39)***	10.59 (2.78)***	9.38 (3.42)***
FGLIC	12.09 (4.03)***	12.09 (2.74)***	13.57 (3.99)***
GLIC_share	20.01 (3.47)***	20.01 (2.17)**	18.27 (2.69)***
Golden share	16.21 (2.86)***	16.21 (1.82)*	13.50 (2.80)***
BOD_SCS	-0.77 (-2.21)**	-0.77 (-1.86)*	-0.96 (-4.10)***
BOD_POL	-0.11 (-1.07)	-0.11 (-0.84)	-0.09 (-0.74)
Size	0.77 (0.42)	0.77 (0.29)	0.78 (0.44)
Monopoly	-1.86 (-0.45)	-1.86 (-0.26)	6.81 (1.83)*
Liquidity	0.17 (0.73)	0.17 (0.52)	-0.00 (-0.02)
Leverage	-0.28 (-0.17)	-0.28 (-0.16)	-1.02 (-0.91)
BODSIZE	0.61 (1.18)	0.61 (0.89)	0.98 (1.67)*
BODMEET	-1.53 (-5.21)***	-1.53 (-4.33)***	-1.16 (-3.77)***
BODINED	2.91 (0.37)	2.91 (0.24)	8.64 (0.98)
Intercept	-36.95 (-3.05)***	-36.95 (-1.89)*	-40.49 (-2.76)***
Adj. R ² / Pseudo R ²	0.329	0.395	0.172

T-statistics are reported in parentheses. Asterisks indicate a significance level: *p < 0.1, **p < 0.05, ***p < 0.01

TABLE 4-19

The results of different regression estimators of GLCs corporate performance, GLCs investment and control variables (Model TOBIN'S Q, N=224)

Variables	Coefficient (<i>t</i> -statistics)		
	Robust regression	Clustered robust	Quantile regression
PIF GLIC	0.29 (2.78)***	0.29 (1.64)	0.27 (4.23)***
FGLIC	0.53 (3.53)***	0.53 (2.06)**	0.28 (3.66)***
GLIC_share	-0.34 (-0.89)	-0.34 (-0.51)	-0.26 (-1.71)*
Golden share	-0.05 (-0.28)	-0.05 (-0.16)	-0.16 (-1.53)
BOD_SCS	-0.02 (-2.85)***	-0.02 (-2.21)**	-0.01 (-2.18)**
BOD_POL	-0.00 (-2.34)**	-0.00 (-1.64)	-0.00 (-2.96)***
Size	0.22 (2.42)**	0.22 (1.44)	0.30 (7.53)***
Monopoly	0.11 (0.88)	0.11 (0.48)	0.13 (1.54)
Liquidity	0.01 (1.29)	0.01 (0.75)	0.00 (0.08)
Leverage	-0.14 (-3.19)***	-0.14 (-2.52)**	-0.12 (-5.04)***
BODSIZE	0.01 (0.82)	0.01 (0.51)	0.01 (1.42)
BODMEET	-0.03 (-2.48)**	-0.03 (-1.88)*	-0.01 (-1.98)*
BODINED	0.65 (1.66)*	0.65 (1.12)	0.13 (0.68)
Intercept	-0.48 (-0.86)	-0.48 (-0.51)	-1.00 (-3.03)***
Adj. R ² / Pseudo R ²	0.265	0.265	0.229

T-statistics are reported in parentheses. Asterisks indicate a significance level: *p < 0.1, **p < 0.05, ***p < 0.01

4.3.5.2 The impact of total government ownership rather than the impact of ownership concentration of the controlling GLIC

Table 4-20 presents the results of robust standards errors regression based on total government ownership instead of controlling GLIC ownership. In this context, government ownership is calculated by combining the total shareholdings of different GLICs in one particular GLC by taking into the account the collaboration between GLICs. The purpose of this analysis is determine whether the impact of government ownership on corporate performance is significantly different when we used the total shareholdings by government instead of shareholdings by one particular GLIC as employed in the main findings.

From the results of regression analysis, we find a consistent trend with regards to the direction of relationship of our key variables and the control variables on corporate performance as well as no major changes in their significant level. However, the magnitude of the relationship between the total government ownership variable and performance shows a big difference.

In detail, using controlling GLIC ownership in the main analysis, the results for this variable suggest a considerable magnitude of coefficient values particularly in accounting measures (ROA: 6.33, ROE: 20.01 and TOBIN'S Q: -0.34). However, when we employed the total of government ownership, the coefficient of this variable value show a very low magnitude of coefficient (ROA: 0.06, ROE: 0.20 and TOBIN'S Q: -0.00)³⁷. This shows that, the controlling GLICs ownership plays an

³⁷ We also conducted univariate regression analysis between total government ownership and firm performance and the magnitude of coefficient almost the same (ROA: 0.03, ROE: 0.17 and Tobin's Q=0.00)

important role in determining the performance of their portfolio companies instead of higher level of total government ownership³⁸, particularly in accounting performance. However, in terms of market performance, both types of ownership concentration negatively related to Tobin's Q suggesting that market participants are either not interested to invest in listed companies that have high government shareholdings or they actually discount accounting information published by GLCs as they might be perceived to be more prone to misstate their accounts.

³⁸ The degree of government ownership is higher than GLIC ownership as it is combination between different types of GLICs

TABLE 4-20

The results of robust standard errors regression of GLCs corporate performance and GLICs investment using total government ownership rather than GLIC ownership

Variables	Coefficient (<i>t</i> -statistics)		
	ROA	ROE	Tobin's Q
PIF GLIC	3.83 (3.59)***	10.08 (4.03)***	0.31 (2.83)***
FGLIC	2.99 (2.30)**	10.59 (3.34)***	0.55 (3.26)***
Government share	0.06 (2.59)**	0.20 (3.41)***	-0.00 (-0.10)
Golden share	6.23 (2.23)**	15.82 (2.65)***	-0.00 (-0.03)
BOD_SCS	-0.26 (-1.38)	-0.73 (-1.91)*	-0.02 (-2.95)***
BOD_POL	-0.05 (-1.46)	-0.12 (-1.11)	-0.00 (-2.18)**
Size	-2.23 (-2.50)**	-0.41 (-0.19)	0.20 (1.76)*
Monopoly	-1.45 (-0.85)	-3.16 (-0.71)	0.10 (0.74)
Liquidity	0.33 (2.65)***	0.19 (0.79)	0.01 (1.16)
Leverage	0.29 (0.53)	0.12 (0.06)	-0.14 (-2.80)***
BODSIZE	0.16 (0.63)	0.43 (0.74)	0.01 (0.59)
BODMEET	-0.38 (-2.74)***	-1.54 (-4.79)***	-0.02 (-2.16)**
BODINED	0.44 (0.12)	2.27 (0.28)	0.75 (1.84)*
Intercept	7.23 (1.74)*	-5.16 (-0.45)	-0.88 (-1.72)*
Adjusted R-Square	0.320	0.335	0.259

T-statistics are reported in parentheses. Asterisks indicate a significance level: *p < 0.1, **p < 0.05, ***p < 0.01

4.3.5.3 Regressions for individual years

In order to investigate whether the results of the pooled regressions in the main findings might be biased by the results of any particular year, we repeated the regression for individual years. The results of robust standard errors regression by year presented in Table 4-21 (ROA), Table 4-22 (ROE) and Table 4-23 (TOBIN'S Q). Generally we find no evidence that the results of the pooled regression are driven by results for any one individual year as no extreme value of coefficient appeared in all performance measures across the sample year. Therefore, we can conclude that our results are robust from the effect of any individual year. As stated previously, our study period is during a stable period for the Malaysian economy and this might have contributed to these findings.

TABLE: 4-21**Robust standard errors regression estimates by year (Model 1 – ROA)**

Variables	Coefficient (<i>t</i> -statistics)					
	2004 (N=46)	2005 (N=47)	2006 (N=48)	2007 (N=44)	2008 (N=39)	Pooled (N=224)
PIF GLIC	0.76 (0.25)	0.80 (0.25)	4.96 (1.49)	6.10* (1.90)	5.56 (1.29)	3.99*** (3.69)
FGLIC	-0.77 (-0.11)	4.33 (1.04)	4.09 (0.97)	6.78 (1.64)	2.34 (0.51)	3.47*** (2.63)
GLIC_share	4.52 (0.38)	10.47 (1.22)	4.07 (0.55)	9.88 (0.90)	8.31 (0.90)	6.33** (2.41)
Golden share	10.60 (0.95)	20.13* (1.83)	7.83 (1.67)	-0.90 (-0.14)	0.03 (0.00)	6.33** (2.18)
BOD_SCS	-0.25 (-0.58)	-1.10 (-1.51)	-0.53 (-1.69)	0.03 (0.07)	0.16 (0.22)	-0.27 (-1.40)
BOD_POL	-0.14 (-0.81)	-0.10 (-0.57)	-0.03 (-0.30)	-0.01 (-0.11)	0.25 (0.72)	-0.05 (-1.39)
Size	-1.28 (-0.50)	-1.13 (-0.46)	-2.36 (-0.99)	-1.36 (-0.58)	-2.65 (-0.68)	-1.83** (-2.17)
Monopoly	0.00 (0.00)	-2.63 (-0.42)	3.02 (0.90)	2.19 (0.36)	-1.49 (-0.20)	-1.02 (-0.60)
Liquidity	0.72 (2.46)**	0.21 (0.84)	0.24 (0.73)	0.42 (0.63)	0.27 (0.25)	0.33** (2.54)
Leverage	0.62 (0.32)	-0.97 (-0.44)	-0.90 (-0.64)	0.09 (0.09)	3.46 (0.96)	0.16 (0.30)
BODSIZE	-0.12 (-0.17)	-0.23 (-0.25)	0.31 (0.52)	0.35 (0.47)	0.69 (0.89)	0.23 (0.87)
BODMEET	-0.51 (-0.84)	-0.19 (-0.39)	-0.29 (-0.97)	-0.78* (-1.83)	-0.44 (-0.43)	-0.38*** (-2.72)
BODINED	-10.78 (-0.62)	0.64 (0.05)	5.61 (0.50)	6.00 (0.47)	-9.91 (-0.70)	0.58 (0.16)
Intercept	1.73* (0.07)	-7.74 (-0.43)	4.34 (0.25)	-7.38 (-0.41)	-4.47 (-0.17)	-0.48 (-0.82)
R- Square	0.515	0.595	0.571	0.533	0.676	Adj. R ² 0.265

T-statistics are reported in parentheses. Asterisks indicate a significance level: *p < 0.1, **p < 0.05, ***p < 0.01

TABLE: 4-22**Robust standard errors regression estimates by year (Model 2 – ROE)**

Variables	Coefficient (<i>t-statistics</i>)					
	2004 (N=46)	2005 (N=47)	2006 (N=48)	2007 (N=44)	2008 (N=39)	Pooled (N=224)
PIF GLIC	4.31 (0.53)	2.97 (0.37)	13.10* (1.72)	14.29* (1.88)	16.72 (1.28)	10.59 (4.17)***
FGLIC	6.19 (0.46)	10.65 (1.17)	17.23 (1.62)	19.57* (1.76)	4.57 (0.42)	12.09 (3.80)***
GLIC_share	25.26 (0.94)	24.78 (1.39)	16.16 (0.87)	26.16 (1.18)	31.26 (1.18)	20.01 (3.28)***
Golden share	23.39 (1.00)	40.84* (1.73)	21.55* (1.81)	3.08 (0.16)	14.17 (0.48)	16.21 (2.63)***
BOD_SCS	-0.77 (-0.64)	-2.19 (-1.67)	-1.94* (-1.94)	-0.28 (-0.24)	-0.18 (-0.09)	-0.77 (-1.96)*
BOD_POL	-0.31 (-0.84)	-0.29 (-0.69)	-0.08 (-0.23)	0.04 (0.14)	0.84 (0.99)	-0.11 (-1.00)
Size	2.50 (0.36)	0.52 (0.09)	1.02 (0.18)	1.78 (0.29)	0.40 (0.04)	0.77 (0.38)
Monopoly	-0.99 (-0.06)	1.96 (0.12)	5.72 (0.45)	3.24 (0.19)	0.16 (0.01)	-1.86 (-0.41)
Liquidity	0.60 (0.91)	-0.01 (-0.02)	0.05 (0.10)	0.24 (0.17)	-0.34 (-0.12)	0.17 (0.67)
Leverage	-1.99 (-0.45)	-4.23 (-1.12)	-4.90 (-1.00)	3.14 (1.30)	10.08 (0.94)	-0.28 (-0.15)
BODSIZE	-0.36 (-0.19)	0.40 (0.20)	2.19 (1.17)	0.60 (0.32)	1.42 (0.59)	0.61 (1.08)
BODMEET	-1.34 (-1.08)	-1.28 (-1.07)	-1.32 (-1.64)	-1.97* (-1.87)	-3.10 (-1.11)	-1.53 (-4.76)***
BODINED	-10.27 (-0.27)	-4.24 (-0.16)	6.80 (0.28)	15.60 (0.49)	-20.56 (-0.59)	2.91 (0.35)
Intercept	-46.34 (-0.90)	-31.95 (-0.78)	-35.49 (-0.77)	-57.23 (-1.11)	-59.90 (-0.82)	-36.96 *** (-2.86)
R-Square	0.427	0.551	0.586	0.579	0.679	Adj. R ² 0.329

T-statistics are reported in parentheses. Asterisks indicate a significance level: *p < 0.1, **p < 0.05, ***p < 0.01

TABLE: 4-23

Robust standard errors regression estimates by year (Model 3 – TOBIN’S Q)

Variables	Coefficient (<i>t-statistics</i>)					
	2004 (N=46)	2005 (N=47)	2006 (N=48)	2007 (N=44)	2008 (N=39)	Pooled (N=224)
PIF GLIC	0.16 (0.43)	-0.03 (-0.10)	0.24 (0.44)	0.37 (1.19)	0.32 (0.92)	0.29** (2.62)
FGLIC	0.52 (1.09)	0.47 (1.00)	0.60 (0.80)	0.61* (1.75)	0.16 (0.36)	0.53*** (3.35)
GLIC_share	-0.13 (-0.07)	-0.45 (-0.37)	-0.65 (-0.40)	-1.02 (-1.06)	-0.00 (-0.00)	-0.34 (-0.85)
Golden share	-0.13 (-0.17)	0.09 (0.14)	-0.16 (-0.14)	0.05 (0.10)	0.35 (0.32)	-0.05 (-0.26)
BOD_SCS	-0.02 (-0.52)	-0.04* (-1.78)	-0.02 (-0.36)	-0.03 (-0.90)	-0.04 (-0.65)	-0.02** (-2.54)
BOD_POL	-0.01 (-0.87)	-0.01 (-1.04)	-0.00 (-0.28)	-0.01 (-1.43)	-0.00 (-0.08)	-0.00** (-2.18)
Size	0.44 (1.11)	0.38 (1.51)	0.06 (0.17)	0.20 (0.84)	0.34 (0.72)	0.22** (2.25)
Monopoly	0.04 (0.11)	0.20 (0.52)	0.40 (0.50)	0.47 (0.90)	0.00 (0.01)	0.11 (0.81)
Liquidity	0.04 (0.99)**	0.02 (1.01)	-0.00 (-0.11)	0.06 (0.83)	-0.01 (-0.14)	0.01 (1.20)
Leverage	-0.16 (-1.22)	-0.22** (-2.48)	-0.06 (-0.47)	-0.16 (-1.58)	-0.14 (-0.58)	-0.14*** (-2.90)
BODSIZE	0.05 (0.92)	0.05 (0.86)	-0.04 (-0.29)	-0.03 (-0.35)	0.01 (0.28)	0.01 (0.77)
BODMEET	-0.04 (-1.13)	-0.01 (-0.30)	-0.02 (-0.64)	-0.06 (-1.49)	-0.02 (-0.19)	-0.03** (-2.32)
BODINED	0.02 (0.02)	-0.20 (-0.18)	0.87 (0.50)	1.75 (1.40)	-0.14 (-0.09)	0.65 (1.53)
Intercept	-2.16 (-1.13)	-1.37 (-0.76)	1.33 (0.47)	1.23 (0.67)	-1.32 (-0.55)	-0.48 (-0.82)
R- Square	0.515	0.553	0.282	0.542	0.453	0.265

T-statistics are reported in parentheses. Asterisks indicate a significance level: *p < 0.1, **p < 0.05, ***p < 0.01

4.3.5.4 Additional control variable

Agency theory asserts that conflicts between shareholders and managers exist partly because of the free cash flow issue, in which opportunistic managers tend to spend free cash flow unwisely on value destroying investment (Jensen, 1986). This is because there is more opportunity to compensate themselves as the firm becomes larger due to investments. According to the free cash flow hypothesis, this manager's act may result in an increase in agency costs, inefficient resource allocation and wrongful investments that eventually impact firm value negatively.

However, previous studies on the relationship between free cash flow and firm performance also suggest a positive association between the variables. For example, Szewczyk, Tsetsekos and Zantout (1996) and Chang, Chen, Hsing and Huang (2007) show evidence that investors most favour firms with both substantial free cash flow and profitable investment opportunities in share valuation. Recently, empirical study by Wang (2010) on Taiwan data finds that free cash flow could render a firm with investment opportunities which would generate more values for the firm.

Table 4-24 provides robust standard errors regression when free cash flow is part of additional control variables. Generally, the results show that the use of free cash flow as an additional control variable causes no major alterations to the key variables in main results, except that the significant relationship in golden shares for ROA model disappears when free cash flow added into the regression as additional control variable. This suggests that the positive link between golden shares and ROA is not robust.

TABLE 4-24

The results of robust standard errors regression of GLCs corporate performance and GLICs investment with the additional control variable

Variables	Coefficient (<i>t</i> -statistics)		
	ROA	ROE	Tobin's Q
PIF GLIC	3.93 (3.81)***	10.52 (4.18)***	0.29 (2.62)***
FGLIC	3.36 (2.60)**	11.96 (3.75)***	0.53 (3.32)***
GLIC share	6.80 (2.62)***	20.58 (3.36)***	-0.33 (-0.80)
Golden share	4.82 (1.64)	14.37 (2.09)**	-0.10 (-0.43)
BOD_SCS	-0.22 (-1.19)	-0.71 (-1.78)*	-0.02 (-2.33)**
BOD_POL	-0.06 (-1.72)*	-0.12 (-1.15)	-0.00 (-2.29)**
Size	-3.10 (-3.23)***	-0.77 (-0.34)	0.18 (1.50)*
Monopoly	-0.60 (-0.38)	-1.35 (-0.30)	0.12 (0.88)
Liquidity	0.31 (2.45)**	0.15 (0.61)	0.01 (1.16)
Leverage	0.24 (0.42)	-0.19 (-0.10)	-0.14 (-2.85)***
Free cash flow	1.06 (2.75)***	1.29 (1.31)	3.12 (0.76)
BODSIZE	0.16 (0.63)	0.53 (0.92)	0.01 (0.69)
BODMEET	-0.40 (-2.90)***	-1.56 (-4.84)***	-0.03 (-2.40)**
BODINED	-0.73 (-0.21)	1.29 (0.16)	0.61 (1.51)
Intercept	5.00 (0.85)	-27.27 (-1.95)*	-0.24 (-0.40)
Adjusted R-Square	0.338	0.332	0.259

T-statistics are reported in parentheses. Asterisks indicate a significance level: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.3.5.5 New definitions of corporate governance measures

Our main findings suggest that board variables have little impact on corporate performance, as only board meetings have a significant link across all performance measures, while board size and independent directors are insignificant factors in all performance measures. In the main analysis, we used the actual value for board size and board meetings as well as proportion of independent directors on board to define the board variables.

In this additional analysis, we redefined board measures as follows:

- i) Board size: 1 = high board size, 0 = low board size; the cut off number is based on the median of board size as stated in descriptive statistics. The new acronym for this variable is BODSIZE1 to differentiate it with acronym in other tests;
- ii) Board meeting: 1 = high board meeting frequency, 0 = low board meeting frequency; the cut off number is based on the median of the board meeting frequency as stated in descriptive statistics. The new acronym for this variable is BODMEET1 to differentiate it with acronym in other tests; and
- iii) Board independence: 1 = high board independence, 0 = low board independence; the cut off number is based on the median of the number of board independent as stated in descriptive statistics. The new acronym for this variable is BODINED1 to differentiate it with acronym in other tests.

The results in Table 4-25 show that the use of these alternative board definitions causes no major changes to the main results, except that the insignificant association of BODINED in the main analysis turn to be significant for ROE ($\beta = 5.22$, $p < 0.05$) in this redefined model. Interestingly, for the BOD_POL variable, while the directions of the relationship (negative sign) remain unchanged and the magnitude of coefficient almost similar, the statistically significant association link emerges both for accounting measures even at a low degree of significant level (ROA: $\beta = -0.07$, $p < 0.1$; ROE: $\beta = -0.20$, $p < 0.1$; TOBIN'S Q: $\beta = -0.01$, $p < 0.1$). This finding reinforces our argument that the presence of politicians on the board of GLCs is negatively related to firm performance.

TABLE 4-25

The results of robust standard errors regression of GLCs corporate performance and GLCs investment with the new definitions of corporate governance measures

Variables	Coefficient (<i>t</i> -statistics)		
	ROA	ROE	Tobin's Q
PIF GLIC	3.76 (3.70)***	9.59 (3.98)***	0.26 (2.52)**
FGLIC	2.76 (2.21)**	8.99 (2.95)***	0.43 (3.11)***
GLIC share	6.72 (2.86)***	22.93 (3.72)***	-0.40 (-1.09)
Golden share	6.17 (2.13)**	16.40 (2.52)**	-0.03 (-0.16)
BOD_SCS	-0.26 (-1.39)	-0.80 (-2.00)**	-0.02 (-2.40)**
BOD_POL	-0.07 (-1.89)*	-0.20 (-1.82)*	-0.01 (-3.46)***
Size	-1.86 (-2.15)**	0.59 (0.28)	0.22 (2.15)**
Monopoly	-1.92 (-1.12)	-5.69 (-1.17)	0.03 (0.26)
Liquidity	0.36 (2.72)***	0.30 (1.10)	0.01 (1.28)
Leverage	0.11 (0.19)	-0.78 (-0.37)	-0.14 (-2.77)***
BODSIZE1	1.04 (1.35)	1.66 (0.76)	0.05 (0.59)
BODMEET1	-1.80 (-2.35)**	-6.18 (-3.23)***	-0.19 (-2.30)**
BODINED1	-0.11 (-0.09)	5.22 (2.07)**	0.17 (1.53)
Intercept	-3.48 (-0.69)	-46.76 (-3.45)***	-0.28 (-0.56)
Adjusted R-Square	0.303	0.283	0.258

T-statistics are reported in parentheses. Asterisks indicate a significance level: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.3.5.6 Alternative measure of different types of GLICs³⁹

In the main findings, this study used a dummy code (1 and 0) to differentiate ownership types of different GLICs in Malaysia. The use of dummy codes is consistent with many previous studies on the issue of ownership types and performance such as by Ang and Ding (2006), Tam and Tan (2007), Chen et al., (2009) and Ab Razak et al., (2011).

However, some may argue that the use of actual numerical ownership levels of GLICs ownership provides much more information than the use of dichotomous variables. To deal with this issue, we re-ran the regression in the main findings by replacing the dichotomous variables related to types of GLICs with their actual numerical ownership level (controlling GLIC shareholdings percentage). Results from the regression presents in Table 4-26. We find that:

- i. In terms of statistically significant of the variables, no changes are recorded except the significant level (1%, 5% or 10%) has some changes where there are cases of significant levels are reduced (e.g. in the main findings GLIC share statistically significant with ROA at 5% but in this regression the significant level reduced to 10%); and
- ii. In terms of coefficient magnitude, we noticed that in some key variables, the magnitudes are substantially reduced. For example, in the main findings, the coefficient magnitudes of PIF GLIC are 3.99 and 10.59 for ROA model and ROE model respectively. However, the coefficient magnitudes of the variables in this

³⁹ As previously mentioned, SEDC used as a comparative purpose and our multivariate regression that included SEDC (not reported in Table 3-26) but excluded FGLIC shows the coefficient for SEDC based on actual numerical ownership level of GLICs ownership as follows: (ROA: $\beta = -2.34$, $p < 0.01$; ROE $\beta = -10.62$, $p < 0.01$; Tobin's Q: $\beta = -0.35$, $p < 0.01$)

model are 2.34 and 4.07 for ROA model and ROE model respectively. This is a huge reduction of coefficient for PIF GLIC particularly in ROE model.

Generally, we find that the results in main findings are robust to the alternative measures of different types of GLICs.

TABLE 4-26

The results of robust standard errors regression of GLCs corporate performance and GLICs investment using actual numerical value of GLICs ownership in GLCs

Variables	Coefficient (<i>t</i> -statistics)		
	ROA	ROE	Tobin's Q
PIF GLIC	2.34 (3.32)***	4.07 (2.87)***	0.13 (2.07)**
FGLIC	2.34 (3.44)***	10.62 (6.38)***	0.35 (4.88)***
GLIC share	4.44 (1.75)*	11.86 (1.99)**	-0.63 (-1.55)
Golden share	6.02 (2.09)**	12.88 (2.13)**	-0.07 (-0.39)
BOD_SCS	-0.27 (-1.41)	-0.80 (-2.04)**	-0.02 (-2.45)**
BOD_POL	-0.04 (-1.16)	-0.05 (-0.48)	-0.00 (-1.86)*
Size	-1.80 (-2.21)**	-0.08 (-0.04)	0.18 (1.88)*
Monopoly	-0.97 (-0.55)	-3.65 (-0.85)	0.02 (0.17)
Liquidity	0.34 (2.61)**	0.33 (1.38)	0.01 (1.46)
Leverage	0.14 (0.26)	-0.66 (-0.35)	-0.14 (-3.13)***
BODSIZE	0.24 (0.95)	0.96 (1.79)*	0.02 (1.13)
BODMEET	-0.39 (-2.69)***	-1.45 (-4.37)***	-0.02 (-2.11)**
BODINED	0.82 (0.23)	4.96 (0.63)	0.64 (1.53)
Intercept	-0.11 (-0.02)	-23.78 (-1.97)*	0.13 (0.21)
Adjusted R-Square	0.316	0.335	0.291

T-statistics are reported in parentheses. Asterisks indicate a significance level: *p < 0.1, **p < 0.05, ***p < 0.01

4.4 Conclusion

In many emerging economies and Malaysia in particular, governments increasingly expect their investment organisations to use their influence over their portfolio companies to promote corporate governance and performance (Malaysia Ministry of Finance, 2010; Malaysia Putrajaya Committee on GLC High Performance, 2006a; 2006b). The rationale for this policy is to attract both domestic and foreign portfolio investors to domestic capital markets, since limited access to external funds has been identified as one of the key challenges for economic development of emerging economies both at national and at firm level (Tsoukas, 2011; Fan et al., 2011).

However, GLICs tend to be controlled by civil servants and politicians, who often do not benefit personally from the performance of the portfolio companies. Moreover, GLICs usually have additional, sometimes conflicting objectives, such as supporting the government's economic and social policies. This raises questions about the incentives and abilities of government investment organisations to improve the corporate governance of their portfolio companies.

As there are different types of GLICs with different objectives and different organisational characteristics, it is of interest to governments and private portfolio investors, to improve their understanding about whether different types of GLICs vary with regard to their impact on corporate performance.

Our research on Malaysian GLCs suggests that this is indeed the case. Our findings are therefore consistent with research by Chen et al. (2009), on the impact of different types of government investment organisations in China. Like them, we find that portfolio companies of government investment organisations that are more remote from the centre, such as SEDCs, show worse financial performance than those owned by more tightly supervised government investment organisations.

Our inconclusive findings regarding whether GLCs controlled by PIF GLIC outperform those controlled by FGLIC raise the possibility that supervision by powerful neutral regulators might be an effective substitute for the limited economic supervision incentives of board members in FGLIC boards.

The fact that GLCs with golden share provisions outperform GLCs without golden share provision implies that the link between ownership and performance might not be driven just by corporate governance concerns but also by the ability of GLICs to act as boundary spanners for firms and provide access to government resources, government contracts and advice or sympathy from regulators. This is likely to be of particular importance in emerging economies where the economic environment tends to be particularly volatile and resource availability tends to be rather limited (Fan et al., 2011).

With regard to ownership concentration of GLICs, our research indicates that a higher proportion of GLIC ownership is beneficial for GLC performance, rather than shifting their portfolio towards better performing GLCs. As GLICs tend to hold higher stakes in GLCs in which senior civil servants and politicians hold board seats, senior civil servants and politicians might use their links to GLICs to facilitate access

to funding for GLCs. However, as board membership by politicians and senior civil servants appears to affect the financial performance of GLCs negatively, this potential as boundary spanners to resources does not appear to compensate for their limited or detrimental impact on the supervision and control of GLCs.

CHAPTER 5

THE IMPACT OF GOVERNMENT-LINKED INVESTMENT COMPANIES IN MALAYSIA ON THE EARNINGS-MANAGEMENT OF THEIR PORTFOLIO COMPANIES

5.1 Introduction

The first project focuses on the relationship between government ownership and corporate performance of government-linked companies (GLCs) in Malaysia. In detail, it investigates on how the differences between sponsoring government organizations called Government-linked investment companies (GLICs) impacted the corporate performance of their portfolio companies i.e. GLCs. Measuring corporate performance using both accounting (return on assets and return on equity) and market performance data (quasi-Tobin's Q), the research showed consistent results. However, the impact of different GLICs on their portfolio firms' performance appeared much more pronounced when performance was measured with accounting performance data rather than market performance data⁴⁰.

One potential reason for this might be that capital market participants discount accounting information published by GLCs, as they might be perceived to be more prone to misstate their accounts in order to manipulate public perception on their performance. This raises the question whether GLCs with different types of controlling GLIC owners (government blockholders) engage more or less in

⁴⁰ This is obvious particularly for variables such as GLIC_share and golden shares.

earnings-management, and, more generally, whether GLCs engage more or less in earnings-management than firms which are not controlled by government investors. Therefore, as a measure for reporting quality, and to get wider idea about corporate reporting quality in Malaysian listed companies, we further extend our research by also including firms without government-controlled blockholders. The issue of earnings-management practices in listed companies controlled by blockholders is important, particularly to the minority (foreign) investors, who might either benefit from the presence of blockholders or might be exploited by their power to steer the company in accordance with their own interests.

In relation to this, one of the main characteristics of listed companies in Malaysia is the existence of a high concentrated ownership (Tam and Tan, 2007; Classens et al., 2000) that determines the nature of agency problems in the firms. When ownership is widely-held or more diffused as commonly exist in many of Anglo-Saxons countries, the agency problem occurs due to conflicts of interest between outside shareholders and managers. However, when ownership is concentrated in the hand of one owner who has full control over the affairs of the company, the agency problem turns into a conflict of interest between the controlling shareholders or blockholders and the minority shareholders. But in both scenarios, the essential effect is the same: insiders (managers or blockholders), through their ability to control the firm, might pursue their own benefits to the detriment of outsiders (Ding et al., 2007).

Despite this, according to recent review of literature by Bhaumik and Gregoriou (2010), much of the empirical literature on earnings-management in emerging market firms with large blockholders is in the context of China, which provides insight but is not necessarily generalisable to other economies. Against this background, this study

looks at the agency problem associated with earnings-management from the agency perspective where conflicts of interest between blockholders and minority shareholders might be the main cause for the earnings-management behaviour among Malaysian public listed companies. Considering that there is a difference in terms of institutional settings and governance structure between developed and emerging markets (Leuz, Nanda and Wysocki, 2003) as well as between emerging markets itself, this research might lead to different results from those found in developed markets as well in other emerging markets.

While many emerging economies have introduced reforms aimed at increasing minority shareholder protection and increasing the transparency and efficiency of their capital markets, the ability to enforce minority shareholder protection rights often remains rather limited (Claessens and Fan, 2002; Rachagan and Satkunasingam, 2009). However, as blockholders in listed firms, GLICs can potentially mitigate this problem by improving the supervision and control of their portfolio firms (Wade, 2004; Lau and Tong, 2008). Malaysia is an interesting case in this context, as the government explicitly expects its federal GLICs to facilitate good corporate governance and minority shareholder protection in their portfolio companies (Malaysia Ministry of Finance, 2010; Malaysia Putrajaya Committee on GLC High Performance, 2006a; 2006b).

Efforts to strengthen corporate governance practices in government-linked companies is seen as vital to show the commitment of the government as forerunner to the practice of good corporate governance. Moreover, in today's competitive environment in Asia, good corporate governance is widely recognised as essential for establishing an attractive investment climate characterized by competitive companies

and efficient financial markets whereby for many investors, the quality of financial reports is central to their investment decisions (OECD White Paper, 2003).

