DIVIDENDS, OWNERSHIP STRUCTURE AND BOARD GOVERNANCE ON FIRM VALUE: EMPIRICAL EVIDENCE FROM MALAYSIAN LISTED FIRMS

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Abstract

This paper aims to examine the effects of dividends, types of ownership structure and board governance on Malaysian firm's value using sample of 406 listed firms on the Main Board of Bursa Malaysia. A cross-sectional analysis for the years 2002 and 2005 was utilised. Both direct effects as well as the moderating effects of board governance with dividends and types of ownership structure are examined. The moderating relationship is considered in order to investigate the board governance role after the implementation of the Malaysian Code of Corporate Governance through the amendments of Bursa Malaysia Listing Requirements in 2001. Result from the direct effect reveals that dividend has a significant positive effect to firm value in both years, thus supporting the expected hypothesis. This finding is consistent with the view that dividends mitigate agency costs of free cash flow problem, therefore, increase firm value. The finding also suggests that dividends among Malaysian listed firms can play its important monitoring role in reducing agency costs. However, contrary to expectation, government ownership indicates significantly positive relationship. Correspondingly, the result implies that investors in the Malaysian market do value the higher standards of corporate governance reform found in the government-controlled firms. In addition, foreign ownership has a negative significant relationship to firm value which is also contrary to what is expected. Surprisingly, results on ownership concentration and managerial ownership provide insignificant effect to firm value for both years. Of particular interests are the results of moderating effects, the result reveals that board duality has significantly moderated the relationship between dividends and firm value with a lower coefficient positive effect as expected. Thus, support the expected hypothesis. As expected, the result from the moderating effect of board duality with government ownership in year 2002

provided negatively significant result. However, both results of board duality with dividends and government ownership provide insignificant effect for the year 2005. Further, the interaction term between dividends with board independence was positively significant for the year 2005. Whereas, the interaction term between dividends and board size showed significantly lower coefficient positive moderating effect for both years. Finally, the inclusion of board size interaction term to foreign ownership provided significantly negative moderating effect in year 2002. Overall, findings from this paper reveal that good board governance; particularly board independence and board size can enhance the monitoring role of dividends, government, and foreign ownership in reducing agency costs, thus increasing firm value.

Keywords: *board governance; dividends; moderating effects; ownership structure*

Introduction

Effective corporate governance has emerged as an issue of global significance. The events of high profile corporate collapses[1] of late and East Asian financial crisis in late 1997 have illustrated the failure of corporate governance systems internationally. Corporate scandals have also been reported in Malaysia, such as Perwaja Steel, Malaysia Airline, Technology Resources Industries, Sime Darby and Bumiputra Malaysia Finance (Rashidah, 2006).

In response to these corporate failures, considerable research has been devoted in recent years to the role of corporate governance and the ways in which corporate managers are monitored by their shareholders. Most of this research has focused on countries with the most highly developed economies, notably the U.S., U.K., Japan, and Germany. But it is also important to develop a better understanding of corporate finance and governance in emerging markets, particularly in Malaysia.

The survey articles of the literature[2] on corporate governance have often cited that poor corporate governance is one of the major contributing factors to the build-up of corporations' vulnerabilities that finally lead to the corporate failures, financial scandals or economic crisis. Consequently, many countries are forced to consider corporate governance issues at the forefront of the nation's agenda for corporate and economic policy. Corporate governance guidelines that are directed towards a better corporate governance system have been established to prevent corporations from misusing shareholder funds through questionable practices.

In an effort to restore investor confidence, governments around the world have implemented a variety of regulatory and policy changes designed to strengthen corporate governance aimed at enhancing transparency and accountability in corporate dealings. Those actions are taken in order to reassure investors that there would be improvements in the way corporations are managed and regulated[3].

Effective *good*[4] governance mechanisms matters for several reasons; it improves standards in business, it encourages foreign investment and in macro-economic terms, it leads to

improved performance by companies (Arden, 2003). For emerging market countries, good corporate governance reduces emerging market vulnerability to financial crisis, reduces transaction costs and the cost of capital, and leads to capital market development [Report on the Observance of Standards and Codes (ROSC) 2005].

With regard to the separation of ownership and control issue in corporate governance research, there are numerous opinions discussed, which is dominantly by reference called *agency theory*. The agency theory identifies potential conflicting interests among parties within a company, which in turn affect corporate behaviour in different ways (Jensen and Warner, 1988). Conflicts of interest between various parties are caused by the differences in objectives of each party, based on their positions and interests in the company. However, identifying which party has the dominant conflict with shareholders is of importance to determine the nature of the agency problems. As argued by Jensen and Warner (1988), ownership structure determines the nature of agency problems and the distribution of power and control within an organisation. The separation of ownership and control also has increased power of managers in a widely held firm (Jensen and Meckling, 1976; Fama and Jensen, 1983b). In effect, managers of a publicly held firm could allocate resources to activities that benefit them, but are not in the shareholders' best interest. In other words, managers (agents) may conduct actions that are costly to shareholders, such as consuming excessive perquisites or over-investing in managerially rewarding but unprofitable activities.

In sum, the central issue to any discussion of corporate governance research is the question of how well each of governance mechanisms mitigates the various principal/ agent problems that arise in a firm. Moreover, lessons from corporate failures or collapses also highlight the importance of a strong, independent and informed board that is capable of evaluating management performance (Van den Berghe and Levrau, 2004). Given that managers can make decisions to benefit their self-interest to the detriment of the principals (i.e., shareholders), efficient board governance role is needed; not only to safeguard shareholders' interest but also to control management's decision making processes and actions. This realization partly explains why board governance is an important issue in corporate governance.

In the case of emerging market such as Malaysia, it has been argued in a growing literature that concentrated ownership structure or group affiliations are prone to carry inefficient investment and generate minority shareholder expropriation[5] (see for instance, La Porta *et al.* 2002; Claessens and Fan, 2002; Denis and McConnell, 2003). In some cases, large controlling shareholders are alleged to have expropriated corporate wealth to the detriment of the corporations, minority shareholders and creditors (Lemmon and Lins, 2003). In short, expropriation by inside shareholders is a more relevant issue in emerging countries where the legal protection of minority shareholders is relatively low (La Porta *et al.* 2000a; 2000b). This particular case happened when the controlling shareholders exercise controls through complex mechanisms such as pyramid structures or cross holdings. The consequences of controlling shareholders expropriation include highly ownership concentration (Faccio and Lang, 2000), lower dividend payments (La Porta *et al.* 2000a; Faccio *et al.* 2001) and lower firm valuation (La Porta *et al.* 2002; Claessens *et al.* 2000b).

Most prior studies have focused on monitoring and control mechanisms of ownership structure and the board governance role to improve firm valuation. However, still relatively few studies have addressed the control function of dividends as an alternative governance mechanism to reduce the agency costs. As suggested by Jensen (1986), dividends can help reduce the probability of incurring agency costs related to free cash flow. Jensen (1986) views dividends as a control mechanism to help reduces managerial discretionary behaviour. In this regard, dividends can be part of the firm's optimal monitoring device to curb potential agency conflicts, thus limiting agency costs (Rozeff, 1982). Therefore, dividends also can play an important role to enhance firm value as well as other governance mechanisms, i.e. ownership structure and board governance.