In connection, government blockholders (GLICs) might also have an incentive to constrain earnings-management in their portfolio companies in order to support government initiatives related to foreign investment.

In the past, enquiries into the impact of government ownership on the earnings-management activities of listed companies largely treated government investment as homogeneous (e.g. Yen, Chun, Abidin and Noordin, 2007; Mohd Ali, Mohd Salleh and Hassan, 2008; Ding, et al., 2007; Wang and Yung, 2011, Chen and Zhang, 2012). In reality, most of government investment in emerging economies conducted through different government investment organizations with different objectives and control structures. This is the case in Malaysia where the government's investment in listed companies is performed through three major categories of GLICs with different objectives and control structures which are federal government sponsored pension and investment funds, federal government owned GLICs and State Economic Development Corporations.

An inquiry into whether and how having different types of government investors impacts on earnings-management of their portfolio companies is of importance to governments in many emerging economies given the objective to facilitate economic growth by mobilising internal savings and by attracting foreign investment (Tsoukas, 2011) as discussed above. At the same time, this research is of particular interest of foreign institutional investors who pursue investment opportunities in emerging

economies in the search for increased profitability and global portfolio risk management (Leuz, Lins and Warnock, 2008). In addition, it is interesting to examine whether Malaysian GLICs that are explicitly charged with improving the corporate governance can translate this mission in terms of mitigating earnings-management activities in their portfolio companies.

The remainder of the paper is organised as follows. Section 5.2 explains the data and the research approach employed. Section 5.3 discusses the empirical results and finally section 5.4 concludes the chapter.

5.2 Research Approach

5.2.1 Sample selection

The initial sample consists of all listed firms on the Main Board of Bursa Malaysia Securities from 2004 to 2008. Data required for earnings-management estimation and other financial data for control variables were collected from *DataStream*, while corporate governance data were collected based on actual published annual reports. The sample excluded companies in financial industry such as banks, securities and unit trust companies as they are subject to different compliance and regulations (Haniffa and Hudaib, 2006; Ab Razak et al., 2011) and more importantly their behaviour of accruals differs from other industries (Klein, 2002; Park and Shin, 2004; Mohd Ali et. al, 2008). Newly listed firms (listed in 2008) are excluded due to inadequate data to estimate discretionary accruals and distressed companies under

the Practice Note 17 (PN17)⁴¹ are also excluded consistent with others studies on earnings-management in Malaysia (e.g. Aman, Iskandar, Pourjalali and Teruya, 2006; Mohd Ali et al., 2008).

Table 5-1 illustrates the process of sample selection in this study. The final sample consists of 2,696 firm-year observations. Previous studies in Malaysia on issues related to earnings-management using a sample size much smaller than this study. Aman et al. (2006) used a sample of 892 firm-year observations of companies listed on the Main Board of Bursa Malaysia Securities between 1990 to 1999 in their study of the reasons for earnings-management. Bradbury, Mak and Tan (2006) employed 113 listed companies on their research on the association between corporate governance characteristics and abnormal accruals in Malaysia. In the meantime, Mohd Ali et al. (2008) examined the effect of ownership structure on earnings-management activities using a sample size of 1,001 companies listed on Bursa Malaysia Securities between 2002 and 2003. Recently, Masruki and Azizan (2010) were satisfied with 271 sample companies listed on the Main Board of Bursa Malaysia Securities between 1999 to 2002 in the study in relation to the impact of Asian Financial Crisis on earnings-management and operating performance in Malaysia.

⁴¹PN17 stands for Practice Note 17/2005 and is issued by Bursa Malaysia Securities; relating to companies that are in financial distress. Companies that fall within the definition of PN17 will need to submit their proposal to the Approving Authority to restructure and revive the company in order to maintain the listing status.

TABLE 5-1: The sample selection process

	2008	2007	2006	2005	2004
Total companies listed on the Main Board of Bursa Malaysia Securities	642	636	649	646	622
Companies that are classified by Bursa Malaysia Securities in the financial industry*	(57)	(60)	(63)	(64)	(55)
Industries less than six firms**	(6)	(6)	(6)	(6)	(6)
Listed companies starting in 2008 #	(9)	(0)	(0)	(0)	(0)
Companies in PN4 status	(38)	(20)	(13)	(15)	(36)
Incomplete data set ##	(17)	(7)	(4)	(3)	(8)
Total firms (Pool=2696)	515	543	563	558	517

* e.g. Banking sector, insurance, securities, closed fund, other financial sector.

** Industry represented by fewer than six companies removed from the sample because it is necessary to calculate the coefficient for earnings-management based on industries with six or more companies. In our case, companies in hotel (5 companies) and mining (1 company) are involved.

Due to the earnings-management computation requires data from the previous year (lagged data), the company listed beginning in 2008 is not included in the sample.

Companies information is not available either due to annual reports are not available because of merger and acquisitions, delisting, PN17 status or no data available on Datastream, Thomson One Banker or FAME.

5.2.2 Year of observations

As the first project and this second project are interrelated, for the purpose of consistency the same study period was employed. In addition, as explained in the first empirical chapter, the observation period between 2004 to 2008 was chosen to

reflect a phase of economic stability in Malaysia in the sense that the period is after the Asian financial crisis and prior to the global financial crisis which started in the second half of 2008 (Fidrmuc and Korhonen, 2010) and significantly affected the Asian economies (IMF, 2008). This period is also an important period because of the changes in accounting standards in Malaysia with the major changes in Malaysia Accounting Standards occurred in 2007 which was based on IFRS framework before full convergence with IFRS fully implemented starting 1 January, 2012.

Table 5-2 reports the distribution of sample firm-year observation by industry. As can be seen, half of the firms in the sample belong to both industrial products and trading/services industries followed by properties and consumer products industries.

TABLE 5-2: The sample distribution according to industry classification

Industry group	Number of firms	Percentage (%)
Construction	196	7.27%
Consumer products	413	15.32%
Industrial Products	715	26.52%
Infrastructure project company	36	1.34%
Plantations	201	7.45%
Properties	423	15.69%
Trading/Services	639	23.70%
Technology	73	2.71%
Total	2696 firms	100%

5.2.3 Blockholder-controlled firms

Generally, research investigating the impact of block ownership on performance and earnings-management in developed markets tends to use a variety of thresholds, generally ranging from 5 percent to 20 percent (Renneboog, 2000; Zhong, Dribbin and Zheng, 2007; Jaggi, Leung and Gul, 2009). Similar to our first empirical chapter, we used a threshold of 20 percent of shareholdings to identify blockholder-controlled firms.

As discussed in project one, listed companies in Malaysia are characterized by a highly concentrated ownership structure with the predominant role of the insider investors or blockholders (La Porta et al., 1999; Liew, 2007). By holding a significant proportion of shares of the company, they effectively control the whole company. They usually participate in the firm's management directly or indirectly through their representatives on the board of directors or close key managers, and influence most of the management decisions (Tam and Tan, 2007). As such, because this study would like to examine blockholders' influence on earnings-management activities in firm, it must ensure that the relevant blockholders indeed have the ability to influence or pressure the management to engage in earnings-management activities. In line with previous research on ownership structure and earnings-management such as that by Jaggi et al. (2009), the 20 percent threshold is suitable for this purpose. According to Holderness (2003) in his survey of blockholders and corporate control, 20 percent is the best available estimate of the current level on inside ownership at public corporations.

Table 5-3 presents the sample distribution according to the different types of ownership. Following Ding et al., (2007)⁴², we considered blockholders other than government blockholders as private blockholders. This approach is consistent with the recent studies on earnings-management such as by Wang and Yung (2011) and Halioui and Jerbi (2012). Moreover, study on the relationship between ownership structure and performance such as those by Chen et al., (2009) in China and Ab Razak et al., (2011) in Malaysia also used the same approach.

As can be seen, majority of companies owned by private blockholder and the combination of all types of blockholders (PIF GLIC, FGLIC, SEDC and Private Blockholders) represent about 81.1% from the total sample size. These findings are consistent with Claessens et al., (2000) which found that ownership concentration in Malaysia is the third largest among the nine East Asian Countries. Claessens, Fan and Wong (2002) also documented that the blockholder ownership is prevalent in Malaysian economy.

⁴² Ding et al. (2007) investigate the impact of both ownership concentration and different ownerships types on earnings-management of Chinese listed companies where they separated block ownership into two types of ownerships which are government blockholder and private blockholder

TABLE 5-3: The sample distribution according to types of ownership

Industry Group	Number of firms (N=2699)	Percentage (%)
PIF GLIC	85*	3.15%
FGLIC	79	2.93%
SEDC	56	2.08%
Private Blockholder	1965	72.89%
Non Blockholder	511	18.95%
Total	2696 firms	100%

* Number of observations under group of PIF GLIC decreased by four observations as compared with the number of companies in the same group in the first empirical because they were listed in the 2008.

5.2.4 Control variables

Given that the earnings-management practices in firm are likely to be influenced by factor other than ownership; various control variables are included in order to ensure that the model is able to capture the effect of earnings-management.

(i) Secondary blockholders (SECONDBLOCK).

Maury and Pajuste (2005) developed a model in relation to the effects of multiple blockholders in constraining opportunistic behaviour of the largest blockholder. Using a sample of Finnish listed firms over the period from 1993 to 2000, they showed that the firms owned by large blockholder are prone to private benefit extraction if they are not monitored by another strong blockholders. As discussed earlier, while a large blockholder is able to create more value due to the reduction of agency problem resulting from the conflict between shareholders and managers, a new conflict between them and minority shareholders may form in which large blockholders try to extract private benefits from companies. These benefits may

harm minority shareholders. Given that the existence of large blockholders is common in Malaysian public listed companies, conflict between them and the minority shareholders is inevitable. Therefore, the existence of secondary independent blockholders is likely to help to control and mitigate the opportunistic behaviour of managers as well as large blockholder and thus predicted to reduce earnings-management activities in firms. Zhong et al. (2007) examined the effect of monitoring by outside blockholders on earnings-management and argue that secondary blockholders have more incentive to monitor firm's management for their long-term benefits. This is because if small external shareholders who own small portion of a firm's shares (e.g. less than five percent) are not satisfied with the performance of the firm, they can sell their shares quickly; this is not the case for external blockholders since selling a large block of shares often decreases share prices. Therefore, Zhong et al. (2007) argued that external blockholders generally have to adopt a long-term strategy to benefit from their ownership in firms and have more incentive to play active role in monitoring the management. This argument may also be applied in the context of second blockholder. Hence, a negative relationship is expected between the relative shareholdings of second blockholder to the largest shareholder and earnings-management.

(ii) Corporate governance variables.

Agency theory suggests that effective corporate governance systems are expected to reduce agency problems and could constrain manager's opportunistic behaviour (Jensen and Meckling, 1976). Rhoades et. al (2000) suggested that the selection of appropriate corporate governance mechanisms inside an organization helps to align the interest of shareholders and managers. As contended in agency theory, board of

directors, as the highest-level of control mechanism in the organization play an important role to align and control the managers' activities since the board has power to compensate decision making by managers (Fama and Jensen, 1983). Related to this, Fama and Jensen (1983) suggested that the board of directors is one of the major devices that limits agency costs and the most important internal control monitoring mechanisms in firms that ratify the decisions initiated by management, thus creating and effective separation between “decision management” and “decision control”.

Related to this, corporate governance mechanisms also are potentially effective to limit the extent of agency costs and would be helpful in mitigating managers' propensity to manipulative earnings (Siregar and Utama, 2008; Jaggi et al., 2009). As such the function of board of directors and audit committee are very crucial to mitigate earnings-management activities in firms. Therefore, several corporate governance variables related to board and audit committee are selected to control for their probable effects on earnings-management.

Board of directors' characteristics

Board size (BODSIZE). To date there is no consensus on the optimal size of the board of directors of the company that can effectively mitigate earnings-management activities in firms. Dalton, Daily, Johnson and Ellstrand (1999) argued that larger board size gives benefits in terms of information and expertise advantage. In a similar vein, Xie et al. (2003) suggested that larger boards may be able to draw from a broader range of experience; they found that larger boards are associated with lower levels of discretionary current accruals, indicating that a larger board is more effective in monitoring such accruals than a smaller board. Ghosh, Marra and Moon

(2010) found that firms with smaller boards have larger discretionary accruals, which suggests that larger boards with greater knowledge and experience are more effective in monitoring financial reporting. Until now there is no consensus yet about the optimal size of a board that can effectively mitigate earnings-management activities in firms.

However, Jensen (2010) argued that a larger board is less likely to function effectively and may more easily be controlled by CEO that may take advantage in this situation and use his influence to ensure that board decisions are in line with his needs. Yermack (1996) and Eisenberg et al. (1998) favoured a smaller board size as they may be less encumbered with bureaucratic problems and may be more functional and provide better financial reporting oversight. A study by Jaggi et al., (2009) in Hong Kong markets reported an insignificant relationship between large board size and earnings-management activities and similar results are found in Kouki, Elkhaldi and Souid (2011). More recently Lin (2011) found that small boards have a greater change to mitigate earnings-management than larger boards in Taiwan listed companies. In Malaysia, a study by Abdul Rahman and Mohamed Ali (2006) found a significant positive relationship between board size and earnings-management; this indicates the larger the board, the more ineffective their function in monitoring management behaviour. Therefore, we predict that there is a positive or a negative association between board size and earnings-management.

Board of directors meeting frequency (BODMEET). Vafeas (1999) suggests active boards that meet more frequently are more likely to perform their duties in accordance with shareholders' interests and to put more effort into monitoring the

integrity of financial reporting. Chen, Firth, Gao and Rui (2006) examined a sample of 169 firms under Chinese Securities Regulatory Commission (CSRC) enforcement actions from 1999 to 2003 and suggested that a higher frequency of board meetings reduces chances for fraud. This is because regular meetings allow the directors to identify and resolve potential problems, particularly those that are related to the quality of financial reporting. Hence, we predict a negative relationship between board meeting frequency and earnings-management.

Proportion of independent non-executive directors on the board (BODINED).

To ensure the effective monitoring role of the board of managers' activities, agency theory suggests the board of directors' composition should include independent directors that are independent from management. According to Vance (1983), independent directors are needed as they can give unbiased monitoring and assessment as well as provide "checks and balances" between board of directors that represents shareholders in one part and management in the other part. Peasnell et al. (2005) suggested that independent directors who are senior executive managers in other firms, where they are fully aware with financial reporting issues, have the potential to detect earnings-management activities in firms. Their study on the association between earnings-management and board composition using discretionary accruals as proxy for earnings-management found a significant negative relationship between income increasing accruals and proportion of independent board. Therefore, we predict a negative association between the proportion of independent directors on the board of directors and earnings-management.

CEO duality (DUALITY). Agency theory argue that the positions of Chairman and CEO should be separated as same person who holds both positions creates a conflict of interest that could negatively affect the interests of the shareholders (Bowen, Rajgopal and Venkatachalam, 2002). Study by Johari et al., (2008) on the relationship between DUALITY and performance of listed companies on the Main Board of Bursa Malaysia Securities in the year of 2002 and 2003 found that a small percentage of firms (10.3%) from their final sample of 234 firms encompass CEO duality. Generally, when the same individual dominates the decision making and firm's operation, it may cause conflict of interest and higher business risk (Abdullah, 2004). Bowen et al. (2002) indicated that separation of roles between CEO and chairman is important to prevent earnings-management activities where they find that earnings smoothing activities are higher for firms with CEO duality. Davidson et al., (2004) examined a sample of 173 firms with duality-creating succession announcements and 112 non-duality successions from the years of 1982-92 and found that, following duality-creating successions, income-increasing earnings-management occurs to a greater extent than in non-duality successions. In Malaysia, a study by Mohd Saleh et al. (2005) provided evidence that firms with CEO duality is positively related with earnings-management.

On the other hand, an empirical study in Malaysia markets by Johari et al., (2008) found that CEO duality does not influence the practices of earnings-management. Some researchers also support the combined post of CEO and Chairman such as Weir et al., (2002) who suggested that the advantage of having the same person serve both post is that he or she will have a better understanding and knowledge about the

firm operation and environment. Therefore, we predict that there is a positive or a negative association between DUALITY and earnings-management.

Audit committee characteristics

An audit committee is a sub-committee of the board of directors that has oversight responsibility for the firm's financial reporting process to enhance the credibility of audited financial statements. It also provides a formal communication channel between the board, the internal monitoring system and the external auditor. According to Carcello and Neal (2000), the audit committee plays an important monitoring role in assuring the quality of financial reporting and corporate accountability. In addition to the benefits that firms can derive from the establishment of audit committee, prior studies suggest that the size, meeting frequency of audit committees as well as independent audit committee member may impact the monitoring effectiveness (e.g. DeZoort, Hermanson, Archambeault and Reed, 2002; Walker, 2004).

Audit committee size (ACSIZE). Vafeas (2005) favours larger audit committee as smaller audit committee may result in insufficient members in the committee to monitor management activities, thus reducing its effectiveness to monitor management that might increase earnings-management activities in firms. Yang and Krishnan (2005) investigated the association between audit committee size and quarterly earnings-management in 896 US firms in the years of 1996 to 2000. They found that the larger the size of the audit committee, the more effective they are in monitoring financial reporting, thus reducing earnings-management in the form of

discretionary accruals. Ghosh et al., (2010) found that firms with smaller audit committees have larger discretionary accruals, which suggests that larger audit committee with greater breadth of knowledge are more effective in monitoring financial reporting. Ibrahim, Raman and Saidin (2009) reported that the size of audit committees in Malaysia is significantly positively related to companies producing accurate unaudited year-end quarterly accounts. Hence, based on the emphasis on the importance of audit committee's function in Malaysia by MCCG and regulators, this study predicts a negative relationship of ACSIZE and earnings-management.

Audit committee meeting frequency (ACMEET). An audit committee that meets frequently might reduce the incidence of earnings-management because by meeting frequently with the internal auditor, they will remain informed and knowledgeable about accounting and auditing issues (Raghunandan, Rama and Scarbrough, 1998). Related to this, a study on the relationship between audit committee meeting frequency and earnings-management by Xie et al. (2003) based on a sample of 282 firm-year observations of firms listed on the S&P 500 for the year of 1992, 1994 and 1996 found that audit committee meeting frequency is associated with reduced levels of discretionary accruals in firms. Similar results are suggested by Abbott, Parker and Peters (2002) who found that audit committees of firms restating their financial statements in the US are not likely to meet at least four times a year.

However, other studies such as by Bedard, Chtourou and Courteau (2004) found that there is no relationship between the number of audit committee meetings and the level of earnings-management. In emerging market, a study by Inaam et al., (2012) in Tunis Stock Exchange suggested that the more frequent the audit committee meet,

the better the opportunity to detect earnings-management. In Malaysia, Abdul Rahman and Mohamed Ali (2006) suggested a negative but insignificant relationship between this variable and earnings-management and Mohd Saleh et al., (2007) later on found that listed firms which held more audit committee meetings recorded fewer earnings-management practices compared with other firms. Based on effective monitoring hypothesis and empirical studies at international and domestic level, this study predicts a negative relationship between audit committee meeting frequency and earnings-management activities.

Proportion of independent non-executive directors on the audit committee (ACINED). The independency of a non-executive director is an essential quality that contributes to effective monitoring function of committee under board (Fama and Jensen, 1983). An independent audit committee is expected to provide unbiased assessment and judgement and to be able to monitor management effectively. Empirical study by Klein (2002) showed that increase in the proportion of independent directors in audit committee help reducing the earnings manipulations by managers. Abbott et al., (2004) documented a negative association between the occurrence of earnings restatement and audit committee consisting of only independent directors. The independent members of audit committee also associated with lower earnings-management in firms in the studies by Xie et al., (2003); Bedard et al., (2004) and Davidson, Goodwin-Stewart and Kent (2005). Hence, this variable expected to have a negative relationship with earnings-management where the higher proportion of independent audit committee, the lower the earnings-management in firms.

Financial expertise of the audit committee (ACEXPERT). The Malaysian Code on Corporate Governance (2007) suggests that all members of the audit committee should be financially literate and at least one should be a member of an accounting association or body. This recognizes the importance of audit committee financial expertise as a means of strengthening the monitoring and oversight role that the audit committee plays in the financial reporting process. Previous empirical studies suggest that audit committee with relevant financial expertise is helpful in the mitigation of financial misstatement (Abbott et al., 2002; Abbott et al., 2004) and useful in mitigating earning management activities in firms (Xie et al., 2003; Abbott, Parker and Peters, 2004; Bédard et al., 2004; Agrawal and Chadha, 2005; Carcello et al., 2006). Recently, Dhaliwal et al. (2010) suggested that audit committee financial expertise is also effective in promoting higher accrual quality. Nevertheless, the Malaysian Code on Corporate Governance do not specify what it meant by financially literate. However, following DeFond et al. (2005), we used the accounting and financial qualifications and experience including all form of formal education, professional qualification and working experience related to accounting and finance subjects to identify the variable. As this variable widely recognised as effective monitoring variable, we predicts a negative relationship between audit committee financial expertise and earnings-management.

(iii) Control for other variables

Firm size (SIZE). Two opposing views exist on the role of firm size in mitigating earnings-management practices. The first view stressed that the larger the firm size, the less earnings-management as the large-sized firms may have more sophisticated internal control systems and have more competent internal auditors as compared to

small-sized firms. An effective internal control system contributes to the reliability of financial information disclosed to the public and reducing the likelihood of manipulating earnings by management. Moreover, large-sized firms are usually audited by auditors from Big-Four accounting firms that tend to have more experienced auditors who could help prevent earnings misrepresentation (Siregar and Utama, 2008). Additionally, large-sized firms may be less likely to manage earnings relative to smaller counterparts because they are followed by more financial analysts. Empirical study in Hong Kong markets by Jaggi et al. (2009) report that large firms consistently show lower earnings-management.

In contrast, an opposing view suggests that large-sized firms are more likely to manage earnings than small-sized firms since they face more pressures to meet or beat the analysts' expectations (Barton and Simko, 2002). In addition, the larger the firm size, the more bargaining power they have in negotiations with auditors. Nelson, Elliott and Tarpley (2002) documented that auditors are more likely to waive earnings-management attempts by large clients. Since there are two opposing views regarding the effect of firm size on earnings-management, this study predicts that there is a positive or a negative association between firm size and earnings-management.

Previous year performance (LAGROA). Profitability, measured by lagged return on assets is included to control the relationship between earnings-management and ownership structure. According to Myers, Myers and Skinner (2007), firms that had preceding positive earnings are more likely to manipulate earnings to maintain this consistent performance in order to meet shareholders' and market expectations.

Hence, the performance in previous years influences the managers' tendency to manipulate earnings to avoid reporting negative earnings or the decreases in earnings. Empirical study by Jo and Kim (2007) on the relationship between disclosure quality and earnings-management in the US suggest that firm profitability measured by ROA is highly and positively related to earnings-management. Similar results appear in the study by Wang and Yung (2011) on the impact of state ownership on earnings-management in China where they find a positive and significant relationship between ROA and earnings-management. These findings imply that profitable firms tend to manipulate accounting figures more than non-profitable firms. Therefore, a lagged ROA is predicted to have a positive relationship with earnings-management.

Financial leverage (LEVERAGE). The Bank Negara Malaysia or Central Bank of Malaysia (2007), reported that businesses in Malaysia are relying more on the bank borrowing for short-term financing to fund their working capital and mainly used bonds for long-term financing. Related to this, leverage measured as a proportion of debts to total assets might influence earnings-management in two ways. On the one hand, firms with high leverage may be at risk of bankruptcy if they are unable to make payments on their external debt financing. Moreover, they might have problem to find new lenders and if they need to take out new loan where the willing lenders will scrutinize several measures on whether the firm is borrowing too much and will demand the company to keep its debt within reasonable boundaries. In the meantime, when firms get their financing through bonds market, firms need to maintain credit ratings for their bonds or facing with the increases in bonds coupon rates. In such conditions, firms might engage in income-increasing earnings-

management due to their concerns over breaking loan covenants (DeFond and Jiambalvo 1994; Dichev and Skinner 2002; Beatty and Weber 2003) or to avoid increases in bonds coupon rates. A study by Kim and Yi (2006) in Korea markets reported a significant positive association between leverage and discretionary accruals suggesting that companies with high leverage tend to engage in earnings-management more aggressively than those with low leverage.

On the other hand, higher leverage can also be used to prevent opportunistic managers from engaging in earnings-management activities through additional monitoring activities by lenders (Jensen and Meckling, 1976). Related to this, debt contracts can also act as strong mechanism for solving agency problems as they may prevent managers from investing in value-destroying projects (Bolton and Scharfstein; Stulz, 1990) that eventually may lead to earnings-management practices in order to cover up losses from the investment in such projects.

Moreover banks, for example, have access to information about the borrower that can be used to mitigate agency costs associated with high leverage (Fama, 1985; James, 1987) such as the earnings-management activities. In addition, banks also have expertise in risk management that can help them to identify earnings-management behaviour by managers and thus reduce managers' motivation to engage in earnings-management. Ahn and Choi (2009) examined the effect of bank monitoring on a borrowing firm's earnings-management behaviour in the US and found that a borrowing firm's earnings-management decreases as the magnitude of a bank loan increases. They argued that the extent of earnings-management in borrowing firms is directly related to the measure of credit risk by banks which is the

reliability of its financial statements. For example, when borrowing firms engage in aggressive earnings-management, they are also likely to have lower quality earnings that have an adverse effect on their credit risk. This situation gives banks strong incentives to monitor diligently for borrower income manipulation to avoid loan default risk and as the strength of bank monitoring increases, firm's earnings-management decreases. In similar vein, the rating agencies might scrutinise firms' earnings statement if a firm's debt is mainly funded by bonds.

In Malaysia, Ismail and Weetman (2008) reported a highly significant negative relationship (at 1% level) between leverage and earnings-management and suggest that highly geared firms in Malaysia manage earnings less than lower geared firms due to close scrutiny by the banks who are acting both as creditors and advisers. This study predicts that there is a positive or a negative association between LEVERAGE and earnings-management.

Analyst following (ANALYST). On one hand, monitoring by financial analyst is an outside governance mechanism that can help to curb earnings-management activities in firms. Financial analysts have an advantage in monitoring activities to the extent that enables to help in reducing the agency costs associated to the separation of ownership and control through the dissemination of information, which can reduce information asymmetry between shareholders and managers (Jensen and Meckling, 1976).

Yu (2008) found that earnings-management tends to be lower in companies followed by more financial analysts and Gaviols (2007) suggested that financial analysts are

knowledgeable and able to spot earnings-management practices. This is because they are specially trained to analyze accounting numbers produced by companies. As such, managers are reluctant and anxious to manipulate earnings in the presence of a financial analyst (Yu, 2008). Dyck, Morse and Zingales (2007) suggested that in the US, financial analysts are among the quickest monitors of fraud and able to detect fraud twice as much as auditors pre-Sarbanes Oxley.

On the other hand, they can also provide a boost to earnings-management behaviour by setting too high earnings targets that are hard for companies to achieve and thus push managers to manage their earnings (Hunton, Libby and Mazza, 2006; Iatridis and Kadorinis, 2009). Jensen (2005) highlighted this issue earlier:

“Earnings-management has been considered an integral part of every top manager’s job. But when managers smooth earnings to meet market projections, they’re not creating value for the firm; they’re both lying and making poor decisions that destroy value” (Jensen, 2005: 3)

Therefore, the effect of analysts following earnings-management may be as monitors, where they may curb earnings-management, but at the same time they also could encourage managers to engage in earnings-management to reach or exceed their earnings forecasts. Hence, we predict there are both positive and inverse relationships regarding analysts following earning management. Consistent with Chang, D’Anna, Watson and Wee (2008), we measured this variable using the number of analyst following of one particular listed firm.

Total accrual (TACCLTA). As previously discussed, discretionary accrual is the most popular method used by managers to manipulate earnings (Goncharov, 2005; Ronen and Yaari, 2008). Usually, the starting point to measure discretionary accrual is to calculate total accruals in financial reports that comprising non-discretionary accruals and discretionary accruals (Dechow, Sloan and Sweeney, 1995). To control for the possibility that companies with large total accruals have a higher ability to use discretionary accruals to manipulate earnings than firms with lower total accruals, we included firm's absolute value of total accruals as a control variable. Related to this, prior studies find that there is a positive relationship between total accruals and discretionary accruals where the higher total accruals the higher discretionary accruals (Velury, 2003; Bukit and Iskandar, 2009). Therefore, following Jo and Kim (2007) we used absolute value of total accrual⁴³ as one of our control variables and predict a positive relationship of total accruals and earnings-management.

Investment opportunity (COINVESTMENT). Based on 3,622 firm-year observations of Taiwan listed firms, Chen, Elder and Hung (2010) find that, firms with more investment opportunities are more likely to engage in earnings-management. This is because a company that has investment opportunities which are difficult to monitor due to existing internal control system cannot keep pace with the scale of company growth resulting from investment, which in turn provides an opportunity for managers to engage in earnings-management activities (Doyle, Ge and Mcvay, 2007). In relation to this, Jo and Kim (2007) used gross property, plant and equipment as one of the proxies for investment opportunities and they find a positive association between this variable and earnings-management. Hence, we

⁴³ Net income after extraordinary items (-) net cash flow from operations

predict a positive relationship between investment opportunities with earnings-management and following Jo and Kim (2007), we used gross property, plant and equipment dividing by lagged total assets as proxies of investment opportunities.

Free cash flow (FCF). Agency theory asserts that conflict between shareholders and managers exists partly because of the free cash flow issue; opportunistic managers tend to spend free cash flow unwisely on value-destroying investment (Jensen, 1986). This is because there are more opportunity to compensate themselves as firm becomes larger resulting from the investments. As a result, managers might engage in earnings-management to increase reported earnings to cover up the poor performance resulting from their value destroying investment. Chung, Firth and Kim (2005) examined whether managers of low-growth companies with high free cash flows have incentive to boost reported earnings by choosing income-increasing discretionary accruals. Using a large sample size of 22,576 firm-year observations over the period 1984–1996 (firms in COMPUSTAT), they found that companies with high free cash flow use income-increasing discretionary accruals to camouflage the earnings impact of non-value-maximizing investments and other expenditures. Based on theory and empirical evidence, we predict a positive relationship between free cash flow and earnings-management.

Loss (LOSS). Firms incurring losses are expected to have greater incentive to manipulate earnings compared to their counterparts with positive earnings (Moreira and Pope (2007). Dechow, Richardson and Tuna (2000) suggested that negative earnings convey a signal to outsiders evaluating the firms particularly the credit rating agency and stock analyst that could affect firms' credit rating and their cost of

debt. Empirical studies, for example by Burgstahler and Dichev (1997) and DeGeorge, Patel and Zeckhauser (1999), suggest that firms manage their earnings to avoid earning losses or earnings decreases. From the perspective of managers, a company that suffers loss will put their position at risk. This motivates them to manipulate earnings to secure their position (Ertimur, 2004) especially if they do not have enough voting power to maintain the position. Therefore, we predict a positive association between firms incurring losses and earnings-management.

Auditor quality (BIG4). In general, well-qualified external auditors reduce the cost of using financial statements because they reduce the burden for shareholders to make their own investigations to determine the reliability and accuracy of financial data contained in financial reports. This is because well-qualified external auditors are better able to detect errors or accounting manipulation made by the company against shareholders who are not trained for that purpose and they tend to have more experienced auditors who could help prevent earnings misrepresentation in firms (Siregar and Utama, 2008). They also have strong incentives to provide or maintain a high audit quality level as these audit firms have a greater number of clients and more opportunity to deploy significant resources to auditing and can suffer more significant losses such as termination by clients and related loss of reputation particularly when they do not report a discovered breach (Caneghem 2004; Chung, Firth and Kim, 2005). Related to this, Becker, DeFond, Jiambalvo and Subramanyam (1998) investigated the relationship between auditor quality and earnings-management and find that the clients of the Big-6 auditors (now Big-4) use less discretionary accruals than the clients of other auditors. Hence, we controlled for the probable effect of well-qualified external auditors and expected firms audited by Big-

4 auditors to engage less in earnings-management activities and we predict a negative relationship between BIG4 and earnings-management

Firm age (FIRMAGE). Firm age may be related to earnings-management behaviour as long-established company is expected to have better appreciation of the market environment and comparatively have good control over its operations (Jaggi, 1997).

High expectations by market participants can put pressure on the company to achieve earnings targets which are the same or even higher. Therefore, company management is expected to have a greater incentive to manage their reported earnings to show a consistent/better growth and maintain their reputations in the business.

In addition, a long-established company has good control over its operations and thus is expected to have a higher capacity to use accrual accounting in managing their earnings (Ismail and Weetman, 2008). Therefore, this study predicts a positive relationship between FIRMAGE and earnings-management.

(iv) Additional control variables

Because this study employs panel data, it is important to take into account changes in the macroeconomic-environment. As such, year dummies (YEAR DUMMY) are part of the additional control variable. Changes in accounting standards (IFRS) might also influence earnings-management activities in firms. As previously discussed, beginning in 2004, Malaysia gradually aligned its accounting standards with IFRS and in 2007, the standards were revised to be virtually identical with IFRS. Previous studies on the effects of changes in accounting regulations on earnings-management

show encouraging results. Chan et al., (2009) reported a significant reduction of accrual anomaly in the UK from pre-to-post-FRS3 periods. Zeghal et al., (2011) also suggested a reduction in earnings-management level in French listed companies following the mandatory adoption of IFRS. Wan Ismail et al., (2010) also showed that reported earnings by public firms in Malaysia are more value relevant after the adoption of FRS. However, contrary to the results above, Rudra and Bhattacharjee (2012) found that the Indian firms adopting IFRS are more likely to smooth earnings compared to other non-adopting firms. Therefore, based on this discussion, it is important to control for the effects of changes in accounting regulations as part of the control variable.

This study also controls for industry (INDUSTRY) effects as industry type might influence manager's earnings-management activities. For example, empirical studies by Sun and Rath (2009) using 4,844 firm-year observations during the period of 2000 to 2006 in Australia, suggest that earnings-management is prevalent across several industries. They reported that firms in energy, metals and mining, industrials, and information technology are found to engage in income-decreasing earnings-management while firms in health care and telecommunication and utilities sectors are associated with income increasing earnings manipulation. As such, this study controls for this variable as different industry might act differently to earnings-management.

5.2.5 Earnings-management measures

As discussed in earlier sections, this study is concerned about the issue of significant discrepancy between accounting and market performance of GLCs from the results in the first empirical chapter as this could be a signal of market participants might discount the GLCs' share prices after detecting earnings-management activities in GLCs' financial reporting to manipulate the public's perception on their performance.

As widely discussed in accounting literature, reported earnings in firm's financial reports are normally used by investors as an indicator of firm's overall financial performance. According to Francis, Schipper and Vincent (2003), reported earnings numbers are more closely associated with share prices than cash flow, sales and other financial statement data. This is because investors consider reported earnings as value relevant and useful in determining future returns and firms with more persistent earnings have more accurate equity valuations, which implies greater decision usefulness. As such investors normally make the investment decisions based on the earnings performance (Ronen and Yaari, 2008). The positive link between reported earnings and the shares price has been reported in many empirical studies such as by Kothari (2001); Gelb and Zarowin (2002); Chambers, Jennings and Thompson (2003); Monahan (2005); Butler, Kraft and Weiss (2007) etc.

Therefore, taking into account of the importance of reported earnings in determining the value of the firms compared with other components in the financial report, this study employs earnings-management as one of the proxies of account misstatement

to investigate whether earnings-management activities are the main cause of this issue.

There are several instruments that can be used by management to manipulate the accounts of companies through earnings-management. This includes taking advantage of the flexibility in the method of accounting, income smoothing or using accrual accounting (Peasnell, Pope and Young (2000)).

Indeed, according to Goncharov (2005), accrual is the most popular method used by managers to engage in earnings-management activities. This is for the reason that, discretionary accrual is the financial component that under the discretion of management that can be done easily through accounting decisions and does not require the creation of a new business transaction. This provides managers with opportunities to manipulate earnings. According to Young (1999), managers tend to manipulate earnings through discretionary accruals due to low cost and difficult to detect. Nevertheless, the used of discretionary accruals as proxy for earnings management also criticized as whether discretionary-accruals models are able to effectively separate accruals into discretionary and nondiscretionary components and thereby detect earnings management. This is actually still an open empirical question.

The accruals can be divided into non-discretionary accruals and discretionary accruals. Non-discretionary accruals refer to normal accruals or non-managed accruals where it is a normal part of earnings that results from the neutral application of accounting rules. It is normally used by the user of financial reports to reflect

business condition, that is, sales growth that cannot be controlled by managers (Islam, Ali and Ahmad, 2011). Meanwhile, discretionary accruals, better known as abnormal accruals or managed accruals, are non-obligatory expenses such as an anticipated bonus for management that is yet to be realized but is recorded in the account book. This is the accrual component under the discretion of management which often provide them with opportunities to manipulate earnings (Dechow, 1994). According to Sun and Rath (2009), a large part of the literature related to the detection of earnings-management is based on discretionary accruals.

Healy and Wahlen (1999: 6) define earnings-management as:

Occur[ing] when managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about underlying economic performance of the company or to influence contractual outcomes that depend on reported numbers.

Consistent with these definitions that earnings-management reflects opportunistic behaviour of the management and following key studies in earnings-management that focusing on accruals manipulation (e.g. Klein, 2002; Xie et al., 2003), this study investigates how much of the total accruals consisted of earnings-management that are measured by absolute value of discretionary accruals. In other words, discretionary accruals are used as proxy to earnings-management in this study. In accordance to Becker et al. (1998), the absolute value of discretionary accruals measures the level of opportunistic earnings-management activities and extreme reporting decision exercises by managers. The use of absolute value of discretionary accruals is consistent with Klein (2002) and Warfield, Wild and Wild (1995).

McNichols (2000) identified three research designs in the earnings-management literature to measure the discretionary accruals which are aggregate accruals method, the specific accruals method and the earning-based distribution method. According to him, the designs of earnings-management research are varied and the advantages of each method are depending on the study objectives. If the study aims to examine the magnitude of earnings-management, the aggregate accruals method is most appropriate (McNichols, 2000: 333). This is because the specific accruals method may represent only a small portion of the discretionary component of income and therefore may fail to reflect earnings-management in cases where other discretionary components are manipulated (McNichols and Wilson, 1988). Moreover, this method is unable to analyse simultaneously aggregated effects of accounting levers used by managers in managing earnings (McNichols 2000, Fields, Lys and Vincent, 2001, Francis 2001).

Meanwhile the earning-based distribution method (known as the frequency distribution method) focuses on the behaviour of earnings where it provides specific predictions related to which firms will manage earnings (to avoid earnings decreases or losses) or certain thresholds (to report positive profits) rather than merely measuring the magnitude or the extent of opportunistic earnings-management activities (McNichols, 2002). In other words, the frequency distribution method cannot infer earnings-management activities, which are the main concern of this study.

Since this study aims to examine the relationship of block ownership and earnings-management, the magnitude of earnings-management is a crucial component. Therefore, the aggregate accruals method will be used in this study as the method for covering more comprehensive research design in capturing the discretionary components.

There are several models in the aggregate accrual method such as Healy's (1985) model, De Angelo's (1986) model, Jones's (1991), modified Jones model by Dechow, Sloan and Sweeney (1995) and the performance-adjusted model by Kothari, Leone and Wasley (2005). Both the Healy and De Angelo approaches assume the non-discretionary accruals component is constant and all earnings-management activities can be captured by total accruals. However, Kaplan (1985) argued that the assumption is unrealistic since the level of non-discretionary accruals should change from period to period in response to changes in economic circumstances. Therefore, both approaches tend to detect earnings-management with errors (Sun and Rath, 2009).

As an alternative, the last three models (cross-sectional Jones model, cross-sectional modified Jones model and performance-adjusted model) control the variations of non-discretionary accruals by taking into account the changes in total assets, revenues, receivables and the firm's performance. These models that relate to accruals are favourable as accounting accrual is the most popular earnings-management method among managers (Perry and Williams, 1994; Dechow et al., 2010)

From these three models, the cross-sectional modified Jones model is the most powerful in detecting earnings manipulation in the event of managers exercising their discretion over revenue recognition (Dechow et al., 1995; Guay, Kothari and Watts, 1996). Related to this, Ronen and Yaari (2008) performed data simulation based on original Jones model and concluded that this model yields biased coefficients and thus provide misleading results. This is mainly because its assumptions that the firm does not manage earnings in the estimation period. The Modified Jones model in fact deals to the problem through the treatment in account receivables.

However, the used of discretionary accruals as proxy for earnings management also criticized as the model measures the unexpected accruals or abnormal accruals calculated as the difference between the total accruals and estimated normal accruals. A limitation of the modified Jones model is that the unexpected accruals have to be calculated or estimated. There is a risk of estimation errors and potentially biased results. Another limitation of the modified Jones model is that it only measures the effect of earnings management through the change in accruals, while earnings management can also be applied through manipulation of the cash flow component (Healy & Wahlen, 1999). Young (1999) argues that the modified Jones model suffers from systematic measurement error when depreciation is included in the measurement of accruals, resulting into a biased measurement of the abnormal accrual.

The used of cross-sectional modified Jones model in detecting earnings-management in the form of discretionary accruals is indeed resembles previous research in this area, including Gavigous (2007); Jiraporn, Miller, Yoon and Kim (2008); Cornett et

al. (2008), Rajgopal and Venkatachalam (2011) etc. In addition, in the additional analysis, earnings-management was estimated using the original Jones Model (Jones, 1991) and Performance-Adjusted Discretionary Accruals (Kothari et al., 2005).

5.2.5.1 The Modified Jones Model (MJONES) and Jones Model (JONES)

There are several steps to get the absolute value of discretionary accruals (DAC) under the cross-sectional modified Jones model and Jones Model. The first step is to calculate total accruals (TAC). There are two main approaches to calculate total accruals, namely using the traditional approach through the use of balance-sheet⁴⁴ (Healy, 1985; Dechow et al., 1995) or using cash flow approach (Subramanyam 1996; Becker et al., 1998; Xie et al., 2003). Both approaches are widely used in earnings-management studies (Ronen and Yaari, 2008). However, Hribar and Collins (2002) find that using the balance-sheet approach to calculate the total accruals containing the measurement errors might lead to erroneous conclusion of the existing earnings-management when no such earnings-management was detected. They find that the estimation error arising from the balance sheet approach has been transmitted to the discretionary accruals thus resulting in wrong findings and conclusion when this method is apply.

⁴⁴ Under the balance sheet approach, the accruals are measured as follows (Hribar and Collins, 2002: 107):

$$TAC_t = \Delta CA_t - \Delta CL_t - \Delta Casht + \Delta DEBT - DEP$$

where TAC=total accruals; ΔCA_t =the change in current assets during year t; ΔCL_t =the change in current liabilities during year t; $\Delta Casht$ =the change in cash and cash equivalent during period t; $\Delta DEBT$ =the change in debt included in current liabilities during period t and DEP=depreciation and amortization expenses during period t. All variables are scaled by lagged total assets.

Findings in Hribar and Collins (2002) with regard to measurement errors under the balance-sheet approach is supported by Ronen and Yaari (2008:436). To avoid such circumstances as highlighted by both studies above, this study employed the cash flow approach in calculating the total accruals where the total accruals are computed as earnings before extraordinary items and discontinued operation less the net cash flows from operating activities (Hribar and Collins, 2002: 109). Second, to estimate the DAC, two steps are involved in this process. Step one is the estimation of non-discretionary accruals (NDAC) for both models. The equation for NDAC according to MJONES is (see Ronen and Yaari, 2008: 434):

$$NDAC_{it} = \alpha_1(1/TA_{it-1}) + \alpha_2[(\Delta REV_{it} - \Delta REC_{it})/TA_{it-1}] + \alpha_3(PPE_{it}/TA_{it-1}) + e_{it}$$

Whereby:

- $NDAC_{it}$ = Non-discretionary accruals of firm i in year $t-1$;
- TA_{it-1} = total assets of firm i in year $t-1$;
- ΔREV_{it} = change in revenues of firm i in year t ;
- ΔREC_{it} = change in account receivable of firm i in year t ;
- PPE_{it} = gross property plant and equipment of firm i in year t ;
- e_{it} = error term of firm i in year t ;

The equation for NDAC according to MJONES is (see Kothari et al. (2005):

$$NDAC_{it} = \alpha_1(1/TA_{it-1}) + \alpha_2(\Delta REV_{it} / TA_{it-1}) + \alpha_3(PPE_{it}/TA_{it-1}) + e_{it}$$

Whereby:

- $NDAC_{it}$ = Non-discretionary accruals of firm i in year $t-1$;
- TA_{it-1} = total assets of firm i in year $t-1$;
- ΔREV_{it} = change in revenues of firm i in year t ;
- PPE_{it} = gross property plant and equipment of firm i in year t ;
- e_{it} = error term of firm i in year t ;

The coefficients α_1 , α_2 , α_3 for both models above are estimated using OLS regression. To do this, data are gathered in the same industries and years. Using a similar approach by Athanasakou, Strong and Walker (2009), industries that are less than six companies removed from the sample due to not having a sufficient quorum to calculate the coefficient. To obtain the coefficient parameters, the equation below was regressed using OLS regression:

$$TAC/TA = \alpha_1(1/TA_{it-1}) + \alpha_2(\Delta REV_{it} / TA_{it-1}) + \alpha_3(PPE_{it}/TA_{it-1}) + e_{it}$$

Whereby:

TAC_{it} = Total accruals of firm i in year $t-1$;

TA_{it-1} = total assets of firm i in year $t-1$;

ΔREV_{it} = change in revenues of firm i in year t ;

PPE_{it} = gross property plant and equipment of firm i in year t ;

e_{it} = error term of firm i in year t ;

The final step is to estimate the error term in the model (e_{it}), which represents the discretionary component of accrual. This error term is the difference between the TAC and the NDAC.

$$DAC_{it} = TAC_{it} - NDAC_{it}$$

Whereby:

DAC_{it} = discretionary accruals for firm i in year t ;

TAC_{it} = total accruals;

$NDAC_{it}$ = non-discretionary accruals for firm i in year t .

5.2.5.2 The Performance-Adjusted Discretionary Accrual model (DAROA)

Kothari et al. (2005) suggested that the firms' performance variable can be included in the discretionary accruals regression as additional variable. Following their approach, DAROA was calculated by incorporating lagged ROA into the MJONES. The similar steps as the calculation of MJONES and JONES are involved. First, it begins with the estimation of coefficients for α_1 , α_2 , α_3 and α_4 for each industry in each year by using OLS regression to extract the non-discretionary accrual. Industries that are less than six companies removed from the sample due to not having a sufficient quorum to calculate the coefficient parameters (Athanasakou et al., 2009). To obtain the coefficient, the equation below was regressed using OLS regression:

$$TAC/TA = \alpha_1(1/TA_{it-1}) + \alpha_2(\Delta REV_{it} / TA_{it-1}) + \alpha_3(PPE_{it}/TA_{it-1}) + \alpha_4ROA_{it-1} + e_{it}$$

Whereby:

TAC_{it} = Total accruals of firm i in year $t-1$;

TA_{it-1} = total assets of firm i in year $t-1$;

ΔREV_{it}	=	change in revenues of firm i in year t ;
PPE_{it}	=	gross property plant and equipment of firm i in year t ;
ROA_{it}	=	Return on Assets of firm i in year $t-1$
e_{it}	=	error term of firm i in year t ;

The coefficient parameters from this regression are then used to calculate NDAC using DAROA in the equation below:

$$NDAC_{it} = \alpha_1(1/TA_{it-1}) + \alpha_2 [(\Delta REV_{it} - \Delta REC_{it})/TA_{it-1}] + \alpha_3 (PPE_{it}/TA_{it-1}) + \alpha_4 (ROA_{it-1}) + e_{it}$$

Whereby:

$NDAC_{it}$	=	Non-discretionary accruals of firm i in year t ;
TA_{it-1}	=	total assets of firm i in year $t-1$;
ΔREV_{it}	=	change in revenues of firm i in year t ;
ΔREC_{it}	=	change in account receivable of firm i in year t ;
PPE_{it}	=	gross property plant and equipment of firm i in year t ;
ROA_{it}	=	Return on Assets of firm i in year $t-1$
e_{it}	=	error term of firm i in year t ;

Finally, the error terms are estimated by taking the different between total accruals and the non-discretionary accruals, which represents the discretionary component of accruals as follows:

$$DAC_{it} = TAC_{it} - NDAC_{it}$$

Whereby:

DAC_{it} = discretionary accruals for firm i in year t ;
 TAC_{it} = total accruals;
 $NDAC_{it}$ = non-discretionary accruals for firm i in year t .

Since this study is focusing on the magnitude of earnings-management, we employ the absolute value of discretionary accruals as the dependent variable⁴⁵. According to Abdul Rahman and Mohamed Ali (2006: 791), in this approach, “the direction of earnings-management is disregarded to include the combined effect of income increasing and income decreasing earnings-management.” Moreover, the used of absolute value of discretionary accruals is in-line with prior studies in earnings-management (e.g. DeFond and Jiambalvo, 1994; Warfield et al., 1995; Becker et al., 1998; Klein, 2002; Kothari et al., 2005; Abdul Rahman and Mohamed Ali, 2006; Yu, 2008).

5.2.6 Model specifications and variable measurement

In examining the relationship between ownership structure and earning management, the following model is employed (earnings-management model):

$$\begin{aligned}
 EM_{it} = & \alpha + \beta_1 CONCENTRATION_{it} + \beta_2 PIFGLIC_{it} + \beta_3 FGLIC_{it} + \beta_4 SEDC_{it} + \beta_5 PRIVATE_{it} + \\
 & \beta_6 MANSHARE_{it} + \beta_7 SECONDBLOCK_{it} + \beta_8 BODSIZE_{it} + \beta_9 BODMEET_{it} + \\
 & \beta_{10} BODINED_{it} + \beta_{11} DUALITY_{it} + \beta_{12} ACSIZE_{it} + \beta_{13} ACMEET_{it} + \beta_{14} ACINED_{it} + \\
 & \beta_{15} ACEXPRT_{it} + \beta_{16} SIZE_{it} + \beta_{17} LAGROA_{it} + \beta_{18} LEVERAGE_{it} + \beta_{19} ANALYST_{it} + \\
 & \beta_{20} TACCLTA_{it} + \beta_{21} COINVESTMENT_{it} + \beta_{22} FCF_{it} + \beta_{23} LOSS_{it} + \beta_{24} BIG4_{it} + \\
 & \beta_{25} FIRMAGE_{it} + \beta_{26} IFRS_{it} + \beta_{27} Year2005_{it} + \beta_{28} Year2006_{it} + \beta_{29} Year2007_{it} + \\
 & \beta_{30} Year2008_{it} + \beta_{31} Construction_{it} + \beta_{32} Consumer_{it} + \beta_{33} Industrial_{it} + \\
 & \beta_{34} Infrastructure_{it} + \beta_{35} Plantations_{it} + \beta_{36} Properties_{it} + \beta_{37} Services_{it} + \epsilon_{it}
 \end{aligned}$$

In line with previous studies on the issue of ownership types and earnings-management (e.g. Ding et al., 2007; Wang and Yung, 2011), we use dummy

⁴⁵ This is except our explanation in descriptive statistic section where we need to discuss the direction of earnings-management.

variables for our key variables which are PIF GLIC, FGLIC, SEDC and PRIVATE. For example, PIF GLIC is a dummy variable coded “1” for firm years in which the biggest shareholders is a PIF GLIC and “0” otherwise.

Table 5-4 explains the variable definitions and operationalisation for all variables employed in the regression model.

TABLE 5-4: Variable definitions and operationalisation

Variables	Acronym	Operationalisation
Dependent variables: Earnings-management proxy by discretionary accrual	EM	Discretionary accrual estimated using: (i) Cross-sectional modified Jones Model (ii) Cross-sectional Jones Model (iii) Performance-adjusted model
Independent variables: Ownership concentration (%)	CONCENTRATION	The shareholding percentage of the largest shareholder in a company
Federal government sponsored pension and investment funds owned GLICs	PIF GLIC	Dichotomous with 1 if PIF_GLIC is the largest shareholder and 0 otherwise
Federal government owned GLICs	FGLIC	Dichotomous with 1 if FG_GLIC is the largest shareholder and 0 otherwise
State government owned GLICs	SEDC	Dichotomous with 1 if SEDC is the largest shareholder and 0 otherwise
Private blockholder	PRIVATE	Dichotomous with 1 if private blockholder is the largest shareholder and 0 otherwise
Managerial ownership (%)	MANSHARE	The shareholding percentage managerial (CEO and board) in a company as stated in annual report
Control Variables: Second blockholder	SECONDBLOCK	The shareholding percentage of second largest shareholder as stated in firm's annual report
Board size	BODSIZE	Total number of directors on the board of the company
Board meeting frequency	BODMEET	Total number of the board meeting during the financial calendar
Independent directors	BODINED	The proportion of independent non-executive directors to the total number of directors on the board
CEO duality	DUALITY	Dichotomous with 1 if firm with CEO duality and 0 otherwise
Audit committee size	ACSIZE	Total number of audit committee members in the company
Audit committee meeting frequency	ACMEET	Total number of audit committee meeting during the financial calendar

Independent audit committee	ACINED	The proportion of independent audit committee to total number of audit committee members
Audit committee financial expertise	ACEXPERT	The proportion of audit committee members with an accounting or finance background
Total assets (proxy of firm size)	SIZE	Natural logarithm of total assets
One-year lagged for firm's financial performance measure by return on assets	LAGROA	Calculated as net income/total assets
Financial leverage (%)	LEVERAGE	The percentage of total debt to total assets of the company
Monitoring by financial analysts	ANALYST	Measured using the number of the analyst following a firm
Total accruals	TACCLTA	Absolute value of total accruals (where total accrual is calculated as; net income – net cash flow from operation activities/lagged total assets)
Company's investment	COINVESTMENT	Gross property, plant and equipment divided by lagged total assets. This is a proxy for investment opportunity
Free Cash Flow	FCF	Operating cash flow minus capital expenditures
Firms with negative earnings	LOSS	Dichotomous according to the firm's income before extraordinary items: 1 if the firms recorded negative earnings and 0 otherwise
Big Four auditors	BIG4	Dichotomous with 1 if firm engaged Big Four auditors and 0 otherwise
Firm age	FIRMAGE	The number of years a company's shares have been traded on the Bursa Malaysia Securities
Changes in accounting standards	IFRS	Dummy variables for changes in accounting standards within the test period (1=year 2007 and 2008; 0=otherwise)
Year dummies	YEAR DUMMY	Dummy variables for years within the test period
Industry type	INDUSTRY	Dichotomous according to which sectors the company belongs to according to Bursa Malaysia Securities sector classifications

5.2.7 Data analysis procedures⁴⁶

This section discusses data analysis procedures and statistical tests employed in this study. Basically, the nature and characteristics of the sample data will determine which statistical method should be employed. As a first step, we performed several tests in order to fulfil several critical assumptions under the parametric test. Five important assumptions under the parametric analysis are assumptions of normality, linearity, multicollinearity, heteroscedasticity and autocorrelation. This part is important to ensure the model is able to predict part of the variability in the data and the test is extremely critical for the validity of the interpretation of the regression estimates (Gujarati, 2003). Under violation of these assumptions, the main analysis under a parametric test that is ordinary least square (hereafter OLS) can be statistically inefficient or even give misleading inferences (Baltagi, 2005; Greene, 2008).

In the second step, we discuss the empirical results from our statistical analyses. To summarize the data in a clear and understandable way, the analysis starts with descriptive statistic containing mean, median, standard deviation, minimum, maximum, skewness and kurtosis of 2696 firm-year observations in the study. Then, we performed univariate analysis that involve Pairwise correlation matrix, two sample T-test of differences in means and Mann-Whitney U-test of differences in medians for our main variables which is the different type of block ownership.

⁴⁶All continuous variables were winsorized at the top and bottom at 1% in order to reduce the effect of outliers and this method is consistent with previous studies such as Cornett, Marcus and Tehranian (2008) and Dhaliwal et al. (2009).

In the next step, we perform multivariate analysis to see the impact of our key variables on performance after controlling firm specific characteristics such as corporate governance, profitability, agency cost and industry. As the problem of endogeneity in the form of simultaneity can limit the validity of empirical testing of the model (Chenhall and Moers, 2007), we perform a Durbin-Wu Hausman test (Hausman, 1978) to detect the presence of endogeneity. The endogeneity of ownership structure and earnings-management is a serious concern for a regression model. This is because if the level of shareholding in firms either by blockholders or management is based on input related to earnings-management, then the residuals in regression would be correlated with the ownership variables and the coefficient estimates will be biased.

We also perform various additional analyses including robustness checks to provide reasonable assurance for the current findings as well as to tackle several minor issues. Finally, we end our chapter with discussion on the contribution from the study, its limitations and our recommendations for future research.

5.2.8 Data Diagnostics

Most of the multivariate regression in the prior literature used the OLS estimator to examine the relationship between a single dependent variable and several independent variables (predictors). Before using OLS estimator, however, there are five fundamental assumptions need to be fulfilled for OLS regression models to be valid (Gujarati, 2003; Hair et al., 2010). These assumptions include:

- (i) Normality - The errors (residuals) should be normally distributed
- (ii) Linearity - The relationship between the predictors and the response variable should be linear.
- (iii) Homoscedasticity - The errors variance should be constant
- (iv) Independent - The errors associated with one observation are not correlated with errors of other observation.
- (v) Multicollinearity - There is no exact collinearity among predictors.

Each of this assumption will be tested using various statistic analyses and the next five sub-sections outlined the results and discussions.

(i) Assumption of normality

One of the important assumption underlying OLS regressions is that the data must be drawn from normally distributed populations and it is assumed that residuals in a model are randomly and normally distributed with mean zero. Following checking normality of residuals by Chen, Ender, Mitchell and Wells (2003), we conducted both graphical and numerical tests for testing normality and detect the presence of outliers. The graphic tests using Kernel density estimate, normal probability plot and quantiles plot. Meanwhile, for numerical test we employed the Shapiro-Wilk test (Swilk test) and Inter-quartile range test. The Swilk test is the most powerful normality test available as it is able to detect small departure from normality and suitable for small sample size (Chen et al., 2003) such as that employed in this study.

The graphic test using Kernel density estimate is presented in Figure 5-1. In the test, the normal density line should be overlaid on the kernel plot as an indication of data normality. However, the results show serious deviation from normal and indicate that

the residuals in the model are not normally distributed. The standardized normal probability plot test (P-P plot) and quantiles plot test are in Figure 5-2 and 5-3. While standardized normal probability plot test is sensitive to non-normality in the middle range of data, the quantiles plot is sensitive to non-normality near the tails. In both plot, there are clearly significant deviation from the normal plot, thus indicated that based on graphic tests, the data of this study is not normally distributed.

In the first numerical test, the null hypothesis of Swilk test is that the residuals are normally distributed. If the p -value is significant, then the null hypothesis would be rejected, suggesting the residuals are not independently distributed. Table 5-5 confirm that the normality of residuals are not been fulfilled since the p -value is significant at $p < 0.000$ indicating the residuals are not normally distributed. In the meantime, inter-quartile range (IQR) test assumes symmetry of the distribution. Severe outliers consist of those points that are either 3 inter-quartile-ranges below the first quartile or 3 inter-quartile-ranges above the third quartile. The presence of any severe outliers should be sufficient evident for us to reject normality at a 5% significance level. In our case, we have severe outliers (Table 5-6) and therefore, the assumption of data normality is not fulfilled.

FIGURE 5-1: Kernel density estimate test

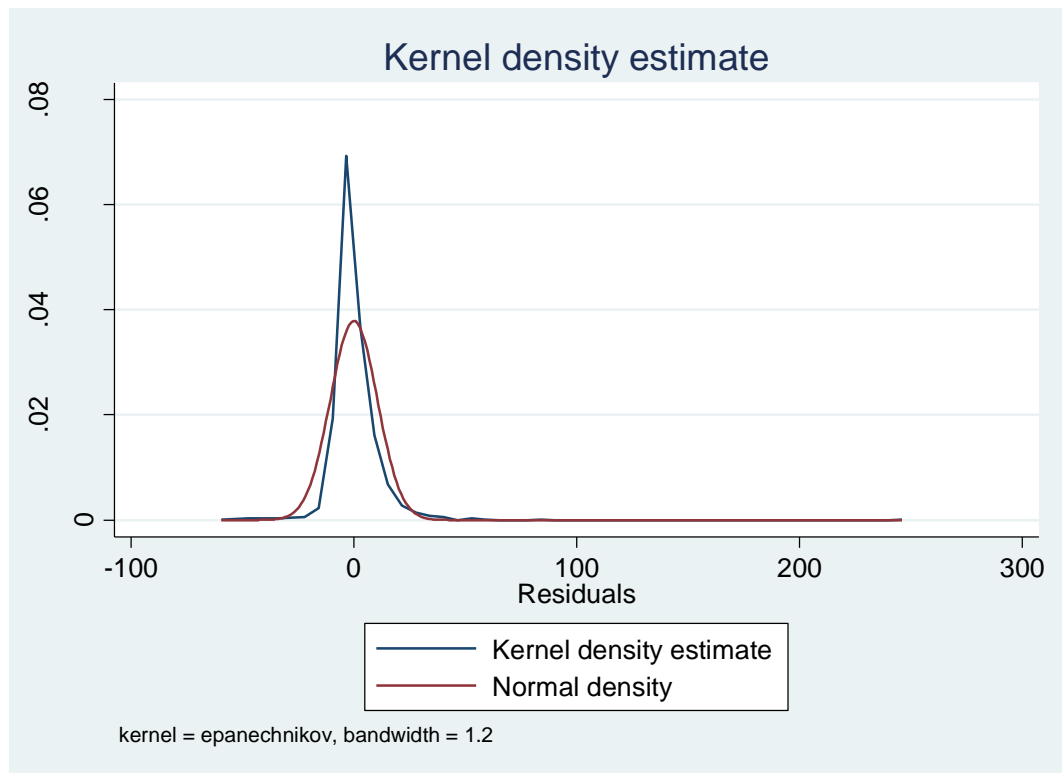


FIGURE 5-2: Standardized normal probability plot test (P-P plot)

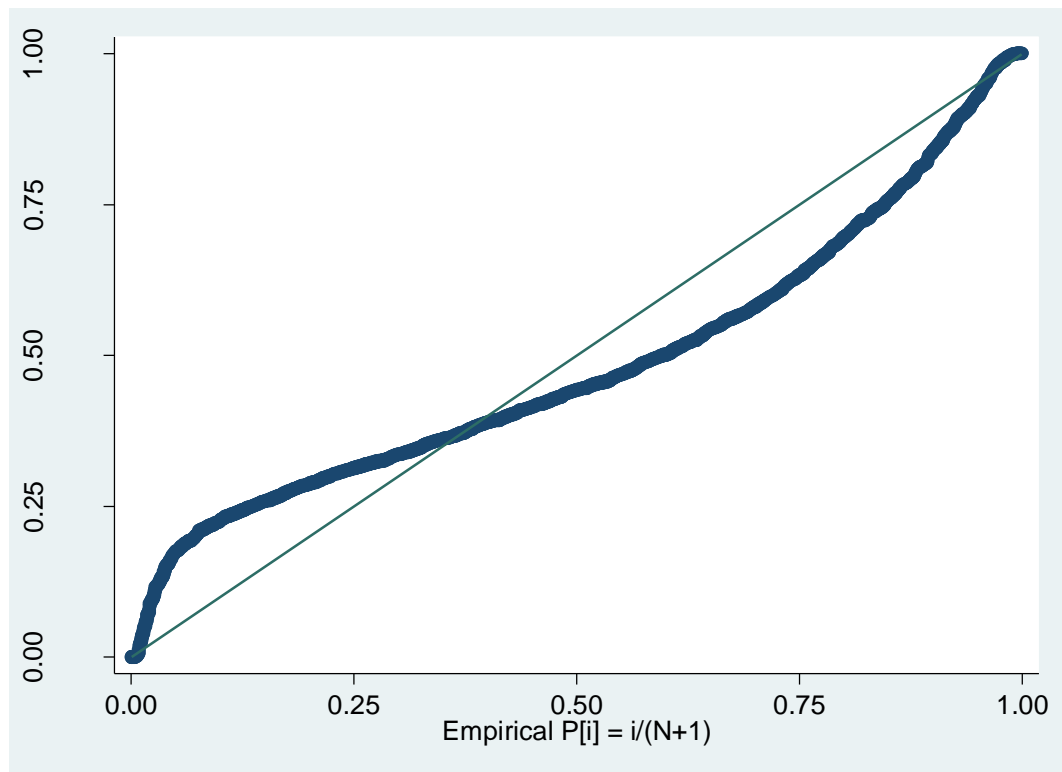


FIGURE 5-3: Quantiles plot test

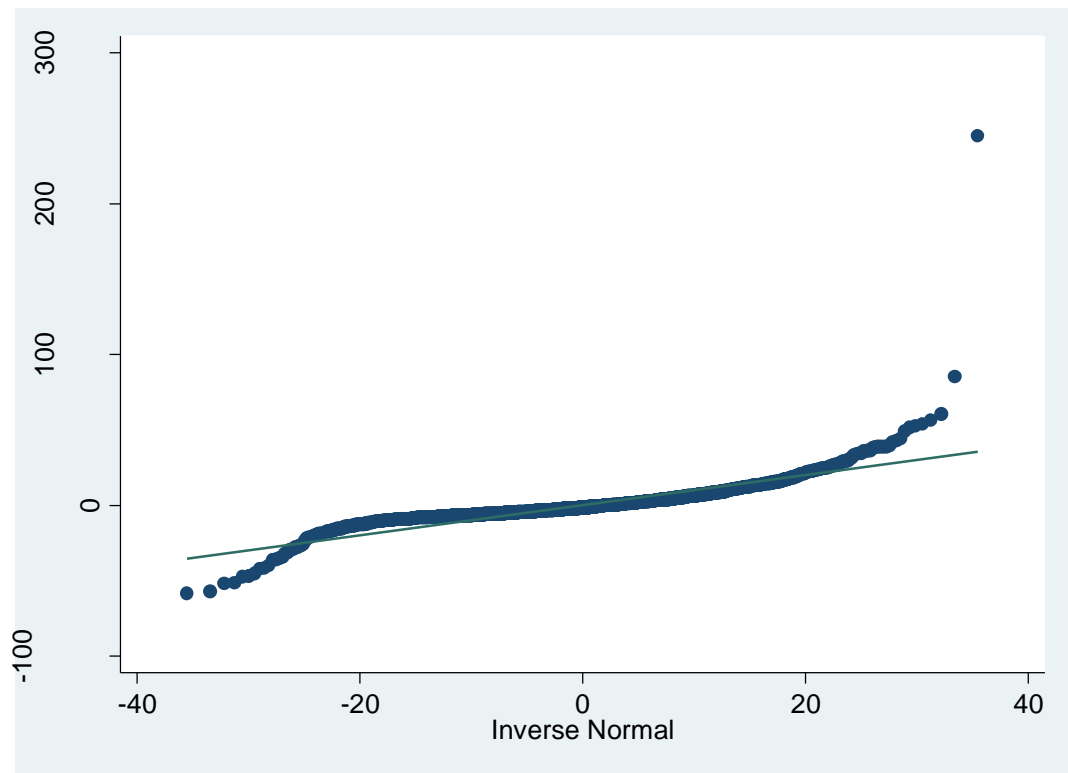


TABLE 5-5

Checking Normality - Swilk Test

Variable	Observation	W	V	z	Prob>z
r	2696	0.74059	403.440	15.426	0.00000

TABLE 5-6

Checking Normality of Residuals Using Inter-Quartile Range Test

Mean = 1.500	std.dev.= 10.52	(n= 2696)
Median = -1.528	pseudo std.dev.= 6.447	(IQR= 8.697)
10 trim = -0.832		
		low high

	inner fences	-18.18 16.61
	# mild outliers	2185
	% mild outliers	0.78% 3.15%
	outer fences	-31.22 29.66
	# severe outliers	1632
	% severe outliers	0.59% 1.19%

5.4.2 Assumption of linearity

This assumption suggests that the model should have linear parameters where the relationship between dependent and independent variables follows a straight line or linear. To check the linearity assumption, the graphs of standardised residuals plotted against each of the independent variables in the regression model and visual method determined whether linear pattern exist between the variables.