Good corporate governance reform at work can facilitate external financing of firms, force dividend payments and improve the efficiency of investment allocation (La Porta *et al.* 2000b). In line with that, Malaysia has implemented the reform of corporate governance in the form of *Malaysian Code on Corporate Governance 2001* (MCCG 2001 hereafter), through the amendments of regulations (i.e, the revamp of Listing Requirements of Bursa Malaysia and securities law amendments), institutional reforms [(i.e., the establishment of Minority Shareholders Watchdog Group (MSWG)] as well as the introduction of relevant industry best practices. In Malaysia, regulators take a multi-pronged approach, with measures designed to strengthen the role of the board of directors, enhance disclosure and transparency and improve shareholders' rights (Boo, 2003). However, corporate governance still continues to be the major challenges in emerging market, in such that the standards are still far behind from developed countries (CLSA-ACGA, 2005).

The main purpose of this paper is, therefore, to examine the relationship between dividends and ownership structure on firm value, and to identify the differential effects that board governance impose to this relationship. This paper contributes by investigating the effects of dividends and ownership structure on firm value, also by including the moderating effects of board governance. The findings drawn from this paper are of interest to researchers, investors and regulators as they demonstrate the effectiveness of board governance as a moderator on the relationship between dividends and ownership structure on firm value in Malaysian post-reform corporate governance era.

The rest of the article is organized as follows. Section 2 discusses prior relevant literature and hypotheses to be tested. Section 3 and 4 describe the variables, methodology and sample. Section 5 presents the empirical results. Finally, Section 6 concludes and discusses the implications.

Literature Review and Hypotheses

Dividends[6]

Dividend is a well known cash disbursement strategy for public listed that seeks to return cash or assets to their shareholders. The distribution of excess cash to shareholders

constitutes the most fundamental device that alleviates conflicts between corporate insiders and outside shareholders (Jensen, 1986). However, firms can also return their cash to shareholders in the form of share repurchases, where certain amount of cash is used to buy back outstanding shares in the firm and reduce the number of shares outstanding.

Regular distributions of funds to shareholders force firms with value-enhancing investment projects to raise capital externally (Easterbrook, 1984). Consequently, firms are regularly forced to undergo the scrutiny of the market, that is, the providers of external funds. The commitment to pay out excessive funds to shareholders reduces the amount of free cash flows that managers could otherwise spend on value-reducing projects (Jensen, 1986).

Jensen (1986) views dividends as a device to extract free-cash-flow (FCF) from the control of managers that pursue non-value-maximizing objectives, for example, empire building. It also can be argued in the context of agency costs of free cash flow argument that any form of distribution of excess cash to shareholders would reduce the agency problem between shareholders and managers. An important implication for this argument is that cash distribution through dividends could have a positive impact on firm value because it reduces the over-investment problem. La Porta *et al.* (1998) have argued that dividend policy is the result of the pressure exercised by minority shareholders in order to force insiders to pay cash. On the one hand, La Porta *et al.* (2002) state that firms located in countries with a higher legal protection to minority shareholders pay higher dividends, as compared to countries where legal protection is weak.

Types of Ownership Structure

The institutional environment in Malaysia, as it pertains to ownership structure, is quite similar among East Asian countries such as Indonesia, Thailand, Singapore, and Korea. Recent studies have shown that corporate ownership structure has a significant effect on a firm's payout policy (e.g.: Kumar, 2003; Wei *et al.* 2003; Skjeltorp and Odegaard, 2004; Khan 2006). The importance of ownership structure in determining the incentives of controlling shareholders to protect their own interests at the expense of the minority shareholders during the East Asian crisis is also highlighted in few prior studies (e.g.: Mitton, 2002; Lemmon and Lins, 2003). In this regard, they emphasise the need for a proper design of corporate governance features that can protect the rights of minority shareholders in emerging economies. Also, the role of ownership structure varies over time periods and countries as a function of the legal system (Shleifer and Vishny, 1997; La Porta *et al.* 2000a, 2000b, 2002). Several types of ownership structure are discussed in this paper.

First, recent research emphasises that highly concentrated firms give rise to conflict of interest between corporate insiders (controlling shareholders and managers) and outside investors (minority shareholders).[7] The incidence of concentrated shareholdings (even as measured by the shareholdings of the largest shareholder) is very pronounced in Malaysia, as compared to the incidence of dispersed shareholding which is uncommon (ROSC 2005). Large share ownership provides the incentive for controlling shareholders

to use their influence to maximize value, exert control and to protect their interest in the company. It is well known that control rights attached to holding a large block of shares attract a premium. This premium is usually associated with private benefits of control, i.e. including investments in unrelated activities, whether for diversification or for the purpose of empire building, the ability to extract rents at the expense of other minority shareholders (La Porta *et al.* 2000a; Bena and Hanousek, 2006). This will then be reflected in the failures of large investors to force their managers or companies to maximize profits and pay out the profits in the form of dividends (ROSC, 2005).

Second, owner-managed ownership is also common among public listed companies in Malaysia. As mentioned by Claessens *et al.* (2000a), at the 20% cut-off of control right, about 85 per cent of Malaysian listed companies have owner managers. Managerial ownership can help reduce agency costs because a manager who owns a large fraction of the company's shares bears the consequences and benefits of managerial actions that destroy and create value for the firm (Jensen and Meckling, 1976). When managers own a smaller portion of company shares, they have greater incentives to pursue personal benefits and less incentive to maximize firm value. In this instance, one way to reduce the associated increase in agency costs is with the increased shares hold by the managers. The benefits of managerial ownership in ownership structure are highlighted under the *convergence-of-interest* hypothesis (Jensen and Meckling, 1976).

Third, government-controlled institutions also hold significant shares in Malaysian listed companies. As at December 2000, government-controlled institutions retained about 49.5 per cent shares in listed companies [Eighth Malaysian Plan (EMP) 2001]. Large government share ownership may be related to national interest and security reasons, as reflected in the dominance of government ownership in companies operating in the telecommunications, power and transportation sectors. Government industrial policy favored by certain industries by citing public interest (e.g.: automobiles, telecommunication, power etc.). Politically and equitable distribution of corporate wealth is a key element in national development policy. These considerations have shaped the structure of government ownership of the corporate sectors in Malaysia. Some of the government-controlled institutions also hold shares in unit trust for the benefit of millions of households, as part of the policy objective of allowing indigenous people to participate in the economic growth of the country. Therefore, the motivation for government ownership includes social objectives apart from profit maximisation. Additionally, large companies in Malaysia also appear to be closely connected to influential political figures (Nazli and Weetman, 2006). Their political linkages influence the accumulation and concentration of wealth in Malaysian business (Gomez and Jomo, 2002, cited in Nazli and Weetman, 2006).

Last, foreign institutional investors are also essential in Malaysia, as their level of share ownership is quite significant (Boo, 2003). In general, foreign investors hold a significant stake of shares or even a majority of shares as part of strategic investment. Multinational companies also hold significant shareholdings in their subsidiaries listed on the Bursa Malaysia. In a recent report on the observance of standards and codes of corporate

governance (ROSC, 2005), it is reported that foreign-controlled companies in Malaysia have been paying out a high proportion of their profits in the form of dividends (and not reinvesting the profits in diversification or empire building activities). Moreover, foreign institutional investors through their share ownership, can also provide capital, managerial expertise and also exert monitoring activities on managers. As a consequence, foreign ownership in emerging countries can improve corporate governance and enhance efficiency.