Augmented partial residual plot for non-dummy independent variables (CONCENTRATION and MANSHARE) in Figure 5-4 and Figure 5-5 respectively show that data points almost symmetrically distributed around the ordinary regression line in the plot with several outliers. Further investigation on the pattern of the relationship between response variable and predictors using Graph matrix test is performed as presented in Figure 5-6 and Figure 5-7. The Graph matrix test shows the entire pattern (CONCENTRATION versus MJONES and MANSHARE versus MJONES) seems pretty uniform thus confirmed the linear relation between these variables with earnings-management measures. Therefore overall, the assumption of linear relationship between response variables and predictors has been fulfilled.

FIGURE 5-4 : Augmented partial residual plot for CONCENTRATION

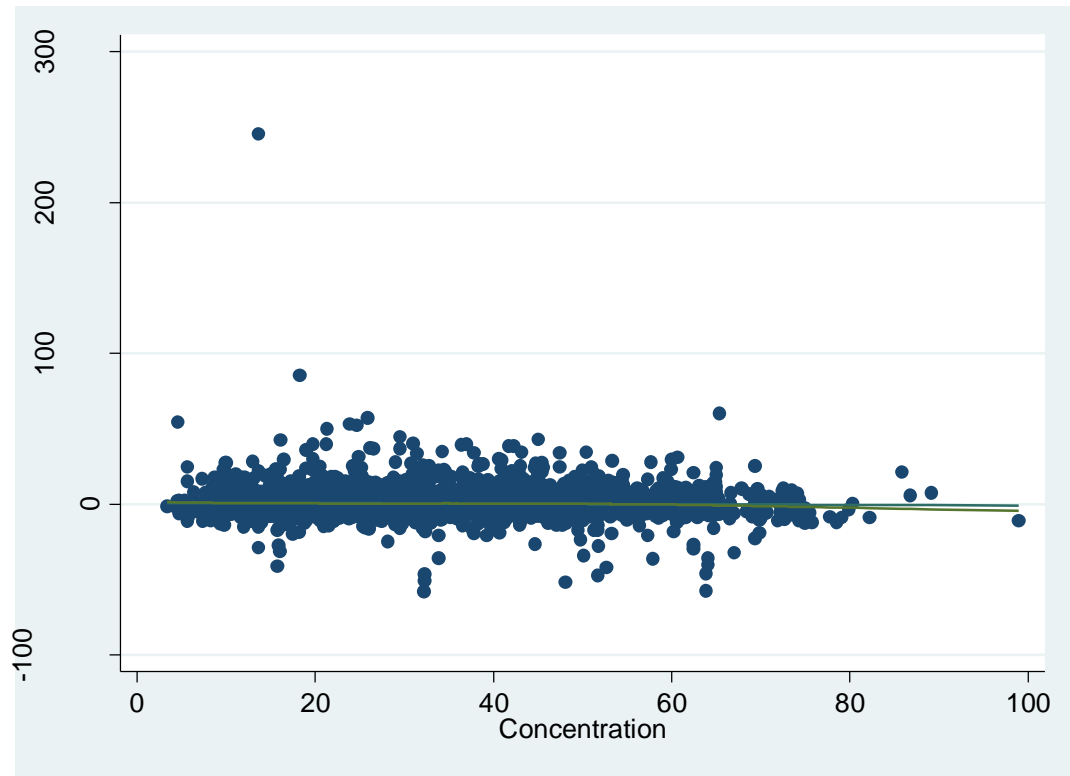


FIGURE 5-5 : Augmented partial residual plot for MANSHARE

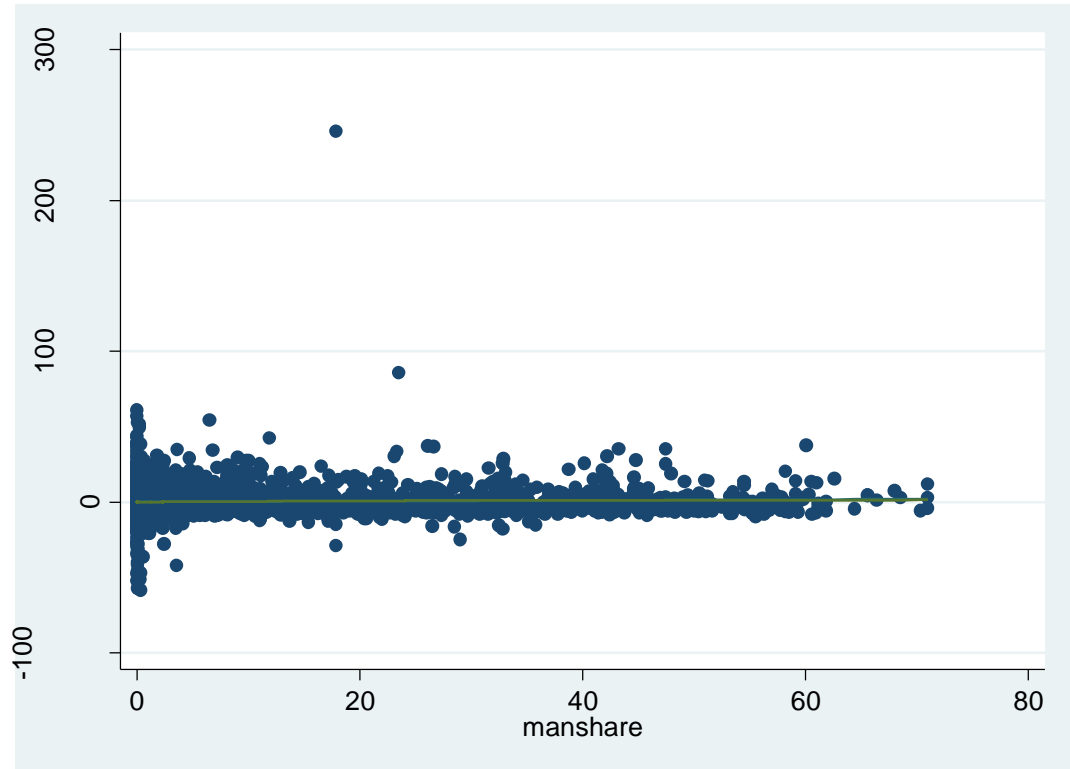


FIGURE 5-6 : Graph Matrix CONCENTRATION vs MJONES

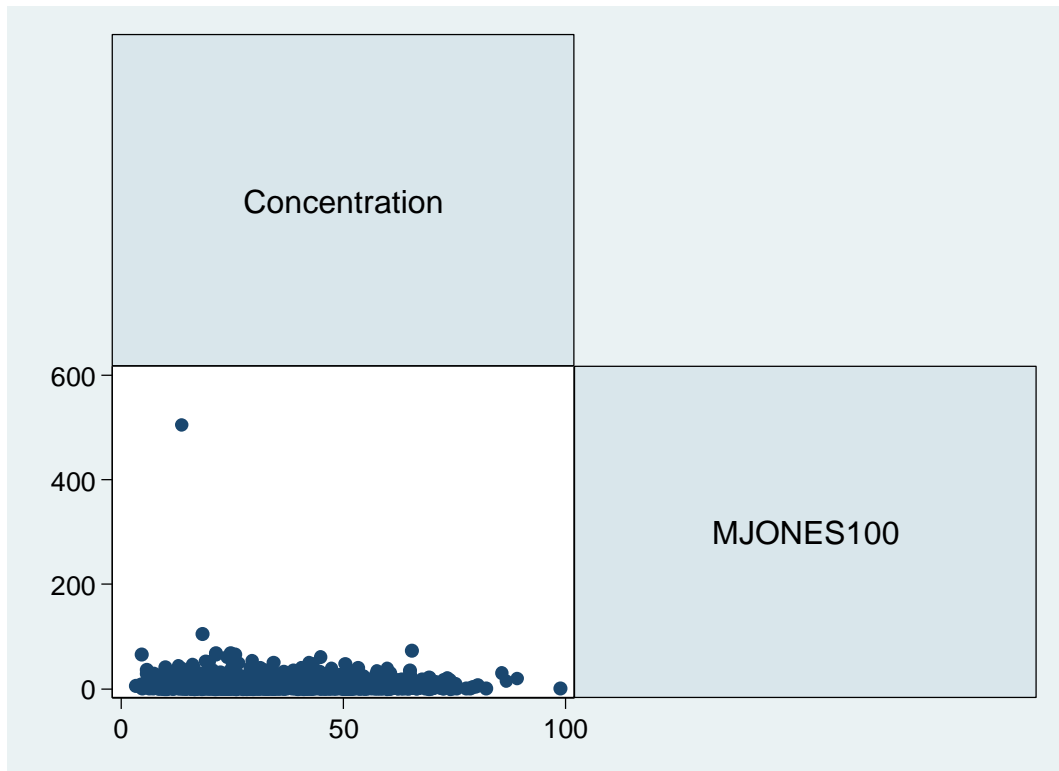
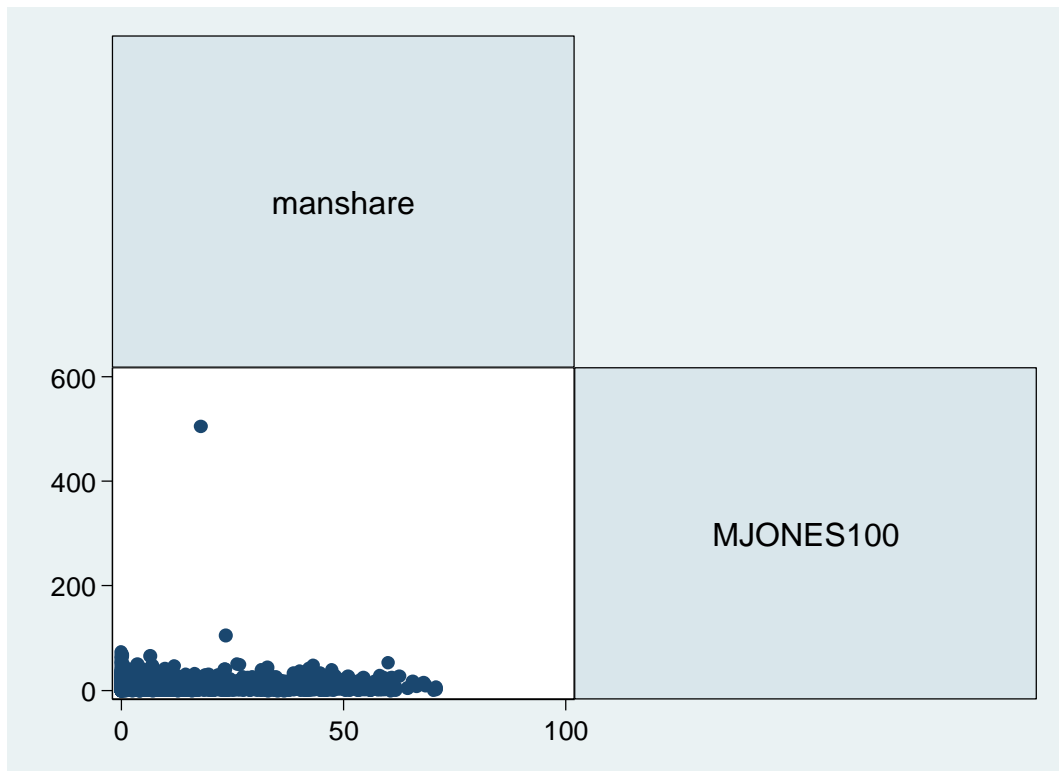


FIGURE 5-7 : Graph Matrix MANSHARE vs MJONES

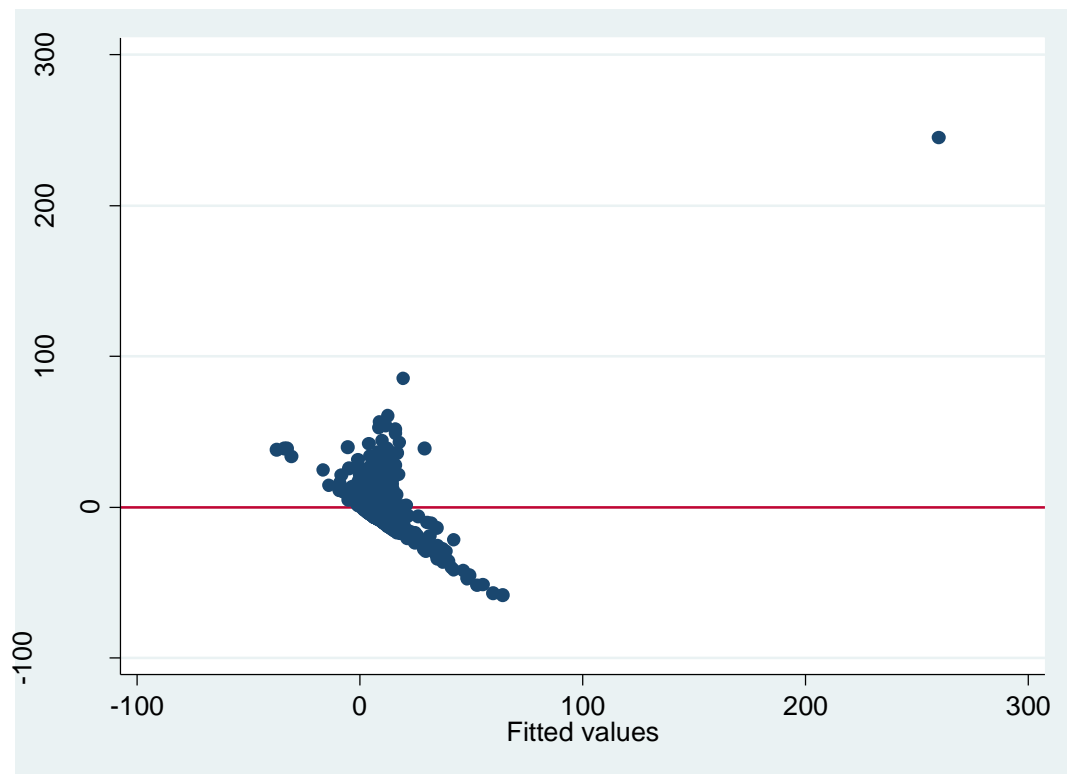


(iii) Assumption of homoscedasticity

Another important assumption in a regression model is the standard deviation (variance) of the error terms is constant or homogeneous where the error terms all have the same variance (Gujarati, 2003: 387). In the case of unequal variance (heteroscedasticity), the OLS estimators no longer efficient and would make the usual hypothesis-testing procedure of dubious value (Gujarati, 2003: 415). The presence of outliers and skewness in the distribution of one or more regressors included in the model are among the sources of heteroscedasticity. To test the presence of heteroscedasticity problem, scatter plot, White's test and Breusch-Pagan tests are performed as recommended by Chen et al. (2003) and Baum (2006).

Figure 5-8 illustrated test of heteroscedasticity using scatter plot. The plot shows that most of the x value is not concentrated around the mean of y in our main model and the pattern of distribution also does not look like an oval shape (the rules of homoscedasticity may have been violated if the other geometric shape other than oval shape appears) with extreme outliers in both directions of y line. Since the scatter plot alone does not show strong evidence of the presence of heteroscedasticity, further investigation is needed with intention to ensure the model is BLUE (best linear unbiased estimator).

FIGURE 5-8 : Heteroscedasticity Test for MJONES model – Diagnostic plot



The numerical tests for heteroscedasticity employed in this study are statistical tests namely White's Test and Breusch-Pagan Test that are widely used to detect heteroscedasticity. In White's Test, if the p -value is significant, then the null hypothesis that the variance of the residuals is homogenous, would be rejected, suggesting the heteroscedasticity existed. Meanwhile, in Breusch-Pagan Test, a large chi-square value plus significance p -value of chi-square would indicate the present of heteroscedasticity.

Table 5-7 presents both the White's and Breusch-Pagan tests. In White's test, the p -value is significant ($p < 0.01$) suggesting the presence of heteroscedasticity. Further investigation using Breusch-Pagan test also show a significant p -value ($p < 0.01$) and

a very large chi-square value (81233.16) indicating the presence of heteroscedasticity in our regression models.

TABLE 5-7: Numerical Test for Heteroscedasticity

<i>(i) White's Test</i>			
H ₀ = The variance of the residuals is homogenous Reject H ₀ if p-value is significant			
Source	chi2	df	p-value (significant)
Heteroskedasticity	2666.89	651	0.0000
Skewness	1492.16	36	0.0000
Kurtosis	1.11	1	0.2912
Total	4160.17	688	0.0000
<i>(ii) Breusch-Pagan Test for heteroskedasticity</i>			
H ₀ = The variance of the residuals is homogenous Reject H ₀ if chi-square is significant			
Source	chi2 (1)	Prob> chi2	
Heteroskedasticity	81233.16	0.0000	

(iv) Assumption of no autocorrelation in the model

Another important OLS assumption is the error terms are independent. Autocorrelation (serial correlation) is a condition where there is correlation between error terms of dataset of one period (t) with previous period ($t-1$). In this situation, the error terms are not independent and could give incorrect t values and confidence intervals in regression. To test the presence of autocorrelation in the model, we perform Durbin-Watson d-Test. In addition, the Breusch-Godfrey Lagrange Multiplier tests are also performed to detect the presence of serial correlation in regression. As a rule of thumb, if value of Durbin-Watson d-Test approaches a value of 2 (value of 1 or -1 are perfect autocorrelation), there is no autocorrelation among error terms. For Breusch-Godfrey Lagrange Multiplier tests, a large chi-square value plus significant p -value of chi-square would indicate the presence of autocorrelation.

Results of Durbin-Watson d-Test indicate there was a moderate autocorrelation in model as the value of Durbin-Watson d-statistics is **1.467059**. Further test using Breusch-Godfrey Lagrange Multiplier tests in Table 5-8 confirmed the presence of autocorrelation with a large chi-square value that highly significant ($p < 0.001$) thus we have to reject H_0 suggesting there are serial correlation in the model. Therefore, the OLS assumption of error terms being independent is not fulfilled.

TABLE 5-8: Test for Autocorrelation using Breusch-Godfrey Lagrange Multiplier Test

Breusch-Godfrey Lagrange Multiplier Test			
H ₀ = no serial correlation Reject H ₀ if chi-square is significant			
Lags (<i>p</i>)	chi2	Df	Prob> chi2
1	48.682	1	0.0000
2	70.169	2	0.0000
3	79.342	3	0.0000

v) Assumption of no multicollinearity

Table 5-13 of pairwise correlation matrix indicates that all independent variables are moderately inter-correlated with the maximum correlation coefficient is recorded at 39%, which is between firms owned by private blockholders and their ownership concentration. However, the correlation coefficient among some of our control variables shows a relatively high percentage of correlation between COINVESTMENT and TASSETS (0.89), between FCF and TASSETS (0.88) as well as between COINVESTMENT and FCF (0.85). The high correlation coefficient among these variables is not unexpected as firms with substantial assets will make more investments to generate higher returns for the company that translates to the high amount of cash (free cash flow). Round continues where excess cash will be used to make more investments in order to generate greater returns to shareholders.

However, the high correlation coefficient poses a potential of multicollinearity problem. According to Gujarati (2003), the rule of thumb for checking the serious problem of multicollinearity is that no correlation between independent variables is greater than 0.80. Since correlation coefficient between these variables exceeds this threshold, further investigation is needed.

To further investigate whether our model would be free from multicollinearity problems, we calculated the variance inflation factor (VIF) and conducted a tolerance value test. The VIF is used to test whether an independent variable has a strong linear relationship with another independent variable. In the presence of multicollinearity, the variance of an estimator is inflated and as a rule of thumb, if the value of VIF of a variable exceeds 10 or tolerance value ($1/\text{VIF}$) lower than 0.10, that variable is said to be highly collinear (Gujarati, 2003:362). As shown in Table 5-9, VIF values of all variables show figures below 10 and tolerance values above 0.10. The VIF ranges between 1.03 and 8.03 with an average of 2.64. Meanwhile the tolerance value is in the range between 0.1244 and 0.9750. Moreover, our regression results in the main findings show that we don't have a problem of "few significant t ratios, but a high overall R^2 and a significant F value" (Gujarati, 2003:354) as one of the signals of multicollinearity problem. Therefore, we can conclude that multicollinearity is not a problem in our data analysis.

TABLE 5-9: Test for multicollinearity**Variance Inflation Factor (VIF) and Tolerance Value (1/VIF) Test Results**

Variable	VIF	1/VIF
Industrial	8.03	0.124478
Services	7.56	0.132354
TASSETS	7.51	0.133128
COINVESTMENT	6.15	0.162602
FREECASHFLOW	6.12	0.163498
Properties	5.81	0.172037
Consumer	5.73	0.174508
Plantations	3.54	0.282331
Construction	3.47	0.288224
ACINED	2.56	0.390099
IFRS	2.52	0.397176
ACSIZE	2.36	0.424406
PrivateBlock	2.29	0.436733
Concentration	1.96	0.510542
Year2006	1.67	0.597358
Year2005	1.67	0.600307
Year2007	1.66	0.603170
Analyst	1.56	0.641836
Infrastructure	1.51	0.661556
FGLIC	1.45	0.687291
PIF GLIC	1.43	0.701623
BODSIZE	1.39	0.721490
BODMEET	1.34	0.744329
BODINED	1.30	0.770259
TACCLTA	1.30	0.772103
ACMEET	1.29	0.774382
LOSS	1.28	0.782371
LAGROA	1.28	0.784281
SEDC	1.27	0.786892
MANSHARE	1.22	0.821430
LEVERAGE	1.19	0.841209
FIRMAGE	1.17	0.854613
SECONDBLOCK	1.15	0.867713
ACEXPRT	1.06	0.943159
BIG4	1.06	0.946074
DUALITY	1.03	0.975008
Mean VIF	2.64	

5.2.9 Dealing with outliers and missing data

Generally we find most of the assumptions under parametric test cannot be met. As discussed in the normality test that outliers are the main cause of data non-normality, we used general measures of influence to confirm the presence of outliers in our models. Figure 5-9 shows Scatterplot Matrix Graph of the interaction between main response variable (MJONES) with the non-dummy independent variables (CONCENTRATION and MANSHARE). We find that, in every plot, there are scattered trend of data point where some of the data points far away from the rest of the data points. This suggests that our dataset has a serious problem with outliers that will affect the results of regression analysis.

To soften the impact of outliers, Hamilton (1992) suggested data transformation where individual variables with extreme outliers transformed into most commonly used transformations to normalize the data. However, while data transformation makes a distributions less skewed, but it also alters the relationship between the original variables in the model. Moreover, many commonly used transformations require non-negative data or data that is greater than zero, which limits their applications.

We observed that the outliers in our data are genuine and drawn from reliable sources (e.g. annual report). In this instance, we rely on Hair et al. (2010) that the deletion of outliers is not favourable unless if there is a strong justification based on researchers evaluation and judgement. In addition, according to Hair et al., (2010) as

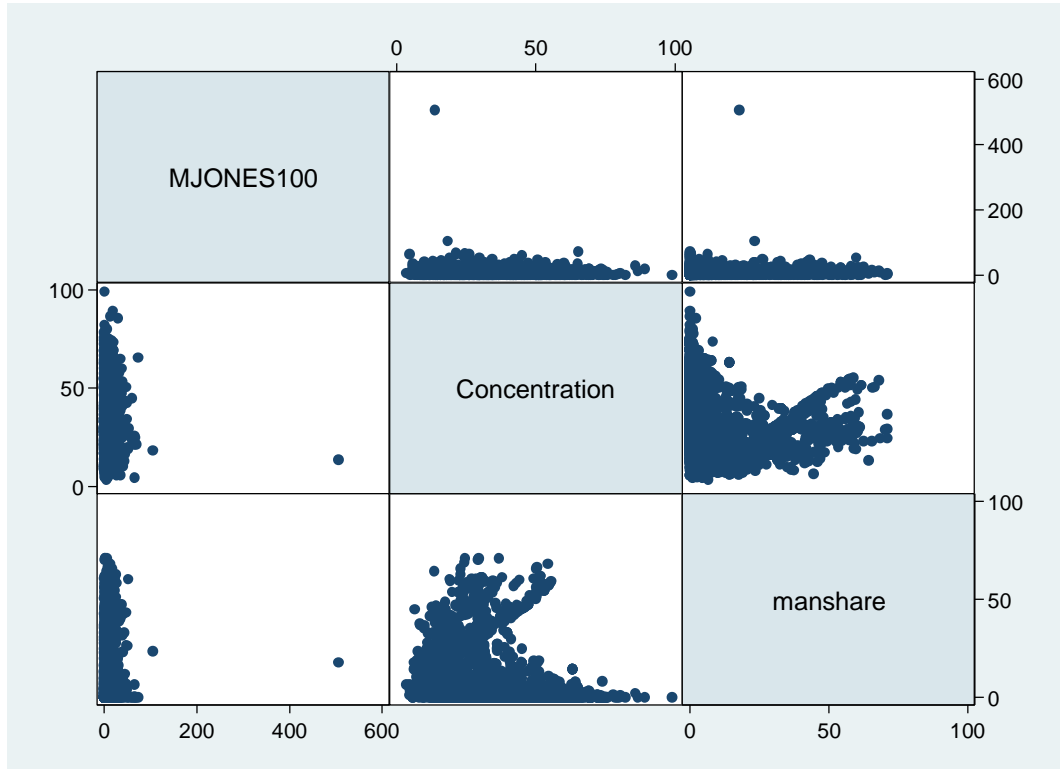
outliers are deleted, the researcher runs the risk of improving the econometric analysis but limiting its generalizability. This is because the outliers of some variables might represent a segment of the population and should be retained to ensure generalizability to the entire population.

Based on the above discussion, we decided not to delete outliers in order to conserve data. However, to mitigate the impact of extreme outliers in our dataset, following Gavious, (2007), Cornett et al. (2008) and Dhaliwal et. al, (2009), we winsorized all the continuous variables in our dataset at the top and bottom at 1%. In this method, we convert the values of data points that are outlyingly high to the value of the highest data point not considered to be outliers. All the data points involved in exercise must be within the range of 1% at the top and bottom of dataset. Although this method does not cause data to be normal but it can reduce the influence of extreme data.

In relation to the missing data, we find there are some random cases where the data are missing, particularly the financial data. Following Hair et al., (2010), we replace the missing data with the mean of the valid data of that particular variable.

FIGURE 5-9:

Scatterplot Matrix Graph (MJONES VS non-dummy independent variables)



5.3 Empirical results and analysis

5.3.1 Descriptive Statistics

Table 5-10 presents the descriptive statistics for all related variables used to investigate the association between ownership structure and earnings-management for the sample of 2696 firm-year observations of Malaysian listed companies.

The descriptive statistics show that the mean and median of our main measure of discretionary accruals which is the Modified Jones Model are 0.0111 and 0.0140 respectively. This result is consistent with the study conducted by Rahman and Ali (2006) on the relationship between corporate governance and earnings-management of top 100 companies listed on the Main Board of Bursa Malaysia Securities, which shows that the mean and median discretionary accruals of 0.0132 and 0.013 respectively.

To confirm the existence of earnings-management practices among the companies in our sample, following Abdul Rahman and Mohamed Ali (2006), we perform a statistical test which is one sample T-test for different measures of earnings-management for the period of study. Table 5-12 presents the results of the test. As seen from the results, we find that the *p*-values of discretionary accruals are significantly different from 0 at 1% level in all measures of discretionary accruals. Therefore, we have preliminary evidence that, on average, companies listed on the Main Board of Bursa Malaysia from 2004 until 2008 manage their reported earnings upward (income increasing earnings-management).

Refer back to Table 5-10, with regards to ownership concentration, on average the largest blockholder hold 39.27 percent of the firm's equity. This average percentage is slightly higher as compared to Haniffa and Hudaib (2006) who find the mean shareholdings of the single largest shareholder of listed companies on Bursa Malaysia Securities between 1996 and 2000 is 31 percent but almost similar to Abdul Rahman and Mohamed Ali (2006) that document the mean of ownership concentration of 36.76 percent. Different in sample size and period of study might explain the differences. The maximum shareholding by a single blockholder is 86.81 percent with the minimum threshold of 20 percent. In total, 2185 firm-years observations that represent 81.04 percent from the total sample of firms are control by a single largest blockholder. It confirmed the findings by Tam and Tan (2007) and Liew (2007) that Malaysian ownership structure is characterized by a highly concentrated ownership structure with the predominant role of the blockholders regardless of ownership types.

With respect to the managerial ownership, the descriptive statistics show that on average managerial equity ownership of public listed firms in Malaysia is 10.93 percent which is very similar to that obtained by Mohd Ali et al. (2008) of 9.898 percent. With regards to firm-specific characteristics, the average of firm size proxy by TASSETS is £303 million and average MCAP⁴⁷ in the sample is £194 million and they are normally followed by an average of two ANALYST (mean value of 1.8278),

⁴⁷ We used total assets as proxy for firm's size in earnings-management model (equation 1) and market capitalization as a proxy for firm's size in ownership concentration model (equation 2).

which is very low as compared to the developed capital market. For example, in the USA, Byard et al. (2006) find the mean number of analyst of 13.83.

The average shareholdings held by second highest shareholder is 11.35 percent; that is substantial enough to act as part of monitoring mechanisms primarily to monitor the activities of the major shareholders that may act in concert with the chief executive officer to manipulate company's accounts to their interests. Firm's leverage measured using debt to total assets suggesting that in average firms in our sample have a relatively moderate percentage of leverage (23.28 percent). The percentage is slightly higher than findings in Abdul Rahman and Mohamed Ali (2006) of 21 percent but similar to Bradbury et al. (2006) of 23.4 percent. Meanwhile, the average of TACCLTA is 0.0205 with maximum value of 2.3645 and the average FIRMAGE is 15 years.

In relation to the control variables related to corporate governance variables, we find that the corporate board size ranges between 3 and 15 with an average of 7.61. This average size of the board almost is the same as that found in studies by Haniffa and Hudaib (2006) of 7.94 and Mohd Ghazali (2010) of 8.83. However, this mean is lower than the average board size of 11.33 in the US as documented by Laksmana (2008). In terms of board meeting frequency, there is a big difference between the minimum numbers of meetings, 2 times per year with a maximum number of 19 times per year with the average number of meetings is about 5.36 times. This average indicates that boards of GLCs in Malaysia meet less frequently than their counterparts in the UK who reported by Zaman et al., (2011) meet in average 8.78 times per year. In term of board composition, the mean percentage of independent

non-executive directors on the board for all years are 42.29 percent which complied with the recommendation by Malaysia Code on Corporate Governance (MCCG, 2007) that independent directors should make up at least one third of the board membership. However, this percentage is lower than the 47 percent reported by Li et al (2008) for the UK and much lower compared to Laksmana (2008) who reported that 79 percent of boards are comprised of independent directors in US firms in the year 2002.

The mean ACSIZE is 3.51 which complied with the MCCG (2007) that requires the board to establish an audit committee comprising at least three members. Majority of audit committee members are independent directors (ACINED) as shown by high mean value of 2.576 or 73.39 percent from the average ACSIZE that is again complied with the requirement in MCCG. Meanwhile, in average audit committee meet 5 times a year (4.8271 in Table 4-11). Mean for audit committee financial expertise is 1.337 with minimum of 1 and maximum of 4 suggesting that each listed firms in the sample have at least one financial expertise in their audit committee even though the MCCG requires all members of the audit committee should be financially literate and at least one should be a member of an accounting association or body.

Table 5-11 presents the descriptive statistics of dichotomous variables (the descriptive statistics for ownership types and industry sectors have been explained in the previous section). We find that only small percentage of firms in our sample (365 firms or 13.5 percent) combined the roles of CEO and chairman (DUALITY). The low percentage of DUALITY in our sample compared to the 45 percent recorded by Mohd Saleh et.al. (2005) using the data in 2001, shows a high level of compliance with the recommendations in MCCG that CEO should not serve as a chairman of the

company. About 10 percent or 274 firms in our sample recorded loss in their financial statements, which is remarkably lower than the findings in Bradbury et al. (2006) of 20 percent. This shows that there is a significant recovery in the firm's performance as the study by Bradbury et al. (2006) using data in the year 2000 where most of the firms have just started to recover from the effects of the Asian Financial Crisis.

Meanwhile, descriptive statistics also shows that majority of our sample was audited by the Big-4 audit firms (1834 firms or 68.02 percent). This percentage is consistent with Johari et al. (2008) that found an average 69.2 percent of listed firms in their sample are audited by Big-4 audit firms. Based on cut-of date of 2007 when most of the firms embraced to IFRS, we found that about 40 percent of firms in our sample included in the category of companies that follow IFRS in preparing their financial statements. Sample distribution by year shows equal distribution of observations where each year with 20 percent of the total sample.

TABLE 5-10: Descriptive statistics⁴⁸

Variables	N	MEAN	STD. DEV.	25% PERC	MEDIAN	75% PERC	MIN	MAX
<i>JONES</i>	2696	0.0101	0.1216	-0.0428	0.0118	0.0659	-2.4064	1.0349
<i>MJONES</i>	2696	0.0111	0.1516	-0.0430	0.0140	0.0701	-5.0500	1.0461
<i>DAROA</i>	2696	-0.0020	0.1675	-0.0557	0.0009	0.0573	-5.3471	2.771
<i>ABS. JONES</i> ⁴⁹	2696	0.0795	0.0925	0.0262	0.0565	0.1029	0.0000	2.4064
<i>ABS MJONES</i> *	2696	0.0829	0.1273	0.0267	0.0574	0.1054	0.0000	5.0500
<i>ABS DAROA</i> *	2696	0.0861	0.1437	0.0254	0.0566	0.1079	0.0000	5.3471
<i>CONCENTRATION</i>	2185	39.2786	14.2971	27.23	36.67	50.20	20.00	86.81
<i>MANSHARE</i>	2696	10.9337	15.5540	0.14	3.09	15.955	0	70.98
<i>TASSETS</i>	2696	£303m	£963m	£41m	£87m	£201	£1.7	£2.05b
<i>MCAP</i>	2696	£194m	£688m	£16m	£33m	£107m	£0.7m	£892m
<i>SECONDBLOCK</i>	2696	11.3571	6.7605	6.05	10	15.355	0.27	45.96
<i>LAGROA</i>	2696	3.6846	9.9739	1.1869	4.1605	7.8270	-115.047	50.7569

⁴⁸ All continuous variables were winsorized at the top and bottom at 1% in order to reduce the effect of outliers and this method is consistent with Cornett et al. (2008) and Dhaliwal et al. (2009). See our discussion on how we deal with outliers in Appendix 2, item 5.5.

⁴⁹ * refers to the absolute value

<i>LEVERAGE</i>	2696	23.2876	19.6048	6.47	20.99	35.29	0	153.05
<i>ANALYST</i>	2696	1.8278	4.0903	0	0	1.5	0	24
<i>TACCLTA</i>	2696	0.0205	0.1332	-0.0291	0.0132	0.0628	-2.5089	2.3645
<i>COINVESTMENT</i>	2696	£205m	£935m	£18m	£43m	£107m	£12m	£1.8b
<i>FCF</i>	2696	£21m	£96	£1.8m	£3.2m	£11m	-£13.5m	£172m
<i>FIRMAGE</i>	2696	15.3757	12.2762	6	12	22	1	47
<i>BODSIZE</i>	2696	7.6146	1.8700	6	7	9	3	15
<i>BODMEET</i>	2696	5.3657	1.9932	4	5	6	2	19
<i>BODINED</i>	2696	42.2970	10.9578	40	33.33	50	0	100
<i>ACSIZE</i>	2696	3.5174	0.6948	3	3	4	2	7
<i>ACMEET</i>	2696	4.8271	1.3140	4	5	5	1	17
<i>ACINED</i>	2696	2.5760	0.6135	2	3	3	1	5
<i>ACEPERT</i>	2696	1.3371	0.5564	1	1	2	1	4

TABLE 5-11: Descriptive statistics for dichotomous variables

Variables	N	MEAN	STD. DEV.	25% PERC	MEDIAN	75% PERC	MIN	MAX
<i>PIF GLIC</i>	85	0.0319	0.1757	0	0	0	0	1
<i>FGLIC</i>	79	0.0293	0.1686	0	0	0	0	1
<i>SEDC</i>	56	0.0207	0.1426	0	0	0	0	1
<i>PRIVATE</i>	1965	0.7288	0.4447	0	1	1	0	1
<i>NON BLOCK</i>	511	0.1893	0.3918	0	0	0	0	1
<i>DUALITY</i>	365	0.1353	0.3421	0	0	0	0	1
<i>LOSS</i>	274	0.1016	0.3022	0	0	0	0	1
<i>BIG4</i>	1834	0.6802	0.4664	0	1	1	0	1
<i>IFRS</i>	1055	0.3913	0.4881	0	0	1	0	1
<i>YEAR 2004</i>	515	0.1927	0.3945	0	0	0	0	1
<i>YEAR 2005</i>	543	0.2067	0.4050	0	0	0	0	1
<i>YEAR 2006</i>	563	0.2086	0.4064	0	0	0	0	1
<i>YEAR 2007</i>	558	0.2012	0.4010	0	0	0	0	1
<i>YEAR 2008</i>	520	0.1908	0.3930	0	0	0	0	1
<i>CONSTRUCTION</i>	196	0.0730	0.2602	0	0	0	0	1
<i>CONSUMER</i>	413	0.1530	0.3601	0	0	0	0	1
<i>INDUSTRIAL</i>	715	0.2653	0.4416	0	0	1	0	1
<i>INFRA</i>	36	0.0133	0.1147	0	0	0	0	1
<i>PLANTATIONS</i>	201	0.0745	0.2626	0	0	0	0	1
<i>PROPERTIES</i>	423	0.1567	0.3636	0	0	0	0	1
<i>SERVICES</i>	639	0.2371	0.4254	0	0	0	0	1
<i>TECHNOLOGY</i>	73	0.0270	0.1623	0	0	0	0	1

TABLE 5-12: One Sample T-test for dependent variables (MEAN=0)

	MEAN	STD. DEV.	T-test
JONES	0.0101	0.1216	4.3397***
MJONES	0.0111	0.1516	3.8132***
DAROA	-0.0020	0.1675	-0.6228
ABSOLUTE JONES	0.0795	0.0925	44.6291***
ABSOLUTE MJONES	0.0829	0.1273	33.8231***
ABSOLUTE DAROA	0.0861	0.1437	31.1068***

***are significant at $p < 0.01$, **are significant at $p < 0.05$, *are significant at $p < 0.10$,

5.3.2 Univariate analysis

5.3.2.1 Pairwise correlation matrix

Table 5-13 presents the Pairwise correlation for main dependent variable (MJONES), independent and control variables used in the regression analysis. The correlation analysis matrix indicates that all independent variables are moderately inter-correlated with the maximum correlation coefficient is recorded at 39 percent, which is between PRIVATEBLOCK and CONCENTRATION.

However, the correlation coefficient among some of our control variables shows a relatively high percentage of correlation between COINVESTMENT and TASSETS (89 percent), between FCF and TASSETS (88 percent) as well as between COINVESTMENT and FCF (85 percent). The high correlation coefficient among these variables is not unexpected as firms with substantial assets will make more investments to generate higher returns for the company that translates into the high amount of cash (FCF). The cycle continues where excess cash will be used to make more investments in order to generate greater returns to shareholders.

The high correlation coefficient poses a potential of multicollinearity problem and this issue has been discussed and resolved previously in data diagnostic section (section 5.2.8, item v) where after further investigation we conclude that the multicollinearity is not detrimental to the results of our multivariate analysis.

5.3.2.2 Complementary vs. substitutive tests

The firm's ownership structure and corporate governance can be used as tools to monitor earnings-management behaviour and reduce agency costs as suggested in agency theory. On one hand, monitoring activities by blockholders might reduce information asymmetry in firms (Hope, Langli and Thomas, 2012). On the other hand, other corporate governance mechanisms also are potentially effective to limit the extent of agency costs by aligning manager and shareholder interests and would be helpful in mitigating managers' propensity to manipulative earnings (Siregar and Utama, 2008; Jaggi et al., 2009). Therefore, both ownership structure and corporate governance mechanisms are monitoring tools that may have complementary or substitutive effects in curbing earnings-management. Based on this consideration, it is important to understand the following: (i) whether ownership structures and corporate governance mechanisms have a complementary or substitutive relationship in respect to constraining earnings-management; and (ii) whether internal and external control mechanisms complementary or substitutive to each other in mitigating earnings-management.

(i) The links between ownership structures and corporate governance mechanisms in mitigating earnings-management

Empirical evidence on the relationship between ownership and corporate governance mechanism in mitigating earnings-management shows inconclusive results. For example, Kim and Lu (2011) examine the relationship between CEO ownership and firm value. Based on panel data from 1992 through 2006 from various databases (ExecuComp, Compustat and CRSP), they find that CEO ownership and external

governance are substitutes for mitigating agency problems when CEO ownership is low. Other previous studies also suggest that governance mechanisms are not independent of each other but are substitutes (e.g. Rediker and Seth, 1995; Kini, Kracaw and Mian, 1995).

On the contrary, Koh (2003), found that at the higher institutional ownership levels, institutional investors can act as a complementary corporate governance mechanism in mitigating aggressive earnings-management activities.

Walsh and Seward (1990) suggested that all internal and external governance factors address the same agency problems; hence, they are interlinked and interrelated. In fact, an empirical study by Gillan, Hartzell and Starks (2006) found that internal and external governance are complementary to each other.

To address the issue discussed above, referring to Vafeas (2005), a complementary link (i.e. ownership and corporate governance mechanisms depend on each other to work) is detected when the correlation shows a positive relationship and substitutive roles (i.e. ownership and corporate governance mechanisms not depend on each other to work) identified when the direction of the correlation is negative. In the Pairwise correlation matrix (Table 5-13), we find that at the higher ownership concentration levels, blockholders can act as a complementary to corporate governance mechanism. This shows by a positive relationship between CONCENTRATION and BODMEET, BODINED, ACSIZE and ACINED. However, on the flip side, this relationship might just an indication of blockholders power in influencing corporate governance mechanisms in firms.

With regard to ownership types, we find that both federal government GLICs, namely PIF GLIC and FGLIC constantly show a substitutive relationship with board and audit committee characteristics (e.g. BODSIZE, BODMEET, BODINED, ACSIZE, ACMEET, ACINED⁵⁰ and ACEXPERT). The results are mixed for SEDC suggesting neither substitutive nor complementary relationship. Interestingly, PRIVATEBLOCK shows a complementary relationship with majority of corporate governance variables (BODSIZE, BODMEET, BODINED, ACSIZE, ACINED).

Overall the results indicate that GLICs, particularly at the federal level, play a dominant role in corporate decisions and impose optimal monitoring activities on their portfolio companies that can substitute the role of board and audit committee in mitigating earnings-management activities. Meanwhile, private blockholders can act as a complementary corporate governance mechanism in mitigating earnings-management practices in firms they invest in. However, considering that family control is a common characteristic of public listed companies in Malaysia (Chu and Cheah, 2006), the presence of family members on the board may results in an increase of earnings-management in the firms controlled by them. Many prior studies suggest that family-owned firms positively associated with earnings-management practices particularly in the countries with weak investor protection (e.g. Leuz et al., 2003; Jara and Lopez, 2011). In fact, a recent study by Ishak, Haron, Salleh and Rashid (2011) on earnings-management practices of family-controlled firms in Malaysia found that the proportion of family members in corporate boards was positively associated with earnings-management proxied by discretionary accruals.

⁵⁰ Only FGLIC shows a negative relationship with ACINED but PIF GLIC shows a positive sign.

In relation to the role of secondary blockholder, we find their presence can serve as an effective control mechanism in monitoring activities by the main blockholder. This is evidenced by a substitutive relationship (negative relationship) between secondary blockholder and most of board and audit committee characteristics, namely BODSIZE, BODMEET, BODINED, ACSIZE and ACINED. This finding suggests an encouraging role of secondary blockholder in emerging economies with lack of minority shareholders protection.

(ii) The links between internal and external corporate governance mechanisms in mitigating earnings-management

With regards to the links between internal and external control mechanisms, we find that BIG4 as an external control mechanism has a complementary relationship with internal governance mechanism. It has positive links to all internal governance mechanism namely BODSIZE, BODMEET, BODINED, ACSIZE, ACMEET, ACINED and ACEXPERT. This indicates that more independent and better quality boards and audit committees tend to appoint auditors from reputable firms.

On the contrary, substitutive relationships are signified between other external control mechanisms, ANALYST and internal governance mechanism. This could be drive by firm size where large firm tends to be followed by analyst following than small firms and investors may rely on their analyses. As can be seen from the table, corporate governance variables related to audit committee and ANALYST are correlated with firm size.

TABLE 5-13: Pairwise correlation matrix

		1	2	3	4	5	6	7	8	9	10
1	MJONES	1.000									
2	CONCENTRATION	-0.04 (0.01)	1.000								
3	PIF GLIC	-0.02 (0.12)	0.15 (0.00)	1.000							
4	FGLIC	-0.02 (0.29)	0.09 (0.00)	-0.03 (0.10)	1.000						
5	SEDC	-0.03 (0.05)	0.13 (0.00)	-0.02 (0.17)	-0.02 (0.18)	1.000					
6	PRIVATEBLOCK	-0.00 (0.89)	0.39 (0.00)	-0.29 (0.00)	-0.28 (0.00)	-0.23 (0.00)	1.000				
7	MANSHARE	0.03 (0.07)	-0.25 (0.00)	-0.12 (0.00)	-0.10 (0.00)	-0.09 (0.00)	0.05 (0.00)	1.000			
8	BODSIZE	0.04 (0.03)	0.02 (0.20)	-0.00 (0.62)	-0.05 (0.00)	-0.01 (0.49)	0.05 (0.00)	0.02 (0.25)	1.000		
9	BODMEET	-0.02 (0.16)	0.01 (0.38)	-0.00 (0.86)	-0.02 (0.15)	-0.01 (0.56)	0.01 (0.49)	0.03 (0.06)	0.07 (0.00)	1.000	
10	BODINED	-0.03 (0.09)	0.01 (0.41)	-0.01 (0.31)	-0.02 (0.18)	0.01 (0.43)	0.01 (0.39)	-0.01 (0.51)	-0.26 (0.00)	0.07 (0.00)	1.000
11	DUALITY	-0.01 (0.50)	-0.01 (0.54)	-0.02 (0.25)	-0.00 (0.81)	0.01 (0.34)	-0.00 (0.79)	-0.00 (0.72)	-0.08 (0.00)	-0.04 (0.01)	0.01 (0.47)
12	ACSIZE	0.01 (0.42)	0.03 (0.06)	-0.03 (0.11)	-0.05 (0.00)	0.01 (0.55)	0.05 (0.00)	-0.01 (0.54)	0.37 (0.00)	0.12 (0.00)	0.05 (0.00)
13	ACMEET	-0.00 (0.63)	-0.00 (0.85)	-0.01 (0.54)	-0.02 (0.28)	-0.01 (0.39)	-0.01 (0.56)	0.03 (0.08)	0.06 (0.00)	0.45 (0.00)	0.04 (0.01)
14	ACINED	0.00 (0.87)	0.08 (0.00)	0.00 (0.99)	-0.08 (0.00)	0.03 (0.08)	0.06 (0.00)	-0.02 (0.14)	0.33 (0.00)	0.10 (0.00)	0.23 (0.00)
15	ACEXPRT	0.01 (0.58)	-0.03 (0.09)	-0.03 (0.08)	-0.01 (0.34)	-0.04 (0.03)	-0.03 (0.11)	0.03 (0.05)	0.03 (0.10)	0.07 (0.00)	0.08 (0.00)
16	TASSETS	0.16 (0.00)	0.11 (0.00)	0.16 (0.00)	0.31 (0.00)	-0.00 (0.68)	-0.13 (0.00)	-0.13 (0.00)	-0.02 (0.27)	-0.02 (0.17)	-0.01 (0.54)
17	LAGROA	-0.04 (0.01)	0.16 (0.00)	0.05 (0.00)	-0.01 (0.36)	-0.02 (0.25)	0.09 (0.00)	0.03 (0.03)	-0.00 (0.97)	0.01 (0.45)	-0.00 (0.94)
18	LEVERAGE	0.11 (0.00)	-0.15 (0.00)	-0.07 (0.00)	-0.02 (0.13)	0.02 (0.28)	-0.05 (0.00)	0.00 (0.80)	-0.00 (0.80)	0.00 (0.80)	-0.02 (0.21)
19	ANALYST	-0.03 (0.05)	0.10 (0.00)	0.13 (0.00)	0.21 (0.00)	-0.04 (0.01)	-0.08 (0.00)	-0.11 (0.00)	0.00 (0.76)	-0.01 (0.36)	-0.01 (0.46)
20	TACCLTA	-0.11 (0.00)	0.04 (0.01)	-0.00 (0.71)	-0.06 (0.00)	-0.00 (0.65)	0.08 (0.00)	0.05 (0.00)	0.03 (0.08)	-0.00 (0.87)	0.00 (0.83)
21	COINVESTMENT	-0.03 (0.06)	0.09 (0.00)	0.14 (0.00)	0.32 (0.00)	-0.01 (0.58)	-0.12 (0.00)	-0.10 (0.00)	-0.01 (0.44)	-0.02 (0.25)	-0.01 (0.51)
22	FREECASHFLOW	0.17 (0.00)	0.10 (0.00)	0.16 (0.00)	0.30 (0.00)	-0.02 (0.26)	-0.14 (0.00)	-0.11 (0.00)	-0.00 (0.64)	-0.03 (0.08)	-0.02 (0.28)
23	LOSS	0.10 (0.00)	-0.15 (0.00)	-0.04 (0.01)	-0.01 (0.44)	0.01 (0.30)	-0.08 (0.00)	-0.03 (0.06)	-0.00 (0.90)	-0.00 (0.99)	-0.00 (0.70)
24	BIG4	0.00 (0.76)	0.00 (0.95)	0.00 (0.78)	0.00 (0.75)	-0.01 (0.37)	-0.02 (0.20)	0.00 (0.99)	0.05 (0.00)	0.03 (0.04)	0.00 (0.88)
25	FIRMAGE	-0.02 (0.13)	0.03 (0.06)	0.12 (0.00)	-0.01 (0.37)	-0.00 (0.90)	-0.09 (0.00)	-0.28 (0.00)	-0.03 (0.04)	-0.00 (0.93)	0.00 (0.87)
26	IFRS	0.00 (0.78)	0.00 (0.82)	0.02 (0.28)	0.00 (0.98)	0.01 (0.56)	-0.00 (0.93)	-0.00 (0.66)	0.00 (0.80)	0.02 (0.26)	-0.00 (0.83)
27	SECONDBLOCK	0.00 (0.92)	-0.14 (0.00)	-0.08 (0.00)	0.00 (0.80)	-0.08 (0.00)	0.17 (0.00)	0.14 (0.00)	-0.00 (0.91)	-0.01 (0.38)	-0.00 (0.95)

		11	12	13	14	15	16	17	18	19	20
11	DUALITY	1.000									
12	ACSIZE	-0.04 (0.02)	1.000								
13	ACMEET	0.02 (0.18)	0.04 (0.01)	1.000							
14	ACINED	-0.03 (0.09)	0.73 (0.00)	0.06 (0.00)	1.000						
15	ACEXPERT	-0.01 (0.47)	0.08 (0.00)	0.03 (0.05)	0.09 (0.00)	1.000					
16	TASSETS	0.00 (0.61)	-0.05 (0.00)	-0.04 (0.03)	-0.04 (0.03)	0.06 (0.00)	1.000				
17	LAGROA	-0.00 (0.89)	0.00 (0.70)	0.00 (0.86)	0.03 (0.08)	0.04 (0.01)	0.02 (0.27)	1.000			
18	LEVERAGE	0.01 (0.33)	-0.00 (0.94)	0.00 (0.78)	-0.03 (0.10)	-0.07 (0.00)	0.12 (0.00)	-0.26 (0.00)	1.000		
19	ANALYST	-0.01 (0.59)	-0.05 (0.00)	-0.04 (0.02)	-0.03 (0.08)	-0.02 (0.22)	0.51 (0.00)	0.20 (0.00)	0.02 (0.12)	1.000	
20	TACCLTA	0.02 (0.28)	0.00 (0.65)	0.01 (0.50)	0.00 (0.98)	-0.00 (0.93)	0.11 (0.00)	0.08 (0.00)	0.00 (0.76)	0.02 (0.17)	1.000
21	COINVESTMENT	0.01 (0.35)	-0.05 (0.00)	-0.04 (0.02)	-0.05 (0.00)	-0.06 (0.00)	0.89 (0.00)	0.02 (0.21)	0.08 (0.00)	0.45 (0.00)	-0.03 (0.04)
22	FREECASHFLOW	-0.00 (0.98)	-0.04 (0.01)	-0.04 (0.01)	-0.03 (0.06)	-0.04 (0.01)	0.88 (0.00)	0.07 (0.00)	0.03 (0.08)	0.53 (0.00)	-0.19 (0.00)
23	LOSS	0.02 (0.14)	0.01 (0.56)	-0.00 (0.82)	-0.01 (0.47)	-0.00 (0.69)	-0.05 (0.00)	-0.32 (0.00)	0.17 (0.00)	-0.12 (0.00)	-0.28 (0.00)
24	BIG4	-0.01 (0.60)	0.03 (0.04)	0.00 (0.70)	0.05 (0.00)	0.05 (0.00)	0.04 (0.01)	-0.02 (0.19)	-0.02 (0.19)	0.02 (0.16)	-0.00 (0.74)
25	FIRMAGE	0.00 (0.64)	0.00 (0.65)	0.00 (0.79)	-0.02 (0.16)	-0.00 (0.84)	0.11 (0.00)	-0.11 (0.00)	-0.00 (0.63)	0.05 (0.00)	-0.05 (0.00)
26	IFRS	-0.02 (0.17)	-0.02 (0.14)	0.00 (0.84)	-0.03 (0.11)	0.00 (0.76)	0.00 (0.73)	0.00 (0.80)	0.01 (0.44)	0.01 (0.41)	0.03 (0.10)
27	SECONDBLOCK	-0.00 (0.88)	-0.05 (0.00)	0.00 (0.81)	-0.01 (0.32)	0.01 (0.43)	-0.01 (0.53)	-0.01 (0.55)	-0.00 (0.83)	-0.04 (0.03)	0.02 (0.14)

		21	22	23	24	25	26	27
21	COINVESTMENT	1.000						
22	FREECASHFLOW	0.85 (0.00)	1.000					
23	LOSS	-0.04 (0.02)	-0.07 (0.00)	1.000				
24	BIG4	0.03 (0.03)	0.04 (0.03)	-0.01 (0.31)	1.000			
25	FIRMAGE	0.06 (0.00)	0.06 (0.00)	0.09 (0.00)	0.01 (0.47)	1.000		
26	IFRS	0.01 (0.33)	0.00 (0.91)	0.01 (0.45)	0.02 (0.16)	0.00 (0.71)	1.000	
27	SECONDBLOCK	-0.01 (0.59)	-0.02 (0.15)	-0.01 (0.36)	-0.00 (0.86)	-0.14 (0.00)	-0.00 (0.72)	1.000

5.3.2.3 Ownership types and earnings-management (hypotheses 1, 2, 3 and 4)

Table 5-14 provides a comparison of differences in mean and median earnings-management in firms controlled by different GLICs and private blockholders. Panel 1 shows the earnings-management based on different measures (MJONES, JONES and DAROA) and different ownership types. With regards to the earnings-management practices of GLCs controlled by different GLICs, we find that mean earnings-management of GLCs owned by FGLIC is 8.8% and 25.32% higher than earnings-management of GLCs owned by PIF GLIC and SEDC respectively based on MJONES measure. Similar results are obtained using JONES (mean: PIF GLIC=6.16; FGLIC=6.76; SEDC=4.90) and DAROA (mean: PIF GLIC=6.81; FGLIC=7.33; SEDC=5.34). Meanwhile, median earnings-management of FGLIC also 7% and 18% higher than median PIF GLIC and SEDC based on MJONES measure. Generally, we find that mean and median earnings-management of GLCs owned by FGLIC to be higher than mean and median earnings-management of GLCs owned by PIF GLIC and SEDC. This is contrary to our expectations. We expected GLCs owned by SEDC to show higher earnings-management than their counterparts at federal levels. However, consistent with our prediction, PIF GLIC recorded lower earnings-management than FGLIC except for median earnings-management measured by DAROA (median: PIF GLIC=4.95; FGLIC=4.55). When we compare the mean and median earnings-management of GLCs owned by different GLICs with the firms owned by PRIVATE, in line with our expectations, firms owned by PRIVATE recorded higher earnings-management both for mean and median across all measures of earnings-management.

To test whether the differences in mean and median earnings-management among different types of blockholders ownership as explained above are statistically significant, we conducted Pairwise comparison using two statistical tests namely Two-sample t-test for differences in means and Mann-Whitney U test for differences in medians. Panel 2 in Table 5-14 presents the results of these tests.

Based on both tests, these preliminary results largely do not support our prediction that earnings-management of portfolio companies owned by PIF GLIC is lower than earnings-management of portfolio companies owned by FGLIC (hypothesis 1). Concerning hypothesis 2 and hypothesis 3 that earnings-management are lower in portfolio companies owned by PIF GLIC and FGLIC as compared to portfolio companies owned by SEDC, the results reject both of these hypotheses as they are statistically insignificant. Therefore, based on the above statistics tests, we conclude that our preliminary results fail to support hypothesis 1, hypothesis 2 and hypothesis 3.

Also, hypothesis 4 predicts that earnings-management of listed firms controlled by PRIVATE is higher than earnings-management of GLCs controlled by different GLICs (PIF GLIC, FGLIC and SEDC). Panel 1 shows that earnings-management values are indeed higher in firms owned by PRIVATE than in GLCs both for mean and median across all measures of earnings-management. Statistic tests using Two-sample t-test for differences in means and Mann-Whitney U test for differences in medians generally support the findings.

As seen in Panel 2, the statistics test of the differences in median earnings-management between PRIVATE and all GLICs using Mann-Whitney U test suggesting that median earnings-management PRIVATE statistically significant with median earnings-management PIF GLIC, FGLIC and SEDC across all measures of earnings-management except for DAROA. The results as follow: **(i) PIF GLIC vs PRIVATE** (MJONES: z-value = 2.449, $p < 0.05$; JONES: z-value = 2.310, $p < 0.05$; DAROA: z-value = 1.376, $p > 0.1$); **(ii) FGLIC vs PRIVATE** (MJONES: z-value = 1.892, $p < 0.1$; JONES: z-value = 1.756, $p < 0.1$; DAROA: z-value = 1.641, $p > 0.1$) and; **(iii) SEDC vs PRIVATE** (MJONES: z-value = 3.369, $p < 0.01$; JONES: z-value = 3.155, $p < 0.01$; DAROA: z-value = 2.558, $p < 0.05$).

Meanwhile, the statistics test of differences in mean earnings-management between PRIVATE and all GLICs using Two-sample t-test in suggesting that mean earnings-management PRIVATE statistically significant with mean earnings-management of PIF GLIC and SEDC across all earnings-management measures but statistically insignificant with FGLIC. The results are as follows: **(i) PIF GLIC vs PRIVATE** (MJONES: t-value = 2.9600, $p < 0.01$; JONES: t-value = 2.6187, $p < 0.05$; DAROA: t-value = 2.3226, $p < 0.05$); **(ii) FGLIC vs PRIVATE** (MJONES: t-value = 1.5641, $p > 0.1$; JONES: t-value = 1.3100, $p > 0.1$; DAROA: t-value = 1.1641, $p > 0.1$) and; **(iii) SEDC vs PRIVATE** (MJONES: t-value = 5.3083, $p < 0.01$; JONES: t-value = 4.9027, $p < 0.01$; DAROA: t-value = 4.6076, $p < 0.01$).

Therefore, based on the above statistics tests for differences in mean and median of different types of blockholders, we conclude that our preliminary results largely fail to support hypothesis 1, hypothesis 2 and hypothesis 3 but support hypothesis 4.

TABLE 5-14: Earnings-management of firms by different types of blockholders

Panel 1: Means and medians earnings-management⁵¹ of firms with different type of controlling blockholders

	PIF GLIC (N=85)		FGLIC (N=79)		SEDC (N=56)		PRIVATE (N=1965)	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
MJONES	6.20	4.44	6.80	4.78	5.01	3.91	8.27	5.98
JONES	6.16	4.66	6.76	4.75	4.90	3.93	8.00	5.78
DAROA	6.81	4.95	7.33	4.55	5.34	4.43	8.61	5.82

Panel 2: Pairwise comparison of differences in means and medians earnings-management according to different type of controlling blockholders using Two Sample *t*-test and Mann-Whitney U test

	PIF GLIC vs. FGLIC		PIF GLIC vs. SEDC		FGLIC vs. SEDC	
	Mean ^a	Median ^b	Mean ^a	Median ^b	Mean ^a	Median ^b
MJONES	0.5277	0.423	1.3065	0.961	1.6209	1.425
JONES	0.5213	0.387	1.3835	1.032	1.6763*	1.349
DAROA	0.3997	0.295	1.4846	0.2535	1.5803	0.786

	PIF GLIC vs. PRIVATE		FGLIC vs. PRIVATE		SEDC vs. PRIVATE	
	Mean ^a	Median ^b	Mean ^a	Median ^b	Mean ^a	Median ^b
MJONES	2.9600***	2.449**	1.5641	1.892*	5.3083***	3.369***
JONES	2.6187**	2.310**	1.3100	1.756*	4.9027***	3.155***
DAROA	2.3226**	1.376	1.1641	1.641	4.6076***	2.558**

Significance level: *p < 0.1, **p < 0.05, ***p < 0.01 (two-tailed test)

Notes: ^(a) *t*-value from the two sample *t*-test of differences in means; and
^(b) *z*-value from the two-sample Mann-Whitney U-test of differences in medians.