Board Governance

The effectiveness of board governance has been the focus of much empirical research, for instance, Hermalin and Weisbach (2003) provided a survey of the empirical literature on corporate boards. The boards of directors are elected by and to act on behalf of shareholders. Besides their primary control responsibilities such as hiring, setting compensation for, and monitoring top managers, they also help to provide strategic advice and to obtain legitimacy and resources (Carpenter and Westphal, 2001; Hillman and Daziel, 2003). With recent corporate collapses and the ensuing regulatory reforms in many countries, the board governance landscape has changed dramatically during the past few years. A firm's corporate governance primarily consists of major mechanisms such as board of directors and ownership structure (Fama, 1980; Jensen, 1993; Shleifer and Vishny, 1997).

This paper focuses attention on three aspects of board governance, namely, board duality (separation of the board chairman and CEO roles), board independence, and board size.

Board Governance	Explanation
Board Chairman and the Chief Executive Officer (CEO) Duality	Separation of the Board chairman and CEO and the fraction of independent Board members have gained prominence in discussions regarding improving corporate governance practices (Perry, 1995). The role of the Board chairman and the chief executive officer are distinct but supportive of each other. The board chairman is entrusted with the responsibility for proper working of the board and ensuring that all Board members are enabled to play full part in board functions. The Chairman together with Board members is responsible for monitoring and evaluating the performance of the CEO and his management team. The CEO and the management team are ultimately responsible for the day-to-day operations, to develop (with the approval of the Board) and implement strategies for the success and growth of the company. Combining the roles in one individual concentrates power and creates conflict of interest. The separation of the Board Chairman and the CEO reduces the possibility of self-dealing by members of the management team (Fama and Jensen, 1983b).

(*contiued*)

Independent board of directors	An independent director can be defined as one who is capable of performing his duties independently from the management, controlling shareholders, and the corporation (Gregory, 2000). Independent directors on company boards are believed to be an integral component of internal control and monitoring mechanism. Independent directors are required as members of the Audit, Remuneration, and also Nomination committees. These Committees are established to ensure the integrity of financial statements issued by the company and also to ensure that there are proper internal checks and controls with respect to financial management in the company. In addition, as members of the Remuneration Committee, independent board members ensure that management do not over-pay themselves. The Nomination Committee is responsible for searching and screening incoming directors and filling senior appointments and ensuring that they have sufficient skill, add knowledge and diversity to the board as a whole (Companies Act, 1965).
Board Size	A corporate board's ability to monitor management increases as the number of directors increases. However, this benefit may be outweighed by the incremental cost of poorer communication and decision-making associated with larger groups (Jensen, 1993; Lipton and Lorsch, 1992). Yermack (1996) also documents an inverse relationship between the firms' market valuation and the size of the BODs. The negative relationship between board size and firm value has also been documented internationally.

Dividends and Firm Value Relationship

Dividend and firm value have been researched extensively, at least since Modigliani and Miller's (M & M) seminal work (see, Modigliani and Miller, 1958; Miller and Modigliani, 1961). The implicit assumption from those prior studies has been that dividend announcements and dividend yield measure are relevant aspects of a firm's dividend policy (Stevens and Jose, 1992; Frankfurter and Wood Jr., 2002; Docking and Koch, 2005).

Apart from that, La Porta *et al.* (2000a) documented evidence that dividends were paid because minority shareholders pressured corporate insiders to disgorge cash. Their findings are consistent with the agency theory that unless profits are paid out to shareholders, they may be diverted by the insiders for personal use or committed to unprofitable projects that provide private benefits for the insiders. As a consequence, outside shareholders have a preference for dividends over retained earnings (La Porta *et al.* 2000a). Therefore, it can be argued that dividends can play an important role to address the agency problems between corporate insiders and outside shareholders.

According to Rozeff (1982), dividends is generally viewed as a control device that helps reduce managerial discretion and such action is part of the firm's optimal monitoring/ bonding package. Easterbrook (1984) and (Rozeff 1982) suggested that higher dividends reduced agency costs by forcing management to seek external financing, resulting in closer market scrutiny. Reduced agency costs are expected to lead to higher firm value. In the same vein, Jensen (1986) argued that dividend reduced free cash flow that managers

may otherwise divert for personal use or to fund unprofitable projects. This evidence is consistent with the notion that dividends are paid when firms have excess cash flows in order to reduce potential over investment by management.

Therefore, there is a need to further test this theory in one of the developing markets such as Malaysia, particularly with the implementation of recent reform on corporate governance. The above arguments suggest the following hypothesis in an alternative form:

H1: Dividends is positively related to firm value.

Ownership Concentration and Firm Value Relationship

The existence of large share holders and concentrated ownership are believed to be relevant in the context of developing countries (Wiwattanakantang, 2001). Therefore, its implications should be assessed carefully due to the country's unique institutional specificities. Some of these specificities are: a) a less developed and illiquid capital market, b) relatively weak legal and regulatory framework, c) weak enforcement of the legal and regulatory frameworks that exist, d) less active takeover market, e) a highly concentrated family-based ownership and f) a higher dependence on external sources of financing (Claessens *et al.* 2000a; ADB 2000). Based on these factors, it might be argued that institutional and economic arrangements in Malaysia are relatively specific in comparison to developed countries. If this be true, adopting corporate governance systems from other countries without considering these factors may lead to the ineffectiveness of the system.

Large concentrated shareholders may use their control power to influence management decisions, which leads to expropriation or general detriment of rights of minority shareholders (Morck *et al.* 1988). The potential for expropriation is exacerbated when there is a sharp deviation in control and cash-flow rights through pyramidal holding structure on affiliated firm capital structure and investment policies, which is shown to have negative impact on firm valuation (Bany Ariffin, 2006). On the other hand, Chirinko *et al.* (2004) find that ownership concentration does not have a discernible impact on firm value, which may reflect large shareholders' dual role in lowering the costs of managerial agency problems but raising the agency costs of expropriation.

Consistent with the arguments that higher controlling shareholder can lead to entrenchment of large owners and expropriation of minority shareholders. Therefore, this study expects that higher ownership concentration is expected to increase agency costs, and subsequently, lower firm value. Based on the above arguments, the following expected hypothesis is formulated in the alternative form:

H2(a): There is a negative relationship between ownership concentration [as measured by concentration ratio (CR5)] and firm value.