⁵¹ Measure by absolute value of discretionary accruals times by 100.

5.3.3 Multivariate analysis

5.3.3.1 Robust regression analysis (Analysis 1)

As described in data diagnostic analysis, our data fail to fulfil all assumptions under parametric tests. For OLS parametric tests to produce accurate results, the assumptions underlying them must be sufficiently satisfied. This is because, with the violation of parametric assumptions, the OLS regression methods are statistically inefficient or even give misleading inferences. For example, incorrect estimates of coefficients and standard errors (Baltagi, 2005; Greene, 2008; Gujarati and Porter, 2009) can lead to substantive errors in the interpretation of data. Several prominent statisticians and researchers have described the use of OLS in the face of assumption violations as invalid (e.g. Zimmerman, 1998 and Wilcox, 2001).

As alternatives, we first used robust regression instead of OLS regression. Hamilton (1992) argued that robust regression method have better statistical properties than OLS in terms of efficiency, more accurate confidence intervals and tests. Cohen, West and Aiken (2003) also suggested that robust regression should perform better than OLS under the violations of parametric assumptions. Furthermore, the results of robust regressions are generally more convincing because they should visualize the entire data and not just a few outliers as OLS regression.

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One of the robust regressions test under the family of robust regression methods is robust (Eicker-Huber-White heteroskedastic-consistent) standard errors⁵² (hereafter robust standard errors). As part of robust family, robust standard errors not only take into account issues concerning heterogeneity and lack of normality but it also can deal with some observations that exhibit large residuals, leverage or influence (Chen et al., 2003). In the robust standard errors option, the point estimates of the coefficients are exactly the same as in OLS.

Taking into account the advantages of robust regression as discussed above, we first apply this regression in our initial analysis to examine earnings-management responds to ownership structure and corporate governance variables in our model. The results are presented in Table 5-15. We separate the regression based on different models to examine the impact of different variables on earnings-management. Model 1 examines the impact of firm's specific variables on earnings-management, model 2 incorporates corporate governance variables related to the audit committee, model 3 incorporates corporate governance variables related to board, model 4 includes corporate governance variables both for the audit committee and the board, model 5 test the impact of ownership structure and managerial ownership on earnings-management, model 6 examine the impact of ownership structure and blockholders ownership concentration on earnings-management and finally model 7 include all the variables in one regression analysis.

⁵²In StataSE 10, we used *regress* command includes a robust option (*vce*) and we select best for heteroskedastic (*hc3*). The selection of *hc3* is recommended strongly by Davidson and MacKinnon (1993) particularly in the presence of heteroscedasticity.

However, we realize that robust standard errors regression still does not take into account the effect of endogeneity problem. This is because, although the use of this regression can solve the issue of violation of parametric assumptions, it cannot solve the problem of endogeneity in a regression analysis. Therefore, if our robust standard errors regression indeed suffers from an endogeneity problem, we certainly cannot rely on its results. In this case we will only use the information in robust standard errors regression for comparison purposes and not as our main findings. The next section discusses more details of this issue and provides statistical tests to examine whether our model was affected by the presence of endogeneity.

TABLE 5-15: Robust standard errors regression of earnings-management, blockholders' investment and control variables

Assumption: Earnings-management, ownership concentration by blockholder and managerial ownership are exogenous

Dependent variable = MJONES	MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5	MODEL 6	MODEL 7
<i>Ownership Structure</i>	<i>Coefficient (t-value)</i>	<i>Coefficient (t-value)</i>	<i>Coefficient (t-value)</i>	<i>Coefficient (t-value)</i>	<i>Coefficient (t-value)</i>	<i>Coefficient (t-value)</i>	<i>Coefficient (t-value)</i>
CONCENTRATION						-0.03 (-1.36)	-0.02 (-1.16)
PIF GLIC					-3.58 (-1.61)	-2.87 (-1.47)	-2.83 (-1.45)
FGLIC					-2.14 (-0.86)	-1.57 (-0.71)	-1.47 (-0.67)
SEDC					-3.87*** (-4.00)	-3.15*** (-3.00)	-3.06*** (2.91)
PRIVATE					-0.06 (-0.13)	0.62 (0.92)	0.55 (0.83)
MANSHARE					0.02* (1.78)		0.02 (1.64)
2ndBLOCK					-0.02 (-0.89)	-0.03 (-1.10)	-0.03 (-1.18)
<i>Governance Variables</i>							
BODSIZE			0.25* (1.82)	0.30* (1.96)	0.28* (1.90)	0.28* (1.91)	0.28* (1.90)
BODMEET			-0.09 (-1.16)	-0.08 (-0.91)	-0.09 (-0.99)	-0.08 (-0.90)	-0.08 (-0.96)
BODINED (%)			-0.01 (-0.89)	-0.00 (-0.42)	-0.00 (-0.57)	-0.01 (-0.59)	-0.01 (-0.59)
DUALITY			-0.23 (-0.43)	-0.22 (-0.40)	-0.24 (-0.43)	-0.25 (-0.45)	-0.24 (-0.44)

ACSIZE		0.33 (0.92)		0.11 (0.31)	0.03 (0.09)	0.00 (0.02)	0.00 (0.355)
ACMEET		-0.08 (-0.59)		-0.03 (-0.25)	-0.05 (-0.33)	-0.04 (-0.27)	-0.04 (-0.30)
ACINED		-0.40 (-0.91)		-0.50 (-1.06)	-0.36 (-0.77)	-0.33 (-0.73)	-0.31 (-0.67)
ACEXPRT		0.19 (0.59)		0.23 (0.70)	0.14 (0.44)	0.16 (0.50)	0.15 (0.46)
<i>Firm-Specific Variables</i>							
TASSETS	2.22* (1.93)	2.22* (1.93)	2.23* (1.93)	2.23* (1.93)	2.27** (1.96)	2.27** (1.96)	2.28** (1.97)
LAGROA	0.01 (0.58)	0.01 (0.57)	0.01 (0.60)	0.01 (0.62)	0.01 (0.54)	0.01 (0.71)	0.01 (0.65)
LEVERAGE	0.05*** (3.46)	0.05*** (3.46)	0.05*** (3.46)	0.05*** (3.48)	0.05*** (2.94)	0.04*** (2.74)	0.04*** (2.76)
ANALYST	-0.71** (-2.22)	-0.71** (-2.22)	-0.71** (-2.23)	-0.71** (-2.23)	-0.70** (-2.29)	-0.71** (-2.29)	-0.70** (-2.29)
TACCLTA	9.62 (1.24)	9.61 (1.24)	9.48 (1.22)	9.45 (1.22)	9.35 (1.20)	9.48 (1.23)	9.40 (1.21)
COINVESTMENT	-3.21** (-2.15)	-3.21** (-2.15)	-3.20** (-2.15)	-3.21** (-2.15)	-3.20** (-2.19)	-3.20** (-2.19)	-3.20** (-2.19)
FREECASHFLOW	0.00** (2.27)	0.00** (2.27)	0.00** (2.27)	0.00** (2.30)	0.00** (2.30)	0.00** (2.30)	0.00** (2.30)
LOSS	5.65*** (5.53)	5.64*** (5.49)	5.64*** (5.49)	5.63*** (5.46)	5.63*** (5.43)	5.52*** (5.17)	5.55*** (5.25)
BIG4	0.21 (0.55)	0.21 (0.55)	0.17 (0.44)	0.18 (0.47)	0.14 (0.36)	0.15 (0.40)	0.15 (0.38)
FIRMAGE	-0.08*** (-2.67)	-0.08*** (-2.68)	-0.08*** (-2.66)	-0.08*** (-2.67)	-0.06*** (-2.60)	-0.07*** (-2.69)	-0.06*** (-2.60)
IFRS	0.61 (1.01)	0.62 (1.02)	0.94 (1.62)	0.60 (1.00)	0.62 (1.02)	0.64 (1.05)	0.61 (1.01)
YEAR2005	-0.10 (-0.14)	-0.08 (-0.12)	-0.07 (-0.10)	-0.04 (-0.07)	-0.07 (0.11)	-0.07 (-0.11)	-0.08 (-0.12)

YEAR2006	0.87 (1.47)	0.88 (1.48)	0.90 (1.50)	0.92 (1.53)	0.87 (1.47)	0.92 (1.51)	0.88 (1.47)
YEAR2007	0.29 (0.47)	0.29 (0.47)	0.32 (0.52)	0.34 (0.54)	0.35 (0.55)	0.32 (0.52)	0.35 (0.56)
YEAR2008	0.31 (0.54)	0.30 (0.45)	0.30 (0.44)	0.32 (0.46)	0.33 (0.46)	0.31 (0.54)	0.33 (0.46)
CONSTRUCTION	-1.14 (-0.80)	-1.11 (-0.77)	-1.03 (-0.70)	-1.00 (-0.67)	-0.93 (-0.59)	-0.90 (-0.56)	-0.88 (-0.54)
CONSUMER PRODUCT	-1.31 (-0.96)	-1.32 (-0.96)	-1.19 (-0.88)	-1.16 (-0.85)	-1.23 (-0.89)	-1.24 (-0.88)	-1.21 (-0.86)
INDUSTRIAL PRODUCT	-1.33 (-1.03)	-1.35 (-1.04)	-1.25 (-0.96)	-1.27 (-0.97)	-1.38 (-1.03)	-1.34 (-0.98)	-1.34 (-0.98)
INFRASTRUCTURE	-3.76 (-1.18)	-3.74 (-1.20)	-3.74 (-1.16)	-3.77 (-1.19)	-3.80 (-1.19)	-3.79 (-1.19)	-3.79 (-1.19)
PLANTATIONS	-2.50* (-1.83)	-2.42* (-1.77)	-2.23 (-1.62)	-2.15 (-1.56)	-2.17 (-1.54)	-2.13 (-1.48)	-2.13 (-1.49)
PROPERTIES	-1.53 (-1.13)	-1.50 (-1.09)	-1.29 (-0.91)	-1.26 (-0.87)	-1.40 (-0.97)	-1.34 (-0.90)	-1.34 (-0.90)
TRADING/SERVICES	-1.69 (-1.30)	-1.68 (-1.30)	-1.52 (-1.18)	-1.57 (-1.21)	-1.61 (-1.21)	-1.59 (-1.18)	-1.56 (-1.17)
_cons	7.87*** (5.78)	7.86*** (4.54)	6.92*** (3.75)	6.91*** (3.51)	7.60*** (3.74)	8.50*** (4.04)	8.05*** (3.90)
<i>N</i>	2696	2696	2696	2696	2696	2696	2696
<i>F</i> Statistics	4.81	4.24	4.15	3.73	3.73	3.65	3.62
PROB>F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ADJUSTED R-SQUARE	0.3035	0.3028	0.3045	0.3039	0.3083	0.3082	0.3086

***are significant at $p < 0.01$, **are significant at $p < 0.05$, *are significant at $p < 0.10$

5.3.3.2 Endogeneity test

As discussed above, while robust regression can solve the issue of violation of parametric assumptions, it cannot solve the problem of endogeneity in a regression analysis. To deal with this issue, we first identify whether the MJONES, CONCENTRATION and MANSHARE may suffer from the endogeneity problem by performing the Durbin-Wu-Hausman test on each of these variable to detect for endogeneity⁵³. Following Larcker and Rusticus (2010), the instrumental variables are the lagged values of the endogenous variables.⁵⁴ The Durbin-Wu-Hausman tests the null hypothesis that the residual values of MJONES, CONCENTRATION and MANSHARE are jointly equal to zero. If the F-statistic is significant, the null hypothesis would be rejected, suggesting that endogeneity is present. Table 5.16 present the results of the Durbin-Wu-Hausman test. The results suggest insignificant F-statistics for MJONES and CONCENTRATION but significant F-statistics for MANSHARE ($p < 0.05$). Results of Durbin-Wu-Hausman test reveals that we have endogeneity problem in our regression model related to MANSHARE. The next sections discuss the causes, consequences and treatment of endogeneity and followed by alternative regression model.

⁵³ The Durbin-Wu-Hausman test only performed on dependent and non-dummy independent variables

⁵⁴ As previously mentioned we assume MJONES, CONCENTRATION and MANSHARE are endogenous

TABLE 5-16: Durbin-Wu-Hausman test results

H ₀ = the residual of MJONES , CONCENTRATION and MANSHARE are endogenous	
Reject H ₀ if F-statistic significant	
Variables	Chi2 value (<i>p</i> -value of F-statistics)
MJONES	7.431 (<i>p</i> =0.172)
CONCENTRATION	18.332 (<i>p</i> =0.406)
MANSHARE	13.581 (<i>p</i> =0.021)

5.3.3.3 Endogeneity: causes, consequences and treatment

Endogeneity occurs when independent variables are correlated to error terms in a regression (Roberts and Whited, 2011) and it plagues almost every aspect of empirical corporate finance including the ownership structure of the firms (Li, 2011). According to Roberts and Whited (2011), endogeneity comprises of three main sources which are: (i) omitted variables, (ii) measurement error and (iii) simultaneity.

Endogeneity causes OLS regression to be biased and inconsistent (Wooldridge, 2002). In the issue of ownership structure and earnings-management, the endogeneity problem in the form of simultaneity is a serious concern for a regression model. This is because if ownership structure is based on input related to earnings-management choices, then residuals in regression would be correlated with the ownership variables and the coefficient estimates will be biased. For example, while ownership concentration by blockholders or managerial ownership could be

associated with earnings-management activities in firm, higher earning management activities could also attract shareholders to retain or invest into firms. This is due to a possibility that blockholders or management who are aware (or involved indirectly) in earnings-management activities in firms but decided to maintain or increase their investments in the company aims to gain personal profit from favourable reported earnings such as an increase in share prices. Therefore, studies on the relationship between ownership and earnings-management must take into account the effect of joint determination of these variables.

However, previous studies into the relationship between ownership structure and earnings-management largely ignored the potential for simultaneity bias between ownership and earnings-management where the level of share ownership by blockholders or managers and earnings-management might be jointly determined. Most of the previous research only focuses on one way relationship on the effects of ownership concentration either by blockholders or managerial on earnings-management and not *vice versa* (e.g. Ding et al., 2007; Mohd Ali et. al, 2008; Yang et al., 2008; Al-Fayoumi et al., 2010 etc.).

To deal with endogeneity problems, several options are suggested by the literature. To solve the problem of omitted variables caused by unobservable heterogeneity among firms in a cross sectional sample, the use of panel data is one potential solution (Coles et al., 2007; Hu and Izumida, 2008). In addition, Li (2011) suggested that the regression include as many important and time-variant control variables as possible such as the incorporating year and industry dummies, particularly when the data in the sample are in the form of panel data. Meanwhile, endogeneity caused by

measurement error was defined by Roberts and Whited (2011: 79) as “the discrepancy between a proxy and its unobserved counterpart.” They suggest using a valid measurement or finding better measures for a specified proxy. In relation to our study, some of these suggestions have been taken into account; for example, we used panel data, employed various control variables, incorporating year and industry dummies and so on.

However, as discussed above, our concern of endogeneity problem is in the form of simultaneity. Two main options for solving simultaneity bias in regression are discussed in prior literature, which are: the use of instrumental variables regression (Li, 2011; Roberts and Whited, 2011) and the use of a simultaneous system of equations based on 2SLS estimation (Weir et al., 2002; Cornett et al., 2009; Farooque et al., 2010). We first tried to use instrumental variables regression (IV regression) method but none of our variables managed to fulfil strict requirements under this approach⁵⁵. Since the use of IV regression was not possible, we opt to use 2SLS regression instead.

To test the simultaneous relationship using 2SLS estimation, two related equations in which earnings-management and ownership concentration are treated as endogenous variables are developed. The first is the earnings-management model which is similar to the main model used in this study (equation 1) and the second is the blockholder's ownership concentration model (equation 2) which is driven by the findings of prior literature. In the first stage, the ownership concentration is regressed using the main

⁵⁵ According to Adkins and Hill (2008: 249), instrumental variables must be from outside the regression model, uncorrelated with the regression error and as strongly correlated with the endogenous variable as possible. Moreover, to ensure that the instrumental variables used are valid, they need to pass several post-estimation requirements such as the *F*-statistic should be at least 3.3 or the *F*-value should be at least 10 in order for instrumental variables estimation to function adequately.

model and fitted value from the regression is obtained. This fitted value represents the portion of ownership concentration which might not be explained by earnings-management (endogenous) in the regression. The same steps are done on model two (blockholder's ownership concentration model) where CONCENTRATION treated as dependent variable. In the second stage, earnings-management (MJONES) and CONCENTRATION are replaced with their fitted value drawn from the first stage regressions where they are located at the right side of the equation.

For the ownership concentration model (equation 2), we also control for performance variables, firm's size and age, growth prospects, years effects and industry.

Growth prospects (GROWTH). The ratio of the market-to-book value of equity is used as a proxy of a company's growth prospects. It is predicted that the greater a company's growth prospects, the more likely it is that the company will have a widely held ownership structure. Kahn and Winton (1998) find that the percentage holding of pre-IPO shareholders will diminish at a faster rate in fast-growing firms because of the need for more financing partly through the issuance of more shares. Therefore, we predict a negative relationship between GROWTH and CONCENTRATION.

Liquidity (LIQUIDITY). Liquidity measures the availability of firm's to invest and the more liquid the assets are, the more attractive the firm in the eyes of shareholders and thus, increase the potential of large shareholders to increase their stake. According to Williamson (1988), firms with higher liquidity are better able to pay debt and therefore easier to finance thus become more attractive for investors.

Therefore, we predict a positive relationship between LIQUIDITY and CONCENTRATION

Firm size (SIZE). Firm size is measured as the natural logarithm of the firm's market capitalization as the investment community normally uses this figure to determine a company's size. It might be expected that larger firms would be less likely to have a higher degree of ownership concentration. This is for the reason that, purchasing a controlling stake in a large company is more expensive than purchasing a controlling stake in a medium-sized or small listed company. Large companies may also be expected to have issued more shares than smaller companies and therefore the larger the capital requirement by the investors, in order to own significant shares in the firm. This implies a more diffuse ownership structure (Kapopoulos and Lazaretou, 2006; Demsetz and Villalonga, 2001). Therefore, we predict a negative relationship between SIZE and CONCENTRATION.

Previous year performance (LAGROA). Corporate performance proxied by ROA in the previous year could be the determinants of blockholder ownership concentration in their portfolio companies. Demsetz and Lehn (1985) and Demsetz and Villalonga, (2001) argue that corporate performance might influence shareholders' investment behaviour where the better the financial performance is, the higher ownership concentration by shareholders. Therefore, we predict a positive relationship between LAGROA and CONCENTRATION.

Dividend payout (DIVIDEND). Similar to LAGROA, higher dividends might also encourage blockholders to increase their stakes in the firm. Therefore, this variable is expected to have a positive relationship with ownership concentration.

Leverage (LEVERAGE). Leverage measured by debt-assets ratio is predicted to have a negative sign to ownership concentration. This is because creditors and risk rating agencies are assumed to play strong monitoring roles in controlling management's activity thus reduced the agency cost (Bolton and Scharfstein, 1990; Stultz, 1990). In that circumstance, there is no need for blockholders to own too many shares in one particular company. Therefore, we predict a negative relationship between LEVERAGE and CONCENTRATION.

Investment opportunity (COINVESTMENT). Firms with substantial investment opportunity may attract investors in order to earn a return greater than firms that have less investment opportunity. Therefore a positive relationship with concentration is expected for this variable.

Free cash flow (FCF). Agency theory asserts that the conflicts between shareholders and managers exist partly because of the free cash flow issue where opportunistic managers tend to spend free cash flow unwisely on value destroying investment (Jensen, 1986). This is because there is more opportunity to compensate themselves as firms become larger from investments. In this situation, concentrated ownership is particularly relevant as monitoring mechanism. This is because while small shareholders have little incentive to monitor management because of the free-rider problem, concentrated ownership mitigates the problems of collective choice among shareholders (Lange, 1995). Therefore, if concentrated ownership solves free cash flow problems, then the desired level of ownership concentration is expected to increase with the amount of free cash flow. Therefore, we predict a positive relationship between FCF and CONCENTRATION.

Loss (LOSS). While financial performance in the previous year might influence ownership concentration positively in the current year, the inverse relationship is expected for loss making firms in the current year as shareholders become more selective in their investment decisions.

Firm Age (FIRMAGE). It might be expected that the longer the period of time that has elapsed since a company first listed on the stock exchange, the more likely the company is to have a widely held share ownership structure. For example, a study by Brennan and Franks (1997) in the UK find that there is a considerable sell-down by the pre-IPO shareholders in the years following a company's IPO. Therefore, we predict a negative relationship between FIRMAGE and CONCENTRATION.

Year effects and industry dummies (YEAR DUMMY and INDUSTRY). As different industries might be characterized by different shareholder concentration patterns (van der Elst, 2004) and since these are panel data, it is important to control for year and industry effects.

The equation for earnings-management and ownership structure is represented below:

$$\begin{aligned}
 \mathbf{EM}_{it} = & \alpha + \beta_1 \text{CONCENTRATION}_{it} + \beta_2 \text{PIF GLIC}_{it} + \beta_3 \text{FGLIC}_{it} + \beta_4 \text{SEDC}_{it} + \beta_5 \text{PRIVATE}_{it} \\
 & + \beta_6 \text{MANSHARE}_{it} + \beta_7 \text{SECONDBLOCK}_{it} + \beta_8 \text{BODSIZE}_{it} + \beta_9 \text{BODMEET}_{it} + \\
 & \beta_{10} \text{BODINED}_{it} + \beta_{11} \text{DUALITY}_{it} + \beta_{12} \text{ACSIZE}_{it} + \beta_{13} \text{ACMEET}_{it} + \beta_{14} \text{ACINED}_{it} + \\
 & \beta_{15} \text{ACEXPERT}_{it} + \beta_{16} \text{SIZE}_{it} + \beta_{17} \text{LAGROA}_{it} + \beta_{18} \text{LEVERAGE}_{it} + \beta_{19} \text{ANALYST}_{it} + \\
 & \beta_{20} \text{TACCLTA}_{it} + \beta_{21} \text{COINVESTMENT}_{it} + \beta_{22} \text{FCF}_{it} + \beta_{23} \text{LOSS}_{it} + \beta_{24} \text{BIG4}_{it} + \\
 & \beta_{25} \text{FIRMAGE}_{it} + \beta_{26} \text{IFRS}_{it} + \beta_{27} \text{Year2005}_{it} + \beta_{28} \text{Year2006}_{it} + \beta_{29} \text{Year2007}_{it} + \\
 & \beta_{30} \text{Year2008}_{it} + \beta_{31} \text{Construction}_{it} + \beta_{32} \text{Consumer}_{it} + \beta_{33} \text{Industrial}_{it} + \beta_{34} \text{Infrastructure}_{it} + \\
 & \beta_{35} \text{Plantations}_{it} + \beta_{36} \text{Properties}_{it} + \beta_{37} \text{Services}_{it} + \varepsilon_{it} \dots \dots \dots \mathbf{equation (1)}
 \end{aligned}$$

$$\begin{aligned}
 \mathbf{CONCENTRATION}_{it} = & \alpha + \beta_1 \mathbf{EM}_{it} + \beta_2 \text{GROWTH}_{it} + \beta_3 \text{LIQUIDITY}_{it} + \beta_4 \text{SIZE}_{it} + \\
 & \beta_5 \text{LAGROA}_{it} + \beta_6 \text{DIVIDEND}_{it} + \beta_7 \text{LEVERAGE}_{it} + \beta_8 \text{COINVESTMENT}_{it} + \beta_9 \text{FCF}_{it} + \\
 & \beta_{10} \text{LOSS}_{it} + \beta_{11} \text{FIRMAGE}_{it} + \beta_{12} \text{Year2005}_{it} + \beta_{13} \text{Year2006}_{it} + \beta_{14} \text{Year2007}_{it} + \beta_{15} \text{Year2008}_{it} \\
 & + \beta_{16} \text{Construction}_{it} + \beta_{17} \text{Consumer}_{it} + \beta_{18} \text{Industrial}_{it} + \beta_{19} \text{Infrastructure}_{it} + \beta_{20} \text{Plantations}_{it} \\
 & + \beta_{21} \text{Properties}_{it} + \beta_{22} \text{Services}_{it} + \varepsilon_{it} \dots \dots \dots \mathbf{equation (2)}
 \end{aligned}$$

Table 5-17 presents the definitions and operationalisation of variables used in equation 2.⁵⁶

⁵⁶ Variable definitions and operationalisation for equation 1 have been explained in Table 4-4

TABLE 5-17: Variable definitions and operationalisation (equation 2)

Variables	Acronym	Operationalisation
Dependent variable: Ownership concentration	CONCENTRATION	The shareholding percentage of the largest shareholder in a company
Independent variables: Earnings-management proxy by discretionary accrual	EM	Discretionary accrual estimated using Cross-sectional modified Jones Model
Growth prospects proxy by market-to-book ratio	GROWTH	The market-to-book ratio is the ratio of the market value of equity (market capitalization) to its book value (the value of assets minus liabilities) and is used to proxy for a company's growth prospects
Liquidity	LIQUIDITY	The ratio of current assets to current liabilities
Firm size (proxy by firm's market capitalization)	SIZE	Natural logarithm of firm's market capitalization
One-year lagged for firm's financial performance measure by return on assets	LAGROA	Calculated as net income/total assets
Dividend per share	DIVIDEND	The total of declared dividends
Financial leverage	LEVERAGE	The percentage of total debt to total assets of the company
Investment opportunity	COINVESTMENT	Gross property, plant and equipment divided by lagged total assets. This is a proxy for investment opportunity
Free Cash Flow	FCF	Operating cash flow minus capital expenditures
Firms with negative earnings	LOSS	Dichotomous according to the firm's income before extraordinary items: 1 if the firms recorded negative earnings and 0 otherwise
Firm age	FIRMAGE	The number of years a company's shares have been traded on the Bursa Malaysia Securities
Year dummies	YEAR DUMMY	Dummy variables for years within the test period
Industry type	INDUSTRY	Dichotomous according to which sectors the company belongs to according to Bursa Malaysia sector classifications

5.3.3.4 Two-stage least square (2SLS) regression analysis (Analysis 2)

As discussed above, to mitigate the potential bias in regression results caused by endogeneity, the 2SLS regression is performed and used as our main findings. The results of 2SLS regression analysis are presented in Table 5-18. **The sequence of analysis is based on results from this table, not based on hypotheses sequences.**

TABLE 5-18: 2SLS regression of earnings-management, blockholders' investment and control variables

Assumption: Earnings-management, ownership concentration by blockholder and managerial ownership are **endogenous**

	Panel A OWNERSHIP = Blockholder ownership concentration (CONCENTRATION)		Panel B OWNERSHIP = Managerial ownership (MANSHARE)		Panel C⁵⁷ OWNERSHIP= Blockholder and managerial ownership
	<i>Model 1</i> <i>MJONES</i>	<i>Model 2</i> <i>CONCENTRATION</i>	<i>Model 3</i> <i>MJONES</i>	<i>Model 4</i> <i>MANSHARE</i>	<i>Model 5</i> <i>MJONES</i>
<u>Endogenous Variables</u>					
MJONES (<i>fitted value</i>)		-0.35** (-2.10)		0.45** (2.32)	
CONCENTRATION (<i>fitted value</i>)	-0.09** (-2.20)				0.06*** (2.73)
MANSHARE (<i>fitted value</i>)			0.58*** (3.35)		0.65*** (3.66)
<u>Exogenous Variables</u>					
PIF GLIC	0.14 (5.61)		0.14 (5.60)		0.17 (5.84)
FGLIC	0.38 (3.12)		0.34 (3.09)		0.37 (3.11)
SEDC	0.19** (5.29)		0.22** (5.51)		0.21** (5.46)
PRIVATE	2.68** (2.56)		0.76 (1.40)		1.24** (0.54)

⁵⁷ In this model, both ownerships concentration by blockholder and managerial ownership (independent variables) are considered as endogenous variables and replaced by the fitted values from their first regression and both of them become part of MJONES equation (Model 1 in Panel C)

SECONDBLOCK	-0.03 (-0.95)		-0.161** (-2.38)		-0.16** (-2.34)
BODSIZE	0.55*** (3.63)		0.19 (1.39)		0.09 (0.64)
BODMEET	-0.09 (-0.92)		-0.24* (-1.73)		-0.27* (-1.84)
BODINED (%)	0.04*** (2.74)		-0.01 (-0.51)		-0.02 (-1.06)
DUALITY	0.24 (0.43)		0.16 (0.22)		0.16 (0.23)
ACSIZE	0.88** (2.37)		-0.02 (-0.05)		-0.15 (-0.27)
ACMEET	0.22 (1.52)		-0.16 (-0.72)		-0.26 (-1.12)
ACINED	-0.77 (-1.53)		0.36 (0.51)		0.36 (0.50)
ACEPERT	0.62* (1.81)		-0.11* (-0.28)		-0.22* (-0.51)
<i>Firm-specific variables</i>					
SIZE (TOTAL ASSETS)	2.21** (1.93)		2.33** (2.09)		2.31** (2.06)
LAGROA	-0.000 (-0.01)	0.05** (1.97)	-0.05 (-1.64)	0.05** (2.16)	-0.07 (-2.03)**
LEVERAGE	0.06*** (3.56)	-0.05*** (-2.66)	0.05*** (2.66)	-0.00 (-0.22)	0.05*** (2.72)
ANALYST	-0.65** (-2.01)		-0.55** (-1.93)		-0.55* (-1.90)
TACCLTA	9.21 (1.18)		9.43 (1.19)		9.36 (1.19)
COINVESTMENT	-3.03** (-2.02)	-5.43** (-2.47)	-3.08** (-2.14)	7.92*** (3.83)	-3.08** (-2.13)
GROWTH		-0.07 (-0.75)		-0.18* (-1.72)	

LIQUIDITY		0.03 (0.53)		0.00 (0.19)	
DIVIDEND		1.756 (0.784)		1.557 (0.665)	
SIZE (MCAP)		5.14*** (20.33)		2.05*** (8.30)	
FCF	0.00** (1.92)	8.48*** (3.22)	0.00** (2.01)	-0.00*** (-5.22)	0.00** (2.01)
LOSS	12.65*** (5.95)	-2.29* (-0.33)	12.88*** (6.43)	-2.51* (-0.39)	13.83*** (6.66)
BIG4	0.165 (0.41)		-0.27 (-0.48)		-0.37 (-0.62)
FIRMAGE	-0.05** (-2.10)	0.01 (0.60)	0.11*** (2.96)	-0.31*** (-14.13)	0.13*** (3.13)
IFRS	0.28 (1.01)		0.52 (1.41)		0.82** (2.02)
YEAR2005	-0.84 (-1.76)	-0.24 (-0.48)	-0.77 (-1.12)	-0.22 (-0.34)	-0.82* (-1.72)
YEAR2006	-0.14 (-0.21)	-0.31 (-0.48)	-0.15 (-0.28)	-0.11 (-0.24)	-0.17 (-0.28)
YEAR2007	-0.01 (-0.03)	0.98 (1.41)	-0.04 (-0.03)	1.04 (2.12)	-0.02 (-0.05)
YEAR2008	0.31 (0.49)	-0.71 (-1.04)	0.17 (0.26)	-0.61 (-1.01)	0.34 (0.52)
CONSTRUCTION	-0.27 (-0.31)	-0.58 (-0.64)	-0.37 (-0.52)	-0.71 (-0.87)	-0.29 (-0.34)
CONSUMER PRODUCT	-1.71 (-1.99)	0.85 (1.08)	-1.49 (-1.98)	0.41 (0.74)	-1.73 (-2.04)
INDUSTRIAL PRODUCT	0.53 (1.08)	-0.26 (-0.39)	0.24 (0.03)	-0.24 (-0.36)	0.55 (1.13)
INFRASTRUCTURE	-0.44 (-0.52)	-0.45 (-0.54)	-0.47 (-0.58)	-0.43 (-0.49)	-0.42 (-0.47)
PLANTATIONS	-0.57* (-0.81)	0.57 (0.54)	-0.53 (-0.78)	0.40 (0.89)	-0.67* (-0.94)

PROPERTIES	0.20 (0.31)	-0.30 (-0.39)	-0.34 (-0.41)	-0.28 (-0.36)	0.22 (0.33)
TRADING/SERVICES	-0.07 (-0.08)	0.12 (0.19)	-0.07 (-0.05)	0.15 (0.22)	-0.09 (-0.09)
_cons	7.53*** (4.03)	38.537*** (10.39)	6.145*** (4.33)	42.312*** (11.65)	8.40*** (4.12)
<i>N</i>	2696	2696	2696	2696	2696
<i>F</i> -statistics	388.93	932.90	851.97	805.12	220.35
PROB>F	0.0000	0.0000	0.0000	0.0000	0.0000
ADJUSTED R-SQUARE	0.2796	0.2020	0.2803	0.2187	0.2807

Panel A shows the results of 2SLS regression when we treated MJONES and blockholder ownership concentration (CONCENTRATION) as endogenous variables. We find a negative and significant association between CONCENTRATION and earnings-management ($\beta = -0.09$, $p < 0.05$) and *vice versa* ($\beta = -0.35$, $p < 0.05$). This indicates that the higher the ownership concentration by blockholders, the lower earnings-management practices in the firms they invest in. Similarly, the higher earnings-management practices in firms, the lower ownership concentration by blockholders. These findings support hypothesis 6 and suggest that the stakes by blockholders might lead to tighter supervision and the ability to control the management that in return might reduce the risk of accounting manipulations by opportunistic managers. These results are consistent with findings in Ding et al. (2007) where they suggest that at a high level of ownership concentration, the blockholders become the true owners and will ensure the future growth of the firms by minimising earnings-management practices. Our results are also in line with Wang and Yung (2011), Abdoli (2011) and Alves (2012). More importantly, the results are in parallel with property rights and agency theory which suggest the higher the degree of share ownership by a blockholder, the greater the incentive and ability to participate in the supervision and control of the firm's management (Rock, 1991; Holderness, 2003).

On the contrary, we find a positive and significant association between managerial ownership and earnings-management ($\beta = 0.58$, $p < 0.01$) and *vice versa* ($\beta = 0.45$, $p < 0.05$) as shown in Panel B. This indicates that MANSHARE indeed encourage earnings-management practices in firms managed by themselves and greater magnitude of earnings-management play an important role in attracting more

investment by management. These results support hypothesis 5 and consistent with the argument by Morck et al. (1988) that greater MANSHARE would provide managers with deeper entrenchment and therefore, greater scope of opportunistic behaviour including manipulate earnings particularly when their tenure, promotions, reputation and compensation are tied to firm accounting performance (Ronen and Yaari, 2008). Moreover, in emerging markets with a comparatively weak degree of investor protection and lack of market discipline, managers may make accounting choices that reflect personal motives rather than economic decisions (Sanchez-Ballesta and Garsa-Meca, 2007). The results are also in line with empirical studies in other emerging economies such as Limpaphayom and Manmettakul (2004) in Thailand, Al-Fayoumi et al., (2010) in Jordan as well as a previous study in Malaysia by Johari et al., (2008).

Panel C confirmed the above analysis where in model 5 we treated MJONES, CONCENTRATION and MANSHARE as endogenous variables. The results shows the higher magnitude of relationship between MANSHARE and MJONES ($\beta = 0.65$, $p < 0.01$) compare to a very low magnitude of relationship between CONCENTRATION and MJONES ($\beta = 0.06$, $p < 0.01$).

The subsequent discussion refers to the results of analysis as in model 5 of Panel C. The results reported in model 5 partially support earlier findings regarding hypotheses 4 which suggest that firms owned by private blockholder engage in earnings-management practices at higher magnitude compared to the lower magnitude of earnings-management practices in PIF GLIC, FGLIC and SEDC (PRIVATE; $\beta = 1.24$, $p < 0.05$; PIF GLIC; $\beta = 0.17$, $p > 0.1$; FGLIC; $\beta = 0.37$, $p > 0.1$; SEDC; $\beta = 0.21$, $p < 0.05$). These results are in line with studies in Chinese

markets by Ding et al. (2007) and Wang and Yung (2011). However, the results contradict to Yen et al. (2007) in Malaysia that suggest earnings-management activities are lower in the firms owned by Chinese family-linked companies as compared to their GLCs counterpart. One possible explanation is that research by Yen et al. (2007) is limited to firms that are owned by Chinese family-linked companies while our research covering all type of private blockholders. In addition, while Yen et al. (2007) included firms in financial industry in their sample, we exclude those firms as they are subject to different compliance and regulations (Haniffa and Hudaib, 2006; Ab Razak et al., 2011) and more importantly their behaviour of accruals differs from other industries (Klein, 2002; Park and Shin, 2004; Mohd Ali et al., 2008). Moreover, as previously discussed, GLICs are explicitly charged with improving the corporate governance in their portfolio companies (Malaysia Ministry of Finance, 2010) which is in line with government policy to attract foreign investment. Therefore, to implement the mandate and to support government policy on foreign investment, GLICs might have an incentive to mitigate earnings-management practices in their portfolio companies.

With regard to earnings-management practices among GLCs owned by different GLICs, the 2SLS results here do not support our prediction that earnings-management of portfolio companies owned by PIF GLIC is lower than earnings-management of portfolio companies owned by FGLIC (hypothesis 1). Concerning the hypothesis 2 and hypothesis 3 that predicts earnings-management are lower in portfolio companies owned by PIF GLIC and FGLIC as compared to portfolio companies owned by SEDC, our 2SLS results reject both of these hypotheses as they are statistically insignificant. Even though the magnitude of earnings-management in SEDC higher than in PIF GLIC (PIF GLIC; $\beta = 0.17$, $p > 0.1$; SEDC; $\beta = 0.21$, $p <$

0.05) which is consistent with hypothesis 3, we do not have enough evidence to support these findings as the relationship between PIF GLIC and earnings-management is statistically insignificant.

Moreover, in terms of the magnitude of coefficient, the coefficient value of earnings-management for SEDC is actually lower than recorded in FGLIC even though it is higher than PIF GLIC. The full results of 2SLS regression for GLCs owned by GLICs are as follows (PIF GLIC; $\beta = 0.17$, $p > 0.1$; FGLIC; $\beta = 0.37$, $p > 0.1$; SEDC; $\beta = 0.21$, $p < 0.05$). One possible explanation is the small numbers of listed GLCs owned by SEDCs (around 10 listed GLCs) which facilitate control by SEDCs and as a result reduce the earnings-management practices in their firms. Therefore, based on 2SLS regression, we find that our results on the magnitude of earnings-management among GLCs owned by different GLICs fail to support hypothesis 1, hypothesis 2 and hypothesis 3 which consistent with our earlier findings in Pairwise comparison (T-test and Mann-Whitney U test for differences in mean and median earnings-management of different type of GLICs in Table 4-14). This findings are also in line with robust regression results in Table 4-15 that shows only SEDC has significant association with earnings-management. Therefore, our findings with regards to the impact of different GLICs on earnings-management practices of their portfolio companies indicate that the objectives and control structures of GLICs does not affect how government ownership influences the earnings-management of GLCs.

With reference to the control variables, our results indicate a constructive role of secondary blockholders in mitigating earnings-management behaviour in the firms they invested in. This is shown by a significant negative association between SECONDBLOCK and earnings-management ($\beta = -0.16$, $p < 0.05$). This matches

with an argument in Zhong et al. (2007) that secondary blockholders have more incentive to play an active role in monitoring the management for their long-term benefits. This is partly because, unlike to small shareholders that can sell their shares quickly if they spot earnings manipulation in firms, secondary blockholders selling a large block of shares often causes a decrease in share prices and thus, becomes a loss to their investment.

Related to board characteristics, we find a significant negative association between BOARDMEET and earnings-management ($\beta = -0.27$, $p < 0.1$). The results are consistent with arguments that regular board meetings allow the directors to identify and resolve potential problems, particularly those that are related to the quality of financial reporting (Chen, Firth, Gao and Rui, 2006). Vafeas (1999) also stressed that active boards are more likely to put more effort into monitoring the integrity of financial reporting.

However, although the association of BODSIZE, BODINED and DUALITY with earnings-management in the direction as we predicted in hypotheses (BODSIZE: $\beta = 0.09$, $p > 0.1$; BODINED: $\beta = -0.02$, $p > 0$; DUALITY: $\beta = 0.16$, $p > 0.1$), the relationship are statistically insignificant.

The results for DUALITY consistent with previous study in Malaysia by Johari et al., (2008) that find CEO duality do not influence the practice of earnings-management in Malaysian firms. However, our result is contradict with Mohd Saleh et al (2005) that report a positive relationship between DUALITY and earnings-management. The significant reduction in the cases of duality function between study by Mohd Saleh et al (2005) and our study is a possible explanation of this discrepancy to the

extend that their influence or pressure for management to engage in earnings-management is diminishing . This indicates the success of MCCG in promoting the best practices of corporate governance regarding the separation of power between chairman and CEO.

The results also indicate that control variables related to audit committee characteristics such as ACSIZE, ACMEET and ACINED have no impact on earnings-management practices in firms (ACSIZE; $\beta = -0.15$, $p > 0.1$; ACMEET; $\beta = -0.26$, $p > 0.1$; ACINED; $\beta = 0.36$, $p > 0.1$). The results for ACMEET are in line with a previous study in Malaysia by Abdul Rahman and Mohamed Ali (2006) which suggests a negative but insignificant relationship between this variable and earnings-management.

We find a significant negative association between ACEXPRT and earnings-management ($\beta = -0.22$, $p < 0.1$), suggesting that audit committees with relevant financial expertise are helpful in the mitigation of financial misstatement. This results is in harmony with various previous studies such as Abbott et al., (2002); Xie et al.(2003); Abbott, Parker and Peters, (2004); Bédard et al. (2004); Agrawal and Chadha (2005); Carcello et al. (2006) as well as Dhaliwal et al. (2010). This also indicates the important role of audit committee financial expertise as a means of strengthening the monitoring and oversight role that the audit committee plays in the financial reporting process.

Overall, the results of 2SLS regression for board and audit committee variables indicate that corporate governance variables related to board and audit committee

have limited impact in mitigating earnings-management practices in firms. This finding is almost similar to the results of robust regression analysis reported in Table 4-15 where only BODSIZE is found to have significant impact on earnings-management but other corporate governance variables (BODMEET, BODINED, ACSIZE, ACMEET, ACINED and ACEXPERT) are insignificant in explaining earnings management.

Our results also indicate that control variables related to firm-specific variables have a substantial impact on firms' earnings-management practices. Firm size measured by TASSETS positively and significantly associate with earnings-management at a high magnitude of coefficient ($\beta = 2.31$, $p < 0.05$) suggesting large firms in Malaysia manage earnings more than small-sized firms. According to Barton and Simko (2002), large firms manage earnings since they face more pressures to meet or beat analysts expectations and our findings are in line with Sun and Rath (2009) who reports strong evidence that large firms are the primary determinants of earnings-management in Australia. Relating to this, while large firms are usually audited by auditors from the Big-4 that could help in preventing earnings misrepresentation in firms (Lennox, 1999; Gore, Pope and Singh 2001), the larger the firm size, the more bargaining power they have in negotiations with auditors and auditors are more likely to waive earnings-management attempts by large clients (Nelson, Elliott and Tarpley, 2002). This is what happened in our results where we find BIG4 insignificantly related to earnings-management practices ($\beta = -0.37$, $p > 0.1$) suggesting a similar scenario to that reported by Nelson et al. (2002) might occur in Malaysian listed firms.

LEVERAGE shows positive and significant association to earnings-management even though at a low magnitude of coefficient ($\beta = 0.05$, $p < 0.01$). This indicates that firms with high leverage are more likely to engage in earnings-management due to their concerns over debt covenant default (DeFond and Jiambalvo 1994; Dichev and Skinner 2002; Beatty and Weber 2003) and to ensure refinancing. The results are in line with the findings in Kim and Yi (2006) in Korea markets.

However, a low level magnitude of coefficient for LEVERAGE may also imply a close scrutiny by lenders in mitigating earnings-management in the firms that obtain loans from them. Similar to LEVERAGE, free cash flow (FCF) also has a positive and significant relationship to earnings-management at a very low magnitude of coefficient ($\beta = 0.00$, $p < 0.05$). This is consistent with agency theory argument that opportunistic managers tend to spend free cash flow unwisely on value destroying investment (Jensen, 1986) as there are more opportunity to compensate themselves as firm becomes larger resulting from the investments. As a result, managers might engage in earnings-management to cover up the poor performance resulting from the poor investment. However, the low magnitude of the relationship implies that, in the context of listed firms in Malaysia controlled by block ownership, managers are not able to act with impunity in making investments due to the dominant role of blockholders.

As expected, we find a positive and significant association between LOSS and earnings-management with high magnitude of coefficient ($\beta = 13.83$, $p < 0.01$). This indicates that firms incurring losses actively manage their earnings for several reasons such as to secure position if they are CEO (Ertimur, 2004), to avoid reports

of further earnings decreases (DeGeorge, Patel and Zeckhauser, 1999) or to convey a positive signal to outsiders evaluating the firms, particularly the credit rating agency and stock analysts that could affect firm's credit rating and their cost of debt (Dechow et al., 2000).

Our results also report a negative and significant association between LAGROA and earnings-management ($\beta = -0.07$, $p < 0.05$). This result is contrary to many previous studies such as Myers et al. (2007), Jo and Kim (2007) and Wang and Yung (2011). However, Watts and Zimmerman (1990) argued that firms with high profits tend to choose an accounting method that can reduce their earnings in order to mitigate political pressure. This is true in the context of Malaysia, particularly in large-size GLCs. For example, some GLCs such as Tenaga Nasional Berhad, the electrical provider in Malaysia, need to get government approval before increasing the electricity tariff. In this case, the government will examine their annual profits and it is difficult for them to obtain consent for an increase in tariffs if at the same time the firm recorded high profits. Therefore, this situation might create incentives for managers to deflate earnings. In relation to this, we also find that, COINVESTMENT is negative and significantly associate with earnings-management ($\beta = -3.08$, $p < 0.05$) suggesting firms may reduce the reported earnings number to limit the potential emergence of political risk (AlNajjar and Riahi-Belkaoui, 2001) as discussed above.

FIRMAGE is positively and significantly related to earnings-management ($\beta = 0.13$, $p < 0.01$) suggesting firms that already exist in the long term have better appreciation of the market environment and this put extra pressure on managers to show a consistent/better growth and thus, maintain their reputations in the business which consequently may lead to earnings-management practices. Our results are also

consistent with Ismail and Weetman (2008) in their study in Malaysia that suggests that long-established firms have a higher capacity to use accrual accounting in managing their earnings. Meanwhile, we find a positive and significant association between IFRS and earnings-management ($\beta = 0.82$, $p < 0.05$) suggesting no impact of the introduction of IFRS on the reduction of earnings-management level in emerging economy like Malaysia. However, perhaps it is too early to evaluate the impact of IFRS on earnings-management in Malaysia as full convergence of the existing Malaysian Reporting Standards and IFRS only take place in 2012 although the standards were revised to be virtually identical with IFRS in 2007. This result is consistent with findings in Rudra and Bhattacharjee (2012) in Indian markets.

The results report an insignificant association between TACCLTA and earnings-management and finally, as predicted, ANALYST negatively and significantly correlated to earnings-management ($\beta = -0.55$, $p < 0.1$) suggesting monitoring by financial analyst can help to curb earnings-management activities in firms by reducing information asymmetry between shareholders and managers. This finding is in line with Yu (2008) and Gaviious (2007).

The adjusted R-square statistics found in 2SLS regression of 28.07% (model 5) are higher than those reported in previous studies in Malaysia on the issue of earnings-management. For example, studies on the relationship between corporate governance characteristics (board and audit committee) and earnings-management by Mohd Saleh et al. (2005) and Abdul Rahman and Mohamed Ali (2006) reported adjusted R-square of 22.3% and 12.8% respectively. This suggests that taking into account different types of blockholders' ownership and considering various related control variables improves the predictive power of the empirical model. In the meantime,

adjusted R-square using 2SLS regression is slightly lower than adjusted R-square reported in robust regression analysis. Interestingly, in robust regression analysis, the adjusted R-square shows a consistent trend where there are almost no between the models (model 1 to model 7) even though corporate governance variables (board and audit committee) are added to the control variables. Therefore in both regression (2SLS and robust regression), we found limited impact of corporate governance variables in mitigating earnings-management practices in firms.

Table 5.18 (model 2 and model 4) also presents the results of control variables from the 2SLS regression of ownership stakes of blockholders and managerial ownership in listed firms. As expected, LAGROA is positively related to CONCENTRATION and MANSHARE ($\beta = 0.55$, $p < 0.05$) indicating previous year corporate performance influence shareholders' investment behaviour where the better the financial performance, the higher ownership concentration both by blockholders and management. This in line with arguments in Demsetz and Lehn (1985) as well as Demsetz and and Villaonga (2001). On the other hand, loss making firms (LOSS) show a negative and significant relationship with CONCENTRATION ($\beta = -2.29$, $p < 0.1$) and MANSHARE ($\beta = -2.51$, $p < 0.1$) as investors become more selective in their investment decisions and might avoid firms that recorded losses.

While both LIQUIDITY and DIVIDEND insignificantly related to CONCENTRATION and MANSHARE, our findings indicate that firm size is positively related to blockholders ownership concentration ($\beta = 5.14$, $p < 0.01$) and managerial ownership ($\beta = 2.05$, $p < 0.01$). This contradicts previous research into the relationship between firm size and (largely private) ownership concentration in developed market economies (Demsetz and Lehn 1985; Demsetz and Villalonga,

2001), but is in line with previous research in emerging economies (Ang and Ding, 2006; Le and Buck, 2011). As the existence of a high concentrated ownership is prevalence in emerging economies (Al Farooque, 2010) including Malaysia (Classens et al., 2000; Tam and Tan, 2007), this concentration on large firms is not surprising in the Malaysian context.

As predicted, LEVERAGE is negatively and significantly related with CONCENTRATION ($\beta = -0.05$, $p < 0.01$) indicating effective monitoring role by creditors and risk rating agencies that have potential to reduce agency cost (Bolton and Scharfstein, 1990; Stultz, 1990). In this circumstance, there is no need for blockholders to hold high stakes. In the meantime, GROWTH significantly and negatively related to MANSHARE ($\beta = -0.18$, $p < 0.1$) suggesting the greater a company's growth prospects, the more spreading its shares ownership partly because of the issuance of new shares to finance firm's investment activities. Consistent to the agency theory that ownership concentration might solve agency problem related to free cash flow (Jensen, 1986), we find a positive and significant association between FCF and CONCENTRATION ($\beta = 8.48$, $p < 0.01$). Although the results suggest that FCF is statistically significant and negatively related to MANSHARE, the correlation coefficients are exceedingly low ($\beta = -0.00$, $p < 0.01$). Finally, we find that control variable related to COINVESTMENT reports a negative and significant relationship with CONCENTRATION ($\beta = -5.43$, $p < 0.05$) but a positive and significant relationship with MANSHARE ($\beta = 7.92$, $p < 0.01$). This suggests that while investment opportunities attract more investment by management, blockholders might react oppositely, as they fear that firms with more investment opportunities are more likely to engage in earnings-management (Chen, Elder and Hung, 2010; Jo and Kim, 2007).

5.3.4 Additional analysis and robustness checks⁵⁸

5.3.4.1 Alternative measures for earnings-management

As previously discussed, our main measure of earnings-management is the modified Jones model (MJONES) which is widely used as a proxy of earnings-management due to its effectiveness in detecting earnings-management practices in firms (Dechow, Sloan and Sweeney, 1995). Using various samples and assumptions to test various measures of earnings-management, Dechow et al. (1995) concluded that the MJONES provides the most powerful test of earnings-management. According to Islam et al. (2011) MJONES is designed among other to reduce the measurement error of discretionary accruals when discretion is applied over sale.

However, to provide reasonable assurance that our main results are robust to various measure of discretionary accruals and to see whether the use of different measures of earnings-management have a significant different to our initial findings, we employed two more proxies of earnings-management which are the original cross sectional Jones model (JONES) and the Performance-adjusted discretionary accruals model (DAROA). The results of these three measures of earnings-management are presented in Table 5-19.

As showed, the results of the 2SLS regression relatively consistent across all measures of earnings-management. However, we noticed that while the direction of relationship (positive or negative) between variables used in the regression remain

⁵⁸ Although not reported in additional analysis, all the regressions in this section included variables years and industry dummies.

unchanged, some variables either lost significant level or become significant using other measures of earnings-management. This is particularly obvious when we compared the results between MJONES and DAROA. Our two control variables involved in this problem are BODMEET and DUALITY.

Using MJONES and JONES models, the results of BODMEET are consistent with a negative and significant relationship (MJONES: $\beta = -0.27$, $p < 0.1$; JONES: $\beta = -0.24$, $p < 0.1$). However, BODMEET lost its significance when DAROA is used as a measure of earnings-management. This implies that when DAROA is used as proxy earnings-management, the predictive ability of corporate governance variables related to BODMEET is less powerful in mitigating earnings-management practices in firms. DUALITY that shows insignificant relationship when measure with MJONES ($\beta = 0.16$, $p > 0.1$) and JONES ($\beta = 0.14$, $p > 0.1$) become significant when measure using DAROA ($\beta = 0.19$, $p < 0.1$) suggesting the combination of Chairman and CEO is associated with higher earnings-management in a firm when firm's performance accounted for in the calculation of earnings-management⁵⁹.

From this discussion, while we have some changes in significant level of two of our control variables, there are no changes in the direction of relationship among different measures of earnings-management. More importantly, the results of our main variables with regard to ownership structures are consistent in terms of direction or significant level across all measures of earnings-management. In addition, we found that the magnitude or coefficient value is qualitatively similar among the variables and the predictive power of our models is not much different.

⁵⁹ Unlike MJONES and JONES that are not include firm's performance in their calculation, firm's performance which is return on assets (ROA) is part of financial item included in the calculation of DAROA

Therefore, we conclude that our 2SLS results based on MJONES are robust to various measures of earnings-management.

TABLE 5-19:

**The results of alternative measures for earnings-management using
2SLS regression estimator**

Variables	Coefficient (<i>t-statistics</i>)		
	(1) MJONES	(2) JONES	(3) DAROA
CONCENTRATION	0.06*** (2.73)	0.04** (4.28)	0.09** (0.64)
PIF GLIC	0.17 (5.84)	0.16 (0.43)	0.14 (0.36)
FGLIC	0.37 (3.11)	0.28 (2.21)	0.34 (0.53)
SEDC	0.21** (5.46)	0.16** (0.29)	0.18** (0.47)
PRIVATE	1.24** (0.54)	1.39** (0.82)	1.79** (3.34)
MANSHARE	0.65*** (3.66)	0.55*** (0.80)	0.62*** (0.92)
2 ND BLOCK	-0.16** (-2.34)	-0.14** (-1.46)	-0.08** (-0.14)
BODSIZE	0.09 (0.64)	0.06 (0.11)	0.09 (1.63)
BODMEET	-0.27* (-1.84)	-0.24* (-0.68)	-0.21 (-2.14)
BODINED (%)	-0.02 (-1.06)	-0.04 (-3.24)	-0.03 (-0.74)
DUALITY	0.16 (0.23)	0.14 (1.48)	0.19* (0.59)
ACSIZE	-0.15 (-0.27)	-0.18 (-0.09)	-0.10 (-1.45)
ACMEET	-0.26 (-1.12)	-0.22 (-0.10)	-0.28 (-0.36)
ACINED	0.36 (0.50)	0.28 (2.46)	0.55 (0.80)
ACEPERT	-0.22* (-0.51)	-0.24* (-0.12)	-0.23* (-0.89)
TASSETS	2.31** (2.06)	2.68** (0.89)	2.13** (1.15)
LAGROA	-0.07** (-2.03)	-0.09** (0.16)	-0.08* (-1.08)
LEVERAGE	0.05*** (2.72)	0.04*** (0.40)	0.04** (4.30)
ANALYST	-0.55* (-1.90)	-0.61* (-2.35)	-0.64* (-3.15)
TACCLTA	9.36 (1.19)	8.04 (1.93)	5.55 (7.28)
COINVESTMENT	-3.08** (-2.13)	-4.44** (-0.97)	-3.20** (-29.60)

FCF	0.00** (2.01)	0.02** (0.20)	0.00** (2.55)
LOSS	13.83*** (6.66)	10.37** (1.99)	9.35** (5.37)
BIG4	-0.37 (-0.62)	-0.61 (-2.35)	-0.44 (-0.97)
FIRMAGE	0.13*** (3.13)	0.11*** (0.44)	0.15*** (0.40)
IFRS	0.82** (2.02)	0.93** (0.14)	0.62* (0.94)
_cons	8.40*** (4.12)	8.69*** (1.02)	7.67*** (3.36)
<i>N</i>	2696	2696	2696
<i>F</i> -statistics	56.76	60.51	79.34
PROB>F	0.0000	0.0000	0.0000
Adjusted R ²	0.3677	0.3481	0.3714

T-statistics are reported in parentheses. Asterisks indicate a significance level: *p < 0.1, **p < 0.05, ***p < 0.01

5.3.4.2 Different regression estimators

Due to the endogeneity problem, the main analyses were regressed using the 2SLS regression analysis. However, to provide reasonable assurance that our main findings are robust to the specifications of various regression estimators as well as benchmark for comparison, alternative regression estimators in addition to 2SLS presented in Table 5-20. Column (1) is the result of 2SLS regression, column (2) is the result of Limited Information Maximum Likelihood (LIML) regression and column (3) is the result of Generalized Method of Moments (GMM).

Generally, we find that the regression result using LIML and GMM estimators are consistent with our main findings in terms of the direction of the relationship as well as the coefficient value of predictors and control variables with earnings-management. However, while the results for SEDC are similar in 2SLS and LIML

with 0.5 significant level, this variable losses its significance in the GMM regression. Overall, based on results of other regression estimators, we conclude that our main findings are robust to alternative regression estimators.

TABLE 5-20:

The results of different regression estimators of firms' earnings-management, blockholders investment and control variables

Variables DV=MJONES	Coefficient (<i>t-statistics</i>)		
	(1) 2SLS	(2) LIML	(3) GMM
CONCENTRATION	0.06*** (2.73)	0.06*** (2.71)	0.05** (2.50)
PIF GLIC	0.17 (5.84)	0.16 (5.75)	0.17 (5.83)
FGLIC	0.37 (3.11)	0.39 (3.20)	0.40 (2.23)
SEDC	0.21** (5.46)	0.20** (5.35)	0.22 (5.51)
PRIVATE	1.24** (0.54)	1.28* (0.56)	1.24* (0.54)
MANSHARE	0.65*** (3.66)	0.64*** (3.66)	0.61*** (3.80)
2 ND BLOCK	-0.16** (-2.34)	-0.15** (-2.33)	-0.15** (-2.35)
BODSIZE	0.09 (0.64)	0.10 (0.68)	0.10 (0.82)
BODMEET	-0.27* (-1.84)	-0.27* (-1.84)	-0.36** (-2.10)
BODINED (%)	-0.02 (-1.06)	-0.02 (-1.04)	-0.02 (-1.12)
DUALITY	0.16 (0.23)	0.17 (0.23)	0.16 (0.23)
ACSIZE	-0.15 (-0.27)	-0.14 (-0.25)	-0.14 (-0.25)
ACMEET	-0.26 (-1.12)	-0.26 (-1.10)	-0.24 (-1.07)
ACINED	0.36 (0.50)	0.35 (0.49)	0.36 (0.50)
ACEXPERT	-0.22* (-0.51)	-0.21 (-0.49)	-0.21 (-0.49)
TASSETS	2.31** (2.06)	2.31** (2.06)	2.30** (2.05)
LAGROA	-0.07** (-2.03)	-0.07** (-2.02)	-0.06** (-1.99)
LEVERAGE	0.05*** (2.72)	0.05*** (2.74)	0.05*** (2.72)
ANALYST	-0.55* (-1.90)	-0.55* (-1.90)	-0.56* (-1.89)
TACCLTA	9.36 (1.19)	9.44 (1.22)	9.67 (1.26)
COINVESTMENT	-3.08** (-2.13)	-3.08** (-2.13)	-3.07** (-2.12)

FCF	0.00** (2.01)	0.00** (2.01)	0.00** (1.99)
LOSS	13.83*** (6.66)	12.81*** (6.02)	13.64*** (6.54)
BIG4	-0.37 (-0.62)	-0.36 (-0.62)	-0.33 (-0.59)
FIRMAGE	0.13*** (3.13)	0.12*** (3.12)	0.11*** (3.54)
IFRS	0.82** (2.02)	0.81** (2.02)	0.79** (2.00)
_cons	8.40*** (4.12)	8.99*** (4.39)	9.01*** (4.40)
<i>N</i>	2696	2696	2696
<i>F</i> -statistics	56.76	56.42	57.01
PROB>F	0.0000	0.0000	0.0000
Adjusted R ²	0.3677	0.3521	0.3689

T-statistics are reported in parentheses. Asterisks indicate a significance level: *p < 0.1, **p < 0.05, ***p < 0.01

5.3.4.3 Tests for the directions of earnings-management

Previously (Table 5-12), we conduct one sample *T*-test to check the existence of earnings-management practices among firms in our data set. Based on the results of pooled data, we find evidence that firms listed on the Main Board of Bursa Malaysia in our study period manage their reported earnings upward (income-increasing earnings-management). However, the results of our test above do not provide information on the influence of industry types and years on earnings-management practices. This is particularly important as different industries might act in different ways for their earnings-management practices. This information will provide valuable information particularly for investors. Therefore, to strengthen our evidence and to provide more detail information on earnings-management activities of listed firms in Malaysia, we performed a parametric *t*-test and Wilcoxon Signed Rank Test

(Wilcoxon test) on our three measures of earnings-management based on industry and years.

5.3.4.3.1 The magnitude of earnings-management by industry

Table 5-21 presents the direction of earnings-management by industry. For earnings-management measure by MJONES model, five out of eight industries (construction, consumer products, infrastructure, properties and services) manage their earnings upward. This shows a positive sign of these industries with discretionary accruals that are significantly different from zero for the parametric *t*-test. The plantations industry also shows the same direction but the *p*-value is insignificant ($p > 0.1$). We find similar results on the directions of earnings-management in Wilcoxon test.

Results of mean and median discretionary accruals measured using JONES model are not much different compared to MJONES model particularly on the nature of earnings-management activities as well as the significant level. However, the results show slight difference when we employed DAROA as proxy for earnings-management. Using a parametric *t*-test, we find that five out of eight industries manage their earnings upward but only three of them significantly different from zero (consumer products, infrastructure and services). In Wilcoxon test, six out of eight industries show their discretionary accruals significantly different from zero but only four industries manage their earnings upward (construction, consumer products, infrastructure and services).

From the results, we noticed that industrial products shows a consistent negative signed across all measures of earnings-management and for both tests the *p*-value

consistently show significantly different from zero. This shows that the industrial products industry was the only industry that manages their earnings downward (income-decreasing earnings-management). Among industries that manage their earnings upward, we find that companies in the infrastructure project industry category are the highest in managing their earnings followed by consumer and construction industries.

Overall, we find evidence supporting our earlier findings that listed firms in Main Board of Bursa Malaysia from 2004 through 2008 managed their reporting earnings upward except those firms in industrial products industry.

TABLE 5-21: The magnitude of earnings-management by industry

Year	Parametric t-test			Wilcoxon Signed Rank Test		
	Mean	<i>t</i> -stat	<i>P</i>	Median	<i>z</i> -stat	<i>P</i>
MJONES						
Construction	0.0358	4.0073	0.0001	0.0491	5.193	0.0000
Consumer	0.0438	9.0402	0.0000	0.0442	9.957	0.0000
Industrial	-0.0216	-2.4968	0.0128	-0.0142	-3.850	0.0001
Infrastructure	0.0477	3.8318	0.0006	0.0425	3.194	0.0014
Plantations	0.0063	1.1454	0.2534	0.0067	0.573	0.5663
Properties	0.0123	2.4701	0.0139	0.0060	2.479	0.0132
Services	0.0215	4.6776	0.0000	0.0167	5.096	0.0000
Technology	-0.0117	-1.2918	0.2006	-0.0023	-1.069	0.2849
JONES						
Construction	0.0336	3.8179	0.0002	0.0459	5.088	0.0000
Consumer	0.0418	8.8838	0.0000	0.0441	9.900	0.0000
Industrial	-0.0207	-3.5379	0.0004	-0.0162	-4.360	0.0000
Infrastructure	0.0457	3.5525	0.0013	0.0430	3.096	0.0020
Plantations	0.0060	1.1152	0.2661	0.0050	0.555	0.5787
Properties	0.0109	2.3111	0.0213	0.0044	2.070	0.0385
Services	0.0195	4.3095	0.0000	0.0141	4.733	0.0000
Technology	-0.0109	-1.2747	0.2065	-0.0070	-1.306	0.1917
DAROA						
Construction	0.0233	1.3226	0.1875	0.0224	2.072	0.0382
Consumer	0.0222	1.3226	0.0000	0.0201	5.673	0.0000
Industrial	-0.0452	-4.9906	0.0000	-0.0288	-7.813	0.0000
Infrastructure	0.1040	5.6921	0.0000	0.1257	4.056	0.0000
Plantations	-0.0072	-1.1801	0.2394	-0.0187	-1.907	0.0565
Properties	0.0026	0.5336	0.5939	-0.0054	-0.103	0.9181
Services	0.0177	3.8789	0.0001	0.0134	3.943	0.0001
Technology	-0.0021	-0.2574	0.7976	-0.0001	-0.311	0.7561

5.3.4.3.2 The magnitude of earnings-management by year

Table 5-22 reports the direction of earnings-management by years. The results show the same mean and median direction as well as their significant values as different from zero for both MJONES and JONES models. The value of mean and median for the models is almost equally distributed among the years with the highest value for mean recorded in the year 2007 for both models (MJONES: 0.0301, $p < 0.01$; JONES: 0.0283, $p < 0.01$). Similar trends can be seen in Wilcoxon test.