Government Ownership and Firm Value Relationship

Government has also emerged as large shareholders in public listed companies in Malaysia. However, research in Malaysia is still very limited to ascertain whether or not the involvement of government in corporate control system provides additional explanation for firm value. Large ownership by government-controlled institutions may provide

opportunities for the company to participate in public sector projects. This is due to the possibility of easier and cheaper access to capital market. The involvement of government-controlled institutions in the Malaysian equity market is extensive, both in terms of reach and magnitude. In addition to the high incidence of ownership in the largest ten companies, government-controlled institutions as a group also own about 37 per cent of the shares in listed companies.[8]

Companies controlled by the government-controlled institutions are some of the largest in terms of capitalization in the Bursa Malaysia. Share holdings by government-controlled institutions range from 18 percent to 86 per cent for the largest 10 companies. Their high capitalization and inclusion into the Bursa Malaysia stock market suggest that any price movement in these shares will significantly impact the movement of the index. Thus, the investment community closely watches the actions of the government or investment decisions by these government-controlled institutions. For instance, when government-backed institutional investors start operations on 10 January 2003, the Bursa Malaysia stock market rises 1.47 percent in two hours of trading in the afternoon. The leading price movers are the companies where the government has high ownerships.[9] Government-controlled companies are also perceived to be beneficiaries of many economic programs. For example, when large government infrastructure projects are announced, it is almost predictable that government related infrastructure companies will experience share price movements as they are perceived to be likely beneficiaries of public investment projects.

However, there is also downside risk when there is large government-controlled ownership. Companies may be asked to provide social safety nets. This may take the form of creating employment opportunities, refraining from closing down loss-making subsidiaries, retrenching staff and pursuing projects to achieve social objectives. These objectives may affect pricing of goods and services and staffing decisions may constitute a drag on firm value. Also due to the above reasons, large government-controlled ownership may result tardiness in removal of ineffective management essential to proper governance discipline.

The active participation of government-controlled companies also gives rise to a potential moral-hazard problem. Some of these funds are invested on behalf of major trust funds and have the ultimate objective of balanced share ownership and wealth distribution. The board of directors and managers may believe that the government would not allow government-controlled companies to fail. This belief is not unfounded; given the government through its investment-holding companies have bought back a listed infrastructure company[10], the National Airlines, and also the assets of the operator of the urban transit system.[11] It is also possible that negative activities and complacency by the board of directors and managers induced by perverse incentives of moral hazard can lead to poor performance. In another remark the Auditor General found that a pension fund did not monitor the performance of companies where it has had stakes[12].

Allegations of mismanagement in some of the institutions further aggravated the perception of low accountability and professionalism in the government-controlled firms' investment decisions. Some of the investments have turned sour incurring large losses. These institutions generally have large cash reserves, and have on occasions

been tapped to buy into new government initiatives. Permodalan Nasional Berhad (PNB), Khazanah Nasional and another pension fund own a RM10 billion government-controlled, fund (Valuecap Sdn. Bhd.) to buy undervalued shares on the Bursa Malaysia. Analysts speculated that government-controlled companies would be the main beneficiaries of this new investment fund[13]. Thus, the following expected hypothesis is stated in the alternative form:

H2(b): There is a negative relationship between government ownership and firm value.

Foreign Ownership and Firm Value Relationship

Many companies in Malaysia have significant foreign ownership as a result of financial liberalization. Their share ownership ranges from a low percentage held by institutional shareholders to large block holdings by multinationals in their subsidiaries. Two explanations are generally offered for the behavior of foreign shareholders. Firstly, they select companies in which they have better information. Larger and well established companies would have less information asymmetry and generally are favored by foreign institutional shareholders (Dahlquist and Robertson, 2001). However, the extent to which they actively seek to monitor and engage management in order to improve firm value has to be further empirically tested.

Secondly, large foreign multinational ownership may also have real impact on the management and governance practices of local public listed subsidiaries and associates. Generally, management and governance policy are applied uniformly globally, and subsidiaries of foreign multinationals generally have access to managerial talent and skill from the home base that can be effectively deployed to improve firm value. Hence, the following expected hypothesis is stated in the alternative form:

H2(c): There is a positive relationship between foreign ownership and firm value

Managerial Ownership and Firm Value Relationship

The relationship between managerial ownership and firm value has been extensively studied since Demsetz and Lehn (1985) found no significant relationship between managerial ownership and the firm's return on equity. Earlier studies in the U.S. also highlighted a positive relationship between managerial ownership and firm value, which can be attributed to the alignment of managerial incentives with shareholder interests. As managerial (insider) ownership increases, agency costs may be reduced since managers bear a larger share of these costs. However, as Demsetz (1983) and Fama and Jensen (1983b) point out, managers holding a substantial portion of a firm's equity may have enough voting power to ensure that their position inside the company is secure. As a result, they may become to a great extent insulated from external disciplining forces such as the takeover threat or the managerial labour market.

The interest of large owners and managers are aligned when managers through various incentive systems own shares in the company. When there is alignment of interest, opportunistic behavior by controlling shareholders or managers is greatly reduced. As a result of this alignment effect, managers have the incentive to maximize company value, as they too benefit from improvements in firm value (Jensen and Meckling, 1976). This

incentive alignment argument predicts that controlling shareholders and managers will place more effort and take reasonable risk when they have a financial stake in the value of the firm. Thus, higher managerial ownership levels are associated with better firm value. The following hypothesis is proposed in the alternative form:

H2(d): There is positive relationship between managerial (insider) ownership and firm value.

The Moderating Effects of Board Governance with Dividends and Ownership Structure on Firm Value Relationship

The governance role of board of directors is the "*heart"* of corporate governance as shareholders have delegated authority to the board to oversee and control decisions made by upper management (Fama and Jensen, 1983b). According to the agency theory, firms might minimize agency costs by establishing appropriate monitoring systems and using board governance to effectively supervise managers (Byrd and Hickman, 1992; Fama and Jensen, 1983b). As described by various recommendations and rules for governance reforms (The Cadbury Committee 1992; MCCG 2000; KLSE 2001), this study characterises board governance as strong when a firm adopts best governance practices. Thus, the strong board governance considered in this study include; non-board duality, greater board independence and smaller board size.

Dividends and Board Duality on Firm Value

Boards of directors are groups of elected individuals whose main responsibility is to act in the owners' interests by monitoring and controlling the corporations' top-level executives. Firm shareholders, particularly large shareholders such as institutional investors, argue for separating the roles to eliminate CEO entrenchment and to increase the effectiveness of board monitoring (Daily and Dalton, 1997).

If, as argued by Callaghan (2005), duality may constrain independence, erodes corporate checks and balances, monitoring and oversight; then dividends are expected to be lower/weaker for firms duality board than for CEO-Chair separation (non-duality) firms. The separation of roles between Board Chairman and CEO also has been recommended by the MCCG 2001. In line with the above arguments, this study expects that the moderating effect of board duality with dividends has a lower/negative effect on firm value. The following hypothesis is stated in the alternative form:

H3(a): Board duality may moderate the strength/form of the relationship between dividends and firm value.

Dividends and Board Independence on Firm Value

Weisbach (1988) provides evidence that the greater the number of outside directors on the board, the stronger the corporate governance of the firm. Thus, dividends are expected to be higher/stronger when a firm has independent outside directors. Any board member who is not formally part of the company would be considered as an outside director. In this regard, some recommendations have been made to reduce the size of the board and to appoint a higher proportion of independent directors (Bozec and Dia, 2005). Fama and

Jensen (1983) argue that manager-monitoring activities of the board will be more effective when they are dominated by independent-outside directors. The following hypothesis is stated in the alternative form:

H3(b): Board independence may moderate the strength/form of the relationship between dividends and firm value.

Dividends and Board Size on Firm Value

A large board is unlikely to facilitate effective monitoring of top management of firm (Jensen, 1993). Thus, small board size is more effective to limit directors' incentives to shirk, as it is easier to monitor each member and decisions can be made more quickly (Haniffa and Hudaib, 2006). Consistent with this argument, Yermack (1996) also provided evidence that dividends and firm value were decreasing functions of board size. The following hypothesis is stated in the alternative form:

H3(c): Board size may moderate the strength/form of the relationship between dividends and firm value.

Ownership Structure and Board Duality on Firm Value

A powerful CEO can influence the board's ability to carry out its legal role by representing shareholder interests or its independence (Pearce and Zahra, 1991). Since the CEO has the ability to shape board membership overtime (Alderfer, 1986), the CEO can gain power the longer he/she holds the position (Mishra and Nielsen, 2000). The dual leadership structure allows the CEO to exert more power over the decisions and practices of the board, and also permits the CEO to effectively control the information available to other members of the board (Booth *et al.* 2002).

Duality also weakens the board's independence in making decisions because the CEO acquires more control and power, therefore it promotes CEO entrenchment (Bozec and Dia, 2007). On the contraty, duality can be seen as a positive advantage to the firm because it provides a unified firm leadership (Finkelstein and D'Aveni, 1994). The separation of roles between Board Chairman and CEO also has been recommended by the MCCG (2001). Accordingly, Nazli and Weetman (2006) argue that the Chairman plays a crucial role in encouraging debates on issues brought to the board and ensuring that resolutions are decided by votes, thus those roles can be performed better if the Chairman is an independent director. In line with the above arguments, this study proposes the following hypothesis in the alternative form:

H4(a): Board duality may moderate the strength/form of the relationship between ownership structure and firm value.

Ownership Structure and Board Independence on Firm Value

The fraction of outside directors is an internal decision and such a decision should be expected to maximize value. The positive relationship is expected because of the positive impact of monitoring function of the independent directors. Helland and Sykuta (2005) suggest that boards with higher proportions of outside independent directors do a better job of monitoring management.

As a result of regulatory reforms, the rules of corporate governance have been restructured to require more outside directors, with more meaningful participation by them and create a notion that outside directors are better monitors (Belden *et al.* 2005). In this context, some recommendations have been made to reduce the size of the board and to appoint a higher proportion of independent directors (Bozec and Dia, 2005). Fama and Jensen (1983b) argue that manager-monitoring activities of the board will be more effective when they are dominated by independent-outside directors. The lack of past research testing for the relationship between ownership structure and board independence calls for the applicability of the moderating effect to the ownership structure with board independence on firm value relationship. This study proposes the following hypothesis in the alternative form:

H4(b): Board independence may moderate the strength/form of the relationship between ownership structure and firm value.

Ownership Structure and Board Size on Firm Value

Prior studies have proposed three main sources for board-size effects, that is: (a) increases communication and coordination problems; (b) decreased ability of the board to control management; and (c) the spread among a larger group of the cost of poor decision making (Eisenberg *et al.* 1998; Yermack, 1996). As board structure group increases in size, losses in productivity and efficiency arise due to coordination and process problems (Jensen 1993; Lipton and Lorsch, 1992). This in turn, leads to ineffective monitoring and control of management by the board of directors.

The board of directors contributes to alleviate agency costs in the firm by monitoring and rewarding top executives to ensure wealth maximization to the shareholders (Bozec and Dia, 2007). When too many directors are serving on the board, directors are then less effective in monitoring managers, thus agency costs increase. On the other hand, a small board is more effective to limit directors' incentives to shirk, as it is easier to monitor each member and decisions can be made more quickly (Haniffa and Hudaib, 2006). As controlling shareholders are in power to decide whether and how firm's profits are distributed, the corporate board should predominantly ensure that all shareholders are equally treated per unit of equity in the firm (Bena and Hanousek, 2006). This study then proposes the following hypothesis in the alternative form:

H4(c): Board size may moderate the strength/form of the relationship between ownership structure and firm value.

Sample and Data

This study was conducted after the implementation of the Malaysian Code of Corporate Governance (MCCG) through the amendments of *Bursa Malaysia Listing Requirements*, announced in January 2001. Since then, it is documented that with various best practices and recommendations, the listed companies in Malaysia have improved their corporate governance environment (KLSE-PricewaterhouseCoopers 2002; Haniffa and Hudaib 2006; Yatim et al. 2006). Therefore, the sample years of 2002 and 2005 were chosen to represent two years of the *MCCG* becoming mandatory through a revamp of Bursa Malaysia listing requirements.

This study focused on non financial public listed firms listed on the Main Board[14] of Bursa Malaysia whose annual reports were available for years 2002 and 2005. The Main Board companies are significantly larger in terms of size and sales. Firms in the Second Board are eligible to transfer their listing to the Main Board upon fulfilling regulations and listing criteria of the Main Board. All finance-related firms, banks, insurance, unit trusts and utilities companies were excluded from the sample due to their difference in the regulatory requirements, financial reporting standards and compliance (see, Claessens et al. 2002; Renneboog and Trojanowski, 2005b; Yatim et al. 2006). Firms that are classified as PN4 companies were also excluded from the sample. Finally, this study was left with the sample of 406 firms covering more than half of Malaysian listed non financial companies and representing a broad range of industry sectors. The larger numbers of firms sample were expected to make the study more transparent and representative of firms in Malaysia.

Data on different types of ownership structure and board governance were obtained from individual company annual reports. These annual reports were available and downloadable from the website of the exchange (http://announcements.bursamalaysia.com). DataStream financial database also provided all types of annual financial data, assets and liabilities. Apart from that, this study employed annual data, of years 2002 and 2005. Using of annual data allowed the study to capture more discretionary rather than autonomous behavior. Besides, annual data represents the highest periodicity for which data is systematically available.

Dependent Variables

Firm Value: Tobin's Q Ratio (Q-Ratio). This study employed Tobin's Q ratio (Q-Ratio) as a measure of firm value, which is market-value based measure of performance. Firm value was measured using Tobin's Q ratio for two reasons. First, there is no consensus concerning the measure of firm financial performance, and performance measures fall into two categories either accounting rate of return or market return measures (Chakravarthy 1986; Daily and Dalton, 1997). Tobin's Q ratio is an alternative to profitability and holding period rate-of-return measures (Stevens and Jose, 1992). Second, both accounting and market measures have inherent advantages and disadvantages. For example, market measures can provide accurate information concerning shareholders' wealth maximization (Mikkelson and Partch, 1997). However, market measure also can be biased by bullish expectations, therefore fail to reflect actual firm valuation or performance.

The basic calculation of Tobin's q ratio is the ratio of the market value of a firm's equity and debt to the replacement cost of its asset. Lindenberg and Ross (1981) calculate it as:

$$Q_{LR} = \frac{PS + MVE + LTD + CL - STASST}{TASST - BVCAP + NETCAP}$$

where, PS is liquidating value of firm's preferred stock, MVE is market value of equity at the end of the year, LTD is long-term debt adjusted for age structure, CL is book value of current liabilities, $STASST$ is net short-term assets, $BVCAP$ is book value of net capital stock, and $NETCAP$ is inflation adjusted net capital stock.