Using DAROA as proxy of earnings-management, we find that both means and medians discretionary accruals significantly different from zero in the years of 2006 and 2007. However, in terms of signed direction, mean and median discretionary accruals in both tests show different direction where in the year 2006 both mean and median show a negative direction but positive direction exhibit in the year of 2007.

Interestingly, we find that in all three proxies of earnings-management models in 2006 show a consistent negative direction both for t -test and Wilcoxon test with the mean and median of the year significantly different from zero. However, the years of 2004, 2005, 2007 and 2008 consistently show positive directions in both tests.

Overall, the result suggests that, earnings-management practices in firms in our data set does not influence by any individual year as indicate by no extreme values of mean and median discretionary accruals. Therefore, our earlier findings with regards to earnings-management practices as discussed above are robust from the effect of any individual year⁶⁰.

⁶⁰ We also investigate whether the results of the pooled 2SLS regression might be biased by the results of any particular year by repeated the regression by individual years. Similar to this finding, we found our pooled regression does not influence by any individual year.

TABLE 5-22: The magnitude of earnings-management by year

Year	Parametric t-test			Wilcoxon Signed Rank Test		
	Mean	<i>t</i> -stat	<i>P</i>	Median	<i>z</i> -stat	<i>P</i>
MJONES						
2004	0.0216	4.1409	0.0000	0.0243	4.696	0.0000
2005	0.0108	2.2282	0.0263	0.0033	1.888	0.0591
2006	-0.0187	-1.8025	0.0720	0.0024	-1.493	0.1353
2007	0.0301	6.1274	0.0000	0.0295	7.056	0.0000
2008	0.0136	3.1172	0.0019	0.0123	3.524	0.0004
JONES						
2004	0.0174	3.5504	0.0004	0.0204	3.785	0.0002
2005	0.0077	1.6862	0.0923	0.0026	1.452	0.1464
2006	-0.0147	-2.1494	0.0320	0.0004	-1.662	0.0964
2007	0.0283	5.8573	0.0000	0.0271	6.874	0.0000
2008	0.0135	3.2635	0.0012	0.0095	3.746	0.0002
DAROA						
2004	0.0082	1.5616	0.1190	0.0084	1.262	0.2071
2005	0.0004	0.0976	0.9223	-0.0068	-1.048	0.2948
2006	-0.0489	-3.9948	0.0001	-0.0236	-7.448	0.0000
2007	0.0285	5.9844	0.0000	0.0272	7.098	0.0000
2008	0.0040	0.9315	0.3520	0.0014	0.738	0.4602

5.3.4.4 New definitions for board and audit committee variables

Our main findings suggest that board and audit committee variables have little impact on earnings-management as only BODMEET and ACEXPERT has weakness link with earnings-management ($P < 0.1$). As previously highlighted, in the main analysis we used actual number of board size and board meeting as well as proportion of independent directors on board to define the board variables. The same method is used to audit committee variables except we add one more variable which is ACEXPERT measured by the proportion of audit committee members with an accounting or finance background to the total audit committee size.

In order to examine whether our main results are robust to the new variables definitions related to board and audit committee characteristics, we provide alternative definitions. The other variables remain unchanged. Following Katmun (2012), the new definitions for board characteristics are as follows;

- i) Board size: coded as “1” when the numbers of members on the board below the median and “0” otherwise. The new acronym for this variable is BODSIZE1 to differentiate it with acronym in other tests;
- ii) Board meeting: coded as “1” when board meeting frequency is above the median and “0” otherwise. The new acronym for this variable is BODMEET1 to differentiate it with acronym in other tests; and
- iii) Board independent: coded as “1” if the percentage of independent directors on the board is more than 50% and “0” otherwise. The new acronym for this variable is BODINED1 to differentiate it with acronym in other tests.

Meanwhile, following Abbott et al. (2003) and Zaman et al. (2011), the new definitions for audit committee characteristics are as follows:

i) Audit committee size: coded as “1” when the numbers of members in the audit committee is three or more and “0” otherwise. The new acronym for this variable is ACSIZE1 to differentiate it with acronym in other tests;

ii) Audit committee meeting: coded as “1” when the numbers of meetings is three or more and “0” otherwise. The new acronym for this variable is ACMEET1 to differentiate it with acronym in other tests;

iii) Audit committee independence: coded as “1” when the audit committee comprised entirely of independent directors and “0” otherwise. The new acronym for this variable is ACINED1 to differentiate it with acronym in other tests;

iv) Audit committee financial expertise: coded as “1” when at least one member of the committee having financial expertise and “0” otherwise. The new acronym for this variable is ACEXPERT1 to differentiate it with acronym in other tests;

Table 5-23 reports the results of regression using the redefined corporate governance variables as stated above. Overall the regression results with this alternatives definition are relatively consistent to those reported in the main findings in terms of the direction of relationship (positive or negative sign) to earnings-management as well as the magnitude of coefficient value. Therefore, we conclude that the main findings are robust to the alternatives definitions of board and audit committee and this strengthen our earlier argument that in the context of emerging markets like Malaysia, corporate governance variables have little impact in mitigating earnings-management practices in firms.

TABLE 5-23:

The comparison of regression results between main findings and new definitions for board and audit committee using 2SLS regression estimator

Variables	The results of main findings	Redefined corporate governance variables	The results of redefined corporate governance measures
CONCENTRATION	0.06*** (2.73)	CONCENTRATION	0.08*** (4.21)
PIF GLIC	0.17 (5.84)	PIF GLIC	0.13 (1.73)
FGLIC	0.37 (3.11)	FGLIC	0.35 (2.92)
SEDC	0.21** (5.46)	SEDC	0.20** (0.59)
PRIVATE	1.24** (0.54)	PRIVATE	1.37** (1.29)
MANSHARE	0.65*** (3.66)	MANSHARE	0.57*** (0.88)
2 ND BLOCK	-0.16** (-2.34)	2 ND BLOCK	-0.14** (-1.05)
BODSIZE	0.09 (0.64)	BODSIZE1	0.09 (0.86)
BODMEET	-0.27* (-1.84)	BODMEET1	-0.25* (-2.41)
BODINED	-0.02 (-1.06)	BODINED1	-0.02 (-1.75)
DUALITY	0.16 (0.23)	DUALITY	0.19 (2.26)
ACSIZE	-0.15 (-0.27)	ACSIZE 1	-0.17 (-1.66)
ACMEET	-0.26 (-1.12)	ACMEET1	-0.23 (-0.97)
ACINED	0.36 (0.50)	ACINED1	0.44 (2.29)
ACEXPRT	-0.22* (-0.51)	ACEXPRT1	-0.26** (-0.55)
TASSETS	2.31** (2.06)	TASSETS	2.91** (0.35)
LAGROA	-0.07** (-2.03)	LAGROA	-0.05** (-1.18)
LEVERAGE	0.05*** (2.72)	LEVERAGE	0.06*** (0.48)
ANALYST	-0.55* (-1.90)	ANALYST	-0.77* (-1.96)
TACCLTA	9.36 (1.19)	TACCLTA	10.08 (2.26)

COINVESTMENT	-3.08** (-2.13)	COINVESTMENT	-4.27** (-1.97)
FCF	0.00** (2.01)	FCF	0.01** (0.91)
LOSS	13.83*** (6.66)	LOSS	12.14*** (1.87)
BIG4	-0.37 (-0.62)	BIG4	-0.35 (-2.86)
FIRMAGE	0.13*** (3.13)	FIRMAGE	0.16*** (0.66)
IFRS	0.82** (2.02)	IFRS	0.92** (1.16)
_cons	8.40*** (4.12)	_cons	10.87*** (2.64)
<i>N</i>	2696	<i>N</i>	2696
<i>F</i> -statistics	56.76	<i>F</i> -statistics	54.43
PROB>F	0.0000	PROB>F	0.0000
Adjusted R ²	0.3677	Adjusted R ²	0.3621

T-statistics are reported in parentheses. Asterisks indicate a significance level: *p < 0.1, **p < 0.05, ***p < 0.01

5.4 Conclusion

In this empirical project, we investigate whether GLCs with different types of controlling GLIC owners engage in more or less earnings-management and more generally whether GLCs engage in more or less earnings-management than firms which are not controlled by government investors. In addition, as one of the main characteristics of listed firms in Malaysia is the existence of highly concentrated ownership (Claessens et al., 2000; Tam and Tan, 2007) that can trigger a conflict of interest between controlling shareholders and the minority shareholders, we also investigate whether block ownership by blockholders and/or management impact earnings-management practices in the firms they invest in.

The issues highlighted above are vital ones in today's competitive Asian economic environment. Good corporate governance is essential for building an attractive investment climate. For many investors, the quality of financial reports is central to their investment decisions (OECD White Paper, 2003). In this context, the Malaysian government explicitly expects its federal GLICs to facilitate good corporate governance and minority shareholders protection in their portfolio companies (Malaysia Ministry of Finance, 2010; Malaysia Putrajaya Committee on GLC High Performance, 2006a; 2006b).

By focusing on firms that are listed on the Main Board of Bursa Malaysia from 2004 to 2008 (2696 firm-year observations), we provide evidence that overall, firms in our sample indeed manage their reported earnings upward (income increasing earnings-management). However, we do not have sufficient evidence to support our main hypotheses that earnings-management practices higher in GLCs controlled by state GLICs than GLCs controlled by federal GLICs or GLCs controlled by pension and investment fund GLICs. Therefore, our suspicion that capital market participants might discount accounting information published by GLCs due to earnings-management practices is unfounded and cannot be proven empirically. This may be driven by effective monitoring mechanisms imposed by GLICs in line with government efforts to promote good corporate governance practices in GLCs, in order to attract foreign investment inflows to Malaysian capital markets.

In fact, we have clear evidence to support our following prediction that firms owned by private blockholders engage in earnings-management activities at a higher magnitude than GLCs owned by government blockholders. This finding is consistent with previous studies in other markets such as Ding et al. (2007) and Wang and Yung

(2011), both in China markets. In spite of this, in Malaysia, our result is opposite to Yen et al. (2007) who found that earnings-management practices are lower in the firms owned by Chinese family-linked companies than GLCs. One possible explanation is the different in time period under examination and more importantly the different in sample selection between our study and their research. In this regard, Yen et al. (2007) employed limited number of GLCs at federal level while we included all GLCs at federal and state levels. But the more obvious difference from our study is that they included finance-related companies in their sample, which may affect the results, as various studies in earnings-management exclude finance-related companies due to different compliance and regulations (Haniffa and Hudaib, 2006; Ab Razak et al., 2011) and more importantly their behaviour of accruals differs from other industries (Klein, 2002; Park and Shin, 2004; Mohd Ali et. al, 2008).

We also document to what extent ownership concentration by blockholders and managerial ownership impact earnings-management practices of firms in our sample. In line with the property rights and agency hypothesis, we provide evidence that the higher the degree of share ownership by blockholders, the greater the incentive and ability for them to participate in the supervision and control of firm's management which ultimately helps in mitigating earnings-management practices as we found in this study. This suggests that at high level of ownership, blockholders are more likely to seek to preserve future growth potential by minimising earnings-management practices in the firms they invested in.

However, contrary to the incentive alignment effect of managers, we found that when the share ownership is in the hand of management (managerial ownership), they become ineffective in taking value-maximizing decisions and in the context of our

study we provide evidence that managerial ownership indeed increase earnings-management practices in firms. This in line with argument in Morck et al. (1988) that greater managerial ownership would provide management with deeper entrenchment and therefore greater scope of opportunistic behaviour.

Our analysis also shows limited influence of corporate governance mechanisms in mitigating earnings-management activities in listed firms. While this finding is consistent to the previous studies in Malaysia, for example by Abdul Rahman and Mohamed Ali (2006), the results are quite alarming as they undermine the relentless effort by government and regulators to promote corporate governance best practices among listed firms in Malaysia. The insignificant role of most of the audit committee characteristics (except for audit committee financial expertise) indicating that the compulsory establishment of audit committee in listed firms has yet to achieve its intended goals that among other is to oversee the financial reporting process.

With regards to interaction effect, our analysis also provides evidence that there is a substitutive relationship between blockholders ownership concentration and internal corporate governance mechanisms in reducing earnings-management activities in firms. This suggests a constructive and dominant role of blockholders in firms to combat earnings-management activities that are in line with our earlier results.

Finally, our research also indicates that external monitoring mechanisms have mixed effects to earnings-management practices in firms. We provide evidence that the number of analysts following a firm indeed contributes in mitigating earnings-management. However, the used of IFRS in financial reporting in actual fact does not help in curbing earnings-management. There are two possible explanation for these

issues, namely whether it is due to the acceptance of IFRS are not yet comprehensive among listed firms in Malaysia or the standards itself not sufficiently effective to help in reducing earnings-management practices in financial reporting. In the meantime, we do not have enough evidence to support our prediction that the presence of well-qualified auditor among Big-4 audit firms helps in preventing earnings misrepresentation in firms' financial reports as the relationship is insignificant.

CHAPTER 6

SUMMARY AND CONCLUSION

This thesis is divided into two major projects. Whereas the first research project considers differences in the impact of government investment institutions, golden shares and board from senior civil servants and politicians on firm performance, the second research project focuses on how government ownership affects corporate reporting practices, in particular earnings-management. This examines not only different types of government investment organisations but different impacts on private blockholders.

Research into the impact of government ownership on different government investment organisations on corporate performance and corporate governance (in particular, corporate reporting and therefore transparency) is particularly important for the economic development of emerging economies, in particular Malaysia. This is because improvements in the corporate governance of GLCs are expected to facilitate not only economic efficiency gains for individual firms but also help attract foreign investors and domestic depositors to Malaysian capital markets. In turn, this may improve domestic firms' access to outside capital important for their growth. Limited access to external funds is frequently identified as one of the key problems which hamper the economic development of emerging economies both at national and firm level.

6.1 First project: ownership structure and performance

The first project intends to examine the impact of GLICs per se and GLCs ownership structures on GLCs corporate performance measured by accounting performance (returns on assets and return on equity) and market performance (quasi Tobin's Q). The influence of politicians and senior civil servants on the board of GLCs and the potential of reverse causality between ownership and performance were also investigated. The sample is comprised of 224 firm-year observations of GLCs listed in the Main Board of Bursa Malaysia during the year since 2004 to 2008.

The results of statistical tests revealed that the impact of government control via block ownership varies depending on the type of organizations, which manages the government's ownership stakes. In detail, we found that portfolio companies of government investment organisations that are further away from the centre, such as SEDCs, have a worse financial performance than those owned by more tightly supervised government investment organisations. However, contrary to our prediction, we found inconclusive findings regarding whether GLCs controlled by PIF GLIC outperform those controlled by FGLIC that raises the possibility that the supervision by powerful neutral regulators might be an effective substitute for the limited economic supervision incentives of board members in FGLIC boards.

We also provide evidence that GLCs with golden share provisions outperform GLCs without suggesting GLICs might act as boundary spanners for this kind of firms and provide access to government resources, government contracts and advice or sympathy from regulators. With regard to ownership concentration of GLICs, our research indicates that a higher proportion of GLIC ownership is beneficial for GLC performance, suggesting higher degree of share ownership provide greater incentive

and ability for GLICs to participate in the supervision and control of GLCs' management.

In the meantime, board membership by politicians and senior civil servants appears to affect the financial performance of GLCs negatively indicating their potential to be a boundary spanners to resources does not appear to compensate for their limited or detrimental impact on the supervision and control of GLCs. We also document the limited impact of corporate governance variables related to board characteristics on performance.

In relation to the potential of reverse causality effects between ownership and performance, we found that although results suggest that GLIC ownership is statistically significant and positively related to firm performance, with regards to ROA and ROE, the correlation coefficients are exceedingly low. This indicates that a higher proportion of GLIC ownership is beneficial for GLC performance, not that GLICs tend to shift their portfolio towards better performing GLCs. The analysis results also suggest that golden share provisions do substitute for GLIC ownership concentration; however, there appears to be no similar substitution effect between board membership of senior civil servants and politicians and GLIC ownership concentration. Rather, GLICs tend to invest particularly in companies with a high degree of board membership by senior civil servants and politicians.

Overall, our results for the first project demonstrate that the government investment organisations are able to impact positively on the corporate performance of their portfolio companies. In addition, they also reveal that different government investment organizations have different control structures that determine the level of

influence by government. This new knowledge contributes to better understanding on GLCs particularly for foreign direct and portfolio investment. As the government encouraging the mobilisation of private domestic savings as well as foreign direct and portfolio investment to improve domestic firms' access to outside capital, this study might be useful in providing a new perspective on the role of government investment from an emerging markets viewpoint.

6.1.1 Contribution of the study

This study contributes to the literature on the effect of government ownership in the performance of GLCs in Malaysia in several ways:

1. This study contributes to literature by answering the key question of whether different types of government investment organizations with different objective and control structures have differing impacts on the corporate performance of their portfolio companies. This is important because, depending on the objectives of the government investment organizations and their influence to pursue those objectives (such as through their representative on the board of directors), government ownership and control rights are likely to influence the performance of their portfolio companies in a variety of ways, which might be beneficial or detrimental to private investors' interests. For example, knowing the GLCs under which GLICs perform better or worse, capital market participants can make more informed decisions on their investments in GLCs and thus can protect their interests;

2. This study is relevant as it is the first study in Malaysia that investigates the government ownership-performance by taking into account differences in organizational objectives and control structure of different GLICs and its impact on performance of their portfolio companies. The findings from this study contribute to a richer literature in this area and can be a stepping stone for other researchers or academics to conduct further research in this area.

3. This study contributes to knowledge regarding whether direct and indirect participation of senior civil servants and politicians on the boards of directors of GLCs in Malaysia affects their financial performance. This information will be very useful not only to foreign investors in their investment decision process but for the GLICs themselves where it helps them in determining the appropriate combinations of board membership in GLCs as well as its leadership structure. Considering the big contribution of GLCs on Malaysian economy as previously discussed, improving performance of GLCs through better corporate governance mechanisms would also have a far-reaching effect on the performance of the economic sector as a whole.

4. This research shows that the government investment organisations are able to have a positive impact on the corporate performance of their portfolio companies. In addition, it also reveals that different government investment organizations have different control structures that determined the level of influence by the government. This new knowledge contributes to better understanding on GLCs particularly for foreign direct and portfolio investment. As the government encourages the mobilisation of private domestic savings as well as foreign direct and portfolio investment to

improve domestic firms' access to outside capital, this study might be useful in attracting private investments into the stock market.

6.1.2 Limitations of the study and recommendations for future research

This study has several limitations and recommendations for future research:

1. As our study only considers corporate governance to protect minority shareholder interests in relation to financial performance, the government cannot use our findings to find out about how effective GLCs support its policies related to employment and social objectives. We therefore recommend future research to cover this area.
2. Our results show a positive and significant association between golden share provisions and corporate performance across all performance measures. This might indicate that GLCs with golden shares benefit from financial support, preferential access to government contracts, or tight supervision of management by relevant ministries, the Auditor General and the Putrajaya Committee on GLC High Performance. We are unfortunately not able to differentiate to what degree the impact of golden shares on the performance of GLCs is related to increased management control by the MOF Inc. or the MOF Inc's ability to act as a boundary spanner to government resources. For future research, a deeper study on the extent of government special treatments (e.g. what types of assistance provided by the government) mentioned above to GLCs with golden shares will provide more useful information especially to investors.

3. In this study, we consider that the economic incentives of government representatives to engage in effective control are limited as their remuneration is not directly tied to the performance of the GLCs. The research could be extended by a more careful differentiation of performance incentives of government representatives, both at GLIC and GLC level. This would be beneficial to improve our understanding on the role of government representatives in government-linked investment companies and their portfolio firms.

4. One important limitation on our study is exclusion of the listed firms owned by private blockholders; for those, we are only able to compare the performance of GLCs based on their different ownership structure. However, it is not unintentional as the main purpose of the paper is to consider whether different government investment organisations differ with regard to among other on their protection of minority shareholder interests, the study that never be conducted in Malaysia, by far. This is of interest both to the government, which expects GLICs to further corporate governance and corporate financial performance of GLCs, and for portfolio investors, who in an environment with poor enforcement of minority shareholder rights might be attracted to partly government owned companies. Private investors may expect the risk of exploitation there to be lower than in companies dominated by private blockholders. However, for future research we strongly encourage researchers to consider firms owned by private blockholders for a richer theoretical and empirical analysis as well as to show if there is better governance and performance in the former compared to the latter.

5. This study is based on secondary data collected from annual reports and downloaded from electronic sources. For future research, qualitative methods such as semi-structured interviews with the CEOs of various GLICs and GLCs as well as policy makers in MOF Inc. might be useful to get a better understanding of GLICs role and involvement in their portfolio companies.

6. Future research using different datasets, different measures of performance and perhaps in different countries should consider to employ similar approaches as used in this study when they deal with the issue of government ownership. Differences in economic systems, corporate governance structures of government investment authorities and their portfolio companies might produce different results. Moreover, most government investment, particularly in emerging economies, is controlled by a range of government organisations that invest on behalf of the government. Combining all government-linked companies with different objectives and control structures in one group of ownership does not render the real impact of government ownership in firms.

6.2 Second project: ownership structure and earnings-management

Our second project was motivated from the results of the first project. In the first project, measuring corporate performance using accounting (return on assets and return on equity) and market performance data (quasi-Tobin's Q), the research showed consistent results. However, the impact of different GLICs on their portfolio firms' performance appeared much more pronounced when performance was measured with accounting performance data rather than market performance data.

One potential reason for this might be that capital market participants discount accounting information published by GLCs, as they may be perceived to be prone to misstate their accounts in order to manipulate public perception of their performance. This raised the question whether GLCs with different types of controlling GLIC owners (government blockholders) engage more or less in earnings-management, and more generally whether GLCs engage more or less in earnings-management than firms which are not controlled by government investors. We investigated these issues and in addition also examined the influence of ownership concentration by blockholders as well as managerial ownership on earnings-management practices in firms they invested in. The possible complementary or substitutive link between ownership and corporate governance variables were also observed.

We employed sample firms that are listed on the Main Board of Bursa Malaysia from 2004 to 2008 (2696 firm-year observations). As our preliminary regression results suffer from an endogeneity problem, the simultaneous relationship between ownership and earnings-management is taken into account that is based on 2SLS regression analysis. We provide evidence that overall firms in our sample indeed

manage their reported earnings upward. However, contrary to our prediction that earnings-management practices higher is in GLCs owned by SEDCs than GLCs owned by federal GLICs and GLCs owned by FGLIC engage more in earnings-management than GLCs owned by PIF GLIC, we do not have sufficient evidence to support the claims. Nevertheless, we have enough evidence to support our prediction that firms owned by private blockholders engage in earnings-management activities at higher magnitude than GLCs owned by government blockholders.

In relation to blockholders ownership concentration, we found that the higher the degree of share ownership by blockholders, the greater the incentive and ability for them to participate in the supervision and control of firm's management, which ultimately helps in mitigating earnings-management practices. This shows by a negative association between blockholders ownership concentration and earnings-management. On the contrary, we report that when the share ownership is in the hand of management (managerial ownership), they become ineffective in taking value-maximizing decisions. In the context of our study we provide evidence that managerial ownership indeed increases earnings-management practices in firms.

The second project also demonstrates limited influence of internal corporate governance mechanisms in mitigating earnings-management activities in listed firms which is consistent to our findings in the first project. The insignificant role of most of the audit committee characteristics for example indicating that the compulsory establishment of audit committee in listed firms has yet to achieve its intended goals that among other is to oversee the financial reporting process. In the meantime, external monitoring mechanisms have mixed effects to earnings-management practices in firms. While we found the number of analysts following indeed

contributing in mitigating earnings-management, we do not have enough evidence to support our prediction that the appointment of well-qualified auditors from Big-4 audit firms help in preventing earnings misrepresentation in firms' financial reports as the relationship is insignificant. Similarly, we found the used of IFRS in financial reporting does not help curb earnings-management.

Overall, our results for the second project demonstrate that our suspicion that the capital market participants might discount accounting information published by GLCs due to earnings-management practices is unfounded and cannot be proven empirically. This may be driven by the effective monitoring mechanisms imposed by GLICs as well as various government agencies which are in line with government efforts to promote good corporate governance practices in GLCs in order to attract foreign investment inflows to Malaysian capital markets. Related to this, we provide evidence that in the context of Malaysia, equity ownership by blockholders actually helps to minimize earnings-management practices in firms while managerial ownership actually leads to expropriation of minority shareholders interests. This project might benefit in providing a new perspective on the role and impact of the presence of blockholders in listed firms from an emerging markets viewpoint.

6.2.1 The contribution of the study

This study contributes to the literature on the effect of ownership structures on the earnings-management practices of listed firms in Malaysia in several ways:

1. This study contributes to the new knowledge by answering the important question of whether different types of government investment organizations with different objective and control structures have different impacts on the earnings-management practices of their portfolio companies. This is important because, depending on the objectives of the government investment organizations and their influence to pursue those objectives, government ownership and control rights are likely to influence the earnings-management practices of their portfolio companies in a variety of ways, which might be beneficial or detrimental to private investors' interests. We also provide evidence on earnings-management practices in listed firms owned by private blockholders that in actual fact is much higher than GLCs. Using this information, capital market participants can make more informed decisions on their investments in listed firms in Malaysia and thus protect their interests;
2. This study is relevant as it is the first study in Malaysia that investigates the government ownership-earnings-management by taking into account the differences in organizational objectives and control structure of different GLICs and its impact on earnings-management of their portfolio companies. The findings from this study contribute to the literature in this area and may be a stepping stone for other researchers or academics to conduct further research in this area;
3. As far we know, this is the first study that takes into account the endogeneity problem in the relationship between ownership structure and earnings-management and also provides solutions to these issues. This is important as this

study may “start the ball rolling” for more researchers to be conducted in the future;

4. This research is useful to GLICs as it may be used to introduce more effective control mechanisms in their portfolio companies in accordance with their mandate to encourage best corporate governance practices in line with government efforts to attract more investment into Malaysian capital markets. In addition, the regulators such as Securities Commission Malaysia and Bursa Malaysia might benefit from this research as they can make use the information to formulate more effective regulations and law in order to minimize earnings-management activities in the firms’ financial reporting. This eventually will give greater confidence to investors, particularly to foreign portfolio investment companies, and thus improving domestic firms’ access to outside capital.

6.2.2 Limitations of the study and recommendations for future research

This study has several limitations and recommendations for future research:

1. This study considered all listed firms controlled by blockholders other than GLICs as private blockholders. This is mainly because of our focuses on GLCs as continuation from our first study on the impact of GLICs on performance of GLCs. However, future researchers might want to separate the private blockholders according to their largest shareholders such as family ownership, institutional ownership etc.

2. Another limitation of this study is the use of discretionary accruals as proxy for earnings-management. Future researchers might also want to consider other types of earnings manipulation such as through related-party transaction or tunnelling activities among listed companies in Malaysia;
3. This study relied on secondary data collected from annual reports and downloaded from electronic sources. For future research, qualitative method such as questionnaire or open interview with key figures of GLICs for example might be useful to obtain more accurate picture in examining the effectiveness of blockholders in constraining earnings-management practices in their portfolio companies so that the researcher become more aware of the secluded side of the relationship or influence, if relevant;
4. This study focuses on the magnitude (absolute value of discretionary accruals) rather than the motives of earnings-management. For future research, the motives behind earnings-management (income increasing, income decreasing or earnings smoothing) can be considered to obtain detail information on the motives behind earnings-management practices for a deeper and richer knowledge in the area of study.
5. The potential of endogeneity in the form of simultaneity between ownership and earnings-management as discussed in this study is not properly captured. However, the issue is worthy of exploration, given there is lack of research in this issue. We used a 2SLS regression estimator to deal with this issue even though it is uncertain to what extent this problem is actually solved in the model. According to Coles et al. (2007), the available solutions to endogeneity so far

fail to provide definite or pure solution to the problem. Future research could investigate this relationship using a more detail statistical analysis such as the use of instrumental variables to provide a better understanding of the interplay between ownership and earnings-management.

6. Future researchers should consider employing similar approaches to those used in this study when dealing with the issue of government ownership. This is because most government investments, particularly in emerging economies, are controlled by a range of government organisations that invest on behalf of government. Combining all government-linked companies with different objectives and control structures in one group of ownership does not render the real impact of government ownership in firms.

6.3 Overall conclusion: ownership structure, performance and earnings-management

Overall, when results are taken together, this study highlights several main observations. First, it demonstrates that the impact of GLICs per se is matter to the performance and earnings-management of their portfolio companies. This is particularly true because while GLICs have a positive impact on the corporate performance of GLCs, at the same time they also help to minimize earnings-management practices in those firms, as shown by lower earnings-management in GLCs than private firms.

Second, while portfolio companies of government investment organisations more remote from the centre, such as SEDCs, have a worse financial performance than

those owned by more tightly supervised government investment organisations, it is not to the extent of encouraging them to be involved in earnings manipulation. One possible explanation for this is that the limited number of GLCs under this category might facilitate monitoring activities by SEDCs. In addition, the fear of political repercussions that could affect political career can also be the reason. This is because, with small numbers of listed GLCs in one particular state, any issues that arise will become a big and sensational issue. Therefore, the politicians who control GLCs will be more careful and will try to avoid the firms becoming involved in inappropriate activities, including earnings-management practices.

Third, while past studies (see Leuz et al., 2003; Gopalan and Jayaraman, 2012) suggest that there are more incentive to manipulate earnings in the country of which the ownership concentration is higher and weak investor protection, this is not necessarily true in the context of blockholders in Malaysia. This is because while we demonstrated that ownership concentration by government blockholders positively impact GLCs' corporate performance in the first project, blockholders ownership concentration also helps in minimizing earnings-management in all type of listed companies (GLCs and non-GLCs) in our second project. This suggests the constructive contribution of concentrated ownership in the context of emerging markets that can help in reducing information asymmetry in firms and in line with argument that higher ownership concentration is to compensate weak investor protection (Haniffa and Hudaib, 2006), not to expropriate the minority shareholders.

Finally, as discussed above, corporate governance variables consistently show limited influence on corporate performance as well as weak influence in mitigating earnings-management practices. This implies that the efforts to improve corporate governance mechanisms in Malaysia are yet to achieve its intended goals and

perhaps given less attention by listed firms. Therefore, continued effort is needed to improve corporate governance in Malaysia for the benefit of investors in particular as well as Malaysian capital markets in general.

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APPENDIXES

Appendix 1

Detail definition of independent director based on Bursa Malaysia Main Market Listing Requirement (copied directly from the source)

Independent director means a director who is independent of management and free from any business or other relationship which could interfere with the exercise of independent judgement or the ability to act in the best interests of an applicant or a listed issuer. Without limiting the generality of the foregoing, an independent director is one who -

(a) is not an executive director of the applicant, listed issuer or any related corporation of such applicant or listed issuer (each corporation is referred to as “said Corporation”);

(b) has not been within the last 2 years and is not an officer (except as a non-executive director) of the said Corporation. For this purpose, “officer” has the meaning given in section 4 of the Companies Act 1965;

(c) is not a major shareholder the said Corporation;

(d) is not a family member of any executive director, officer or major shareholder of the said Corporation;

(e) is not acting as a nominee or representative of any executive director or major shareholder of the said Corporation;

(f) has not been engaged as an adviser by the said Corporation under such circumstances as prescribed by the Exchange or is not presently a partner, director (except as an independent director) or major shareholder, as the case may be, of a firm or corporation which provides professional advisory services to the said Corporation under such circumstances as prescribed by the Exchange; or

(g) has not engaged in any transaction with the said Corporation under such circumstances as prescribed by the Exchange or is not presently a partner, director or major shareholder, as the case may be, of a firm or corporation (other than subsidiaries of the applicant or listed issuer) which has engaged in any transaction with the said Corporation under such circumstances as prescribed by the Exchange.