However, this formula could be complicated because of the unavailability of some data of the data to calculate it especially in the emerging market such as Malaysia. Chung and Pruittt (1994) simplified the calculation as follows:

$$Q_{CP} = \frac{MVE + PS + TDEBT}{TOTASST}$$

where, *MVE* is market value of equity, *PS* is outstanding preferred stocks, *TDEBT* is book value of short-term liabilities net of short-term assets, plus book value of long-term debt, and *TOTASST* is book value of total assets.

Therefore, this study utilised the calculation of the modified version of Tobin's q ratio as a measure of firm value, calculated as the ratio of sum of market value of equity plus total debts to book value of total assets. The modified version of Tobin's Q ratio is depicted as the following equation:

$$Q_{ratio} = \frac{MVE + TDEBT}{TOTASST}$$

where, *MVE* is market value of equity, *TDEBT* is book value of short-term liabilities net of short-term assets, plus book value of long-term debt, and *TOTASST* is book value of total assets.

This proxy is extensively used in a lot of research (e.g.: Mehran, 1995; Rathinasamy *et al.* 2000; Faizah, 2006). Firms with high Tobin's Q ratio (or Tobin's Q > 1) indicate that the market views the firm's internal organization as exceptionally good or the expected agency costs are particularly small (Faizah 2006).

Independent Variables

Dividends. Dividend was primarily measured by dividend yield (dividend-to-price ratio). Formally, the dividend yield is the dividend per share (DPS) divided by closing market price per share (MPS), that is, *DYLD = DPS / MPS.* The dividend yield was used rather than the payout ratio (dividends to earnings) for two reasons. Firstly, the denominator in dividend yield is a market measure (share price) compared to an accounting measure (net income). Secondly, to avoid problems of negative payout ratios are resulting from negative earnings or excessively high payout ratios resulting from income being close to zero (Schooley and Barney, 1994). Several other studies also employed dividend yield as a measure of dividend policy (e.g:, Chang and Rhee, 1990; Han *et al.* 1999; Ho *et al.* 2004).

Ownership Structure. Four types of ownership structure measures were used in this study.

(a) Ownership concentration. Several measures were used to proxy for ownership concentration in the previous literature (for instance, Agrawal and Mandelker, 1990; Agrawal and Knoeber, 1996; Duggal and Millar, 1999; Claessens *et al.* 2000a, 2000b;

Wang, 2005; Chen *et al.* 2005; Selarka, 2005; Khan, 2006). To proxy for ownership concentration, this study employed concentration ratio 5 *(CR5)* as measured by total percentage of shares owned by largest shareholder (*Top1)* divided by the sum of shares in the hands of largest five shareholders as follows; $CR5 = Top1 \Big/ \sum_{i=1}^{5} \gamma_i$, where γ_i is the total percentage of shares owned by the largest five shareholders i, and i = 1, 2, …, 5.

(b) Government ownership[15]. To measure government ownership *(GOWN),* the sum of all shares held by government-controlled companies in the list of thirty largest shareholders were identified.

(c) Foreign ownership. The percentage of total shares held by foreign shareholders was also identified in the same manner. To calculate total percentage of foreign shareholdings *(FOWN)*, the sums of all shares in the hands foreign shareholders in the list of thirty largest either held through nominee companies or other corporate foreign share holdings were identified.

(d) Managerial ownership. A number of studies used directors' share holdings as a proxy for managerial ownership (e.g., Morck *et al.* 1988; Chen *et al.* 2003). Managerial ownership (*MOWN)* was measured as the total percentage of shares directly held by non-independent executive directors in the company. Following Nazli and Weetman (2006), this study did not include the shares held by independent non-executive (outside) directors because they are expected to play a monitoring role and limit managerial opportunism.

Moderating Variables

Board Chairman and CEO Duality. The separation of roles for the Board Chairman and the CEO was measured as a dummy variable *(DUALITY)*. This was to represent whether or not the CEO also served as the Chairman of the Board (Gani and Jermias 2006). If there is a separation, the variable takes the value of 1 and 0 otherwise.

Board Independence. On board independence, this study employed size of independent non-executive (outside) directors as measured by the total numbers of independent non-executive (outside) directors on the board *(IND)*. Independent non-executive directors are outside directors whose principal occupations are not with the company as indicated in the proxy statements (Chen *et al.* 2003). The role of an independent non-executive director is to provide an outsider's contribution and oversight to the board of directors (Hanrahan *et al.* 2001, cited in Puan *et al.* 2006). Weisbach (1988) suggests that some outside directors could have current or potential business ties to firm, providing them with incentives to side with management. Therefore, following Borokhovich *et al.* (2005), this study strictly define outside directors as those outside directors who have no current or potential business ties to firm.

Board Size. The size of the board of directors might also affect corporate payout and firm value through the relative influence of the CEO on various board sizes (Gani and

Jermias 2006). Yermack (1996) argues that larger boards are less effective and more susceptible to the influence of the CEO. The board size variable *(BSIZE)* represents the total number of directors on the board as of reported in the company's annual report.

Control Variables

Firm Size. This study included a measure of firm size because it is possible that larger firms are perceived differently by shareholders. Further, larger firms may pay higher dividend levels and may have larger boards. On the other hand, Bhabra (2007) demonstrates that firm value is inversely related to firm size. This could be the result of a number of factors such as lack of focus or a lesser degree of transparency in managerial actions. However, Short and Keasey (1999) report that firm size has a significantly positive effect on performance, since larger firms have the potential to access funds with greater ease, both internally and externally. Larger companies may also have better growth opportunities and access to financing opportunities. Larger companies may have greater analyst following and thus have more information available to reduce information asymmetry and a wider share spread and ownership profile. Accordingly, many past studies have used total assets[16] as a proxy for firm size. Alternatively, another proxy for firm size is commonly used in prior research is market capitalisation. This study employed logarithm function of market capitalization *(LOGMCAP)* as the indicator of firm size.

Firm Age. The age of the company also has an effect on the distribution of shareholdings. Older companies, having gone through many business cycles could have a wider shareholder distribution. This study employed the age of listing (AGE) as a proxy for company age rather than the year of incorporation to control for firm maturity.

Leverage. Prior studies include a control variable to proxy for the level of indebtedness[17]. However, literature on the association between leverage and firm value is divided. While Jensen (1986) stresses the importance of debt in limiting managerial discretion over the use of free cash flow, studies such as Stulz (1988) and Bhabra (2007) suggest an inverse relationship between leverage and firm value. Hence, leverage influences firm value through monitoring activities by debt holders, thus this study measured it as total debt divided by total assets to proxy for financial leverage *(LEVERAGE)*.

Profitability. Earnings per share (EPS) was used as a measure of a firm's profitability (see, Kumar and Sopariwala, 1992; Ahmed and Khababa, 1999; and Kaufmann *et al.* 2000; Al-Malkawi, 2005). EPS is also considered to be *"the market's pre-eminent measure of firm performance"* (Kaufmann *et al.* 2000: 219).

Industry Sectors. Past studies define industries by using various levels of industry classification numbers. For example, Holderness *et al.* (1999) use 1-digit SIC codes to classify industries. Industry differences are controlled using industry categorisation provided by Bursa Malaysia. Since the study sample included firms operating in a variety of sectors, controlling for industry-specific effects assures the reliability of the results (Renneboog and Trojanowski 2005b). In addition, companies in different industry sectors differ with respect to the degree of free cash flow problems and, consequently, corporate

dividends (Moh'd *et al.* 1995). This study employed three main industry sectors in the model equation, namely; trade and services, industrial products and consumer products to control for differences in industry sectors.

Methodology and Empirical Model

Multivariate regression analysis was appropriate in this study because the data were cross-sectional and thus did not suffer from autocorrelation problems. The moderated multivariate regression analysis is a commonly used statistical technique for studies predicting the effect of moderator variables on dependent variables (Gerdin and Greve, 2004; Gani and Jermias, 2006). In addition, Hartmann and Moers, (1999) argue that moderated regression analysis is the appropriate statistical technique by which to test hypotheses involving interaction terms because it is *"a specific application of multivariate regression analysis, in which the regression equation contains an interaction term"* (Hartmann and Moers, 1999: 293). Moderating effect occurs when the moderator variable, a second independent variable, changes the *form* or the *strength* of the relationship between another independent variable and dependent variable (Hair *et al.* 1998). This is also known as an *interaction effect.*

The empirical model used in this study can be described as follows:

Model 1:

$$Q\text{-}Ratio_i = \beta_{0+}\beta_i DYLD_i \pm \sum_{j=1}^{4}\beta_j OS_j \pm \sum_{k=1}^{3}\beta_k BG_k \pm \sum_{l=1}^{7}\beta_l Control_l + \varepsilon_i$$

Model 2:

$$Q\text{-}Ratio_i = \beta_{0+}\beta_i DYLD_i \pm \sum_{j=1}^{4}\beta_j OS_j \pm \sum_{k=1}^{3}\beta_k BG_k \pm \beta_i DYLD_i X \sum_{k=1}^{3}\beta_k BG_k \pm$$

$$\sum_{j=1}^{5}\beta_j OS_j \; X \sum_{k=1}^{3}\beta_k BG_k \pm \sum_{l=1}^{7}\beta_l Control_l + \varepsilon_i$$

where, β_0 is intercept, $Q\text{-}Ratio_i$ is Tobin's q ratio as a measure of firm value, $DYLD_i$ is dividend policy of firm i determined by dividend yield, OS_j denotes types of ownership structure, namely, ownership concentration, government, foreign and managerial ownership, BG_k denotes board governance of board duality, board independent and board size, $Control_l$ are control variables of firm size, firm age, leverage, profitability and industry sectors, and ε_i is error term.

Empirical Results

Descriptive Statistics

Pair-wise Pearson correlation coefficients for main variables are provided in Table 1a and 1b. It indicates that multicollinearity[18] is not a problem, as the correlations are relatively

low[19]. An analysis of residuals, plots of the studentised residuals against predicted values and the Q-Q plot were conducted to test for homoscedasticity and linearity assumptions. Results of standard tests on skewness and kurtosis indicated no problem with the normality assumption[20]. The standardized residuals were plotted against predicted dependent values and the independent variables. Judge *et al.* (1988) suggested that any observations that have standardized residuals greater than ± 4 should be deleted in order to reduce the undue effects of the outliers and the problems of heterocedasticity (non-constant variance). However, none of observations was eliminated for each year data through this procedure. Finally, the study used a Q-Q plot to check for normality of residual. Since the residual points were fairly close to a straight line, the distribution of residuals was fairly normal. Additionally, the regression analysis is robust with respect to misspecification of the probability law of residuals (Chatterjee and Price, 1991). In sum, the two models do not violate basic OLS assumptions and could be used for testing the expected hypotheses in this study.

Before performing an empirical analysis, the descriptive analysis was conducted to study the behavior of all the variables of interest in the models. For that purpose, Table 2 provides the descriptive statistics for key variables used in the study over the period 2002 and 2005. Focusing on the dependent variables, it can be seen that the average firm value (Q-Ratio) increased between the intervening years, which is possibly indicating the effect of overall economic improvement for the firm value is as expected. Q-ratio had an average value of 1.4619 and 1.6563, being the minimum value of 0.015 and 0.016 and maximum value of 18.720 and 16.580, for years 2002 and 2005 respectively.

As for board governance variables, it can be seen that the average of total numbers of independent non executive (outside) directors of Malaysian listed companies was three, ranging from zero and eight. The average number of independent directors also increased from 2.96 in 2002 to 3.03 in 2005. This could be attributed to the recommendations of the *MCCG 2001*, which requires that at least one third of the directors should be independent directors. An alternative explanation is that loss making companies are more likely to appoint more independent directors as part of the restructuring that is still ongoing after year 2001. In terms of average board size, Malaysian listed companies have on average eight directors on the board, which is within the size recommended by Lipton and Lorsch (1992) for board effectiveness. Additionally, the number of firms with role duality has slightly decreased from 32 per cent to 31 per cent, supporting the recommendations of the *MCCG 2001* to separate the roles for the Chairman and CEO.

Interestingly, it is worth noting that the mean of ownership structure variables show some particular patterns. The mean percentage of ownership concentration ratio*, CR5,* was about 0.52 for both years with the highest around 0.95, indicating that highly concentrated firms are common among Malaysian listed firms. The findings are consistent with those reported in earlier studies (e.g., Claessens *et al.* 2000a; Faccio and Lang, 2002; ROSC 2005). On government ownership variable, the mean percentage was 6.63 per cent in 2002 and 5.86 per cent in 2005, ranging from 0 per cent to 79.18 per cent and 0 per cent to 78.46 per cent for years 2002 and 2005, respectively. Of particular interest, foreign ownership increased on average from 4.54 per cent to 6.12 per cent. The increase in foreign

shareholdings could be partly due to regulatory changes and strong investors' confidence in the Malaysian corporate governance after been badly affected by the crisis. During the financial crisis, Malaysia was removed from the *Morgan Stanley Capital Index* which badly affected the flow of foreign funds. Finally, managerial ownership was on average showing slightly decrease from 7.51 to 7.32 per cent for years 2002 and 2005, respectively.

Results of Hierarchical Regression Analyses

Table 3a and 4.3b report the regression results of dividends, ownership structure and board governance on firm value *(Q-ratio)* for years 2002 and 2005, after controlling for the effect of firm size, age, leverage, earnings and industry sectors. The full Model 3 in both tables provides a benchmark for later results and analysis of moderating effects. The F-statistics for Model 3 was both insignificant and the R^2 was 35.0 per cent and 28.6 per cent for years 2002 and 2005, respectively. As for Model 2, the change in R^2 was 2.5 per cent and 5.4 per cent for the year 2002 and 2005, respectively. Whereas for Model 3, the change in R^2 was only 0.2 per cent and 0.3 per cent for the year 2002 and 2005, respectively. As shown in Model 3 of Table 3a and 4.3b; dividends *(DYLD)* provided significantly positive effect (with $p<0.01$) on firm value for both years, thus the result supported H1(a).

Of particular interests were the results of government *(V2_GOWN)* and foreign *(V3_FOWN)* ownership on firm value. The results indicate the significant positive relationship of government ownership (with $p<0.05$) and inverse relationship of foreign ownership (with $p<0.1$) on firm value in the year 2002. Therefore, both results did not support the expected hypotheses. The positive relationship between government ownership and firm value implies that investors in the Malaysian market do value the higher standards of corporate governance reform found in the government-controlled firms. In addition, the result also suggests that foreign ownership does play an active monitoring role in Malaysia as one of emerging economies to mitigate potential managerial opportunism and control the agency costs of free cash flow. However, both government and foreign ownership show insignificant results in the year 2005.

The results of examining the effects of board governance variables on firm value for the years 2002 and 2005 are also reported in Table 3a and 4.3b. However, the results were not significant with all predicted variables.

Results of Moderated Regression Analyses

To investigate further whether board governance had moderator effect on the relationship between dividends and types of ownership structure on firm value, the interaction terms as a control device was considered. Model 2, from Table 4a and 4b shows regression results involving the moderating effects of dividends and ownership structure with board governance on firm value for the year 2002 and 2005. The interaction results of Model 2 in Table 4a and 4b, taken together, were used to determine whether the interaction hypotheses in the study were supported. If board governance variables significantly interact with dividends and ownership structure, the conclusion is that the board governance variables have a moderating effect on the relationship between dividends and ownership structure on firm value.

The result of direct effect that has previously reported reveals that dividend has a positive significant effect on firm value. However, the valuation effect of dividend with board duality provided lower positive coefficient term significantly. Therefore, the result supported the expected hypothesis. Interestingly and consistent with what is predicted, the interaction term of dividends with size of independent non-executive directors, *DYLD XM2_IND,* shows significantly positive effect for the year 2005 with $p<0.01$. This implies that firm value is enhanced in firms that increase their dividends and size of board independence, supporting H3(b). Correspondingly, the result suggests that size of board independence has a moderating effect as it changes the strength of direct relationship between dividends and firm value. However, the result was not significant in the year 2002. Whereas, the interaction term between dividends and board size showed significantly positive moderating effect for both years.

The result from the interaction effect of board duality with government ownership provided negatively significant result for the year 2002, thus, supporting H4(a). However, the result was insignificant in the year 2005. Further, the interaction term of foreign ownership and board size, V3*_FOWN X M3_BSIZE,* was negative and significant *(*with $p<0.1)$ in the year 2002, however the result was not significant in year 2005.

Conclusion

This paper examines the relationships between dividends, types of ownership structure and board governance variables on firm value among Malaysian listed companies. Both direct and moderating effects were examined. The result of direct effect shows that dividend has a positive significant effect on firm value in both years. This finding is consistent with the view that dividends mitigate agency costs of *free cash flow* problem, therefore increasing firm value. The finding also suggests that dividends can play its important monitoring role in reducing agency costs among Malaysian listed firms. Results of government and foreign ownership on firm value are particularly interesting as they are contrary to the expectations. Surprisingly, results on ownership concentration and managerial ownership provided insignificant effect to firm value for both years. Further, results on board governance variables on firm value for the year 2002 and 2005 also provided insignificant effect.

Of particular interest were the results of moderating effects of board governance with dividends and ownership structure on firm value. The result reveals that board duality has significantly moderated the relationship between dividends and firm value with a lower coefficient positive effect as expected. This result supported the expected hypothesis. As expected, the result from the moderating effect of board duality with government ownership in the year 2002 provided a negatively significant result. However, both results of board duality with dividends and government ownership provided insignificant effect for the year 2005. Whereas, the interaction term between dividends and board size showed significantly lower coefficient positive moderating effect for both years. The inclusion of board size interaction term to foreign ownership provided

significantly negative effect on firm value. The negative moderating effect of board size was consistent to what was predicted. Firms with a smaller board were in a better position to cope with firm's dividend decision than firms with a larger board, which is consistent with recent reports on corporate governance that have stressed the importance of having smaller boards. This also might be due to reason that a larger board has representation of people with diverse backgrounds and knowledge (Bozec and Dia, 2007), which suggests less efficient monitoring on managers' discretion leading to lower valuation. Therefore, it suggests that Malaysian listed firms need to assess the appropriate board size depending on each individual firm's circumstances.

Overall, findings from this paper reveal that *good* board governance; particularly board independence and board size can enhance the monitoring role of dividends, government and foreign ownership in reducing agency costs, thus increase firm value. While many previous studies have examined the direct effect of ownership structure and firm value, this study was one of the few studies that explicitly investigated the moderating effects of three board governance mechanisms on the relationship between dividends and types of ownership structure with firm value. In doing so, this study contributed to the extant literature.

The findings also have important implications. First, from policy perspective, the results demonstrate that board governance may work in tandem with dividends to mitigate agency cost of free cash flow that could not be mitigate in the direct relationship of dividends and firm value. Also, the separation role of the Chair and the CEO becomes less important in controlling agency conflicts. Second, although the recent reforms aim to tighten requirements for board independence, smaller board size and non-role duality and thereby facilitate more effective board supervision of managers (e.g., MCCG, 2001, KLSE, 2001; OECD Principles of Corporate Governance 2004; ROSC 2005), however, the results from this study reveal that the effect of the increased "*good"* board governance together with dividends and ownership structure on firm value might not be the same for all firms.

The conclusions drawn from this study should be interpreted by limitations, which would potentially represent opportunities for further investigation in the future study. The main limitation is that the data period in the study covered only for the years 2002 and 2005, which were after the implementation of the *Malaysian Code of Corporate Governance* through the amendments of *Bursa Malaysia Listing Requirements* in the year 2001. Different results may be generated if a panel data analysis is employed.

In conclusion, with the reform of corporate governance practices coming under increasing scrutiny in the post-reforms era and an increasing demand for convergence of financial reporting standards, policymakers should not lose sight of the fact that there are existing mechanisms that provide strong incentives and motivations to the good governance practices of companies. The benefits of increasing firm value through enhanced board governance are not the same across all firms as their incentives vary with respect to types of ownership structure and dividends.

Table 1a: Pearson correlation matrix of variables used in the study for the year 2002

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Q-RATIO	1	0.290**	0.062	0.222**	0.046	-0.130**	-0.026	0.063	0.163**	0.560**	0.132**	0.010	-0.072	0.082	-0.044	0.013
2. DYLD		1	0.127*	0.083	0.088	-0.082	-0.069	0.054	0.219**	0.310**	0.123*	0.112*	-0.142**	-0.057	0.052	0.046
3. V1_CR5			1	0.107*	-0.034	-0.275**	-0.092	-0.053	-0.018	0.069	0.138**	-0.035	0.034	-0.016	-0.051	0.071
4. V2_GOWN				1	0.016	-0.157**	-0.109*	0.139**	0.241**	0.241**	0.051	0.003	0.029	0.022	0.027	-0.027
5. V3_FOWN					1	-0.088	-0.058	0.062	0.146**	0.199**	0.149**	-0.021	0.051	0.061	-0.001	0.033
6. V4_MOWN						1	0.146**	-0.096	-0.127*	-0.228**	-0.280**	0.039	0.052	-0.100*	0.074	0.002
7. M1_DUALITY							1	-0.034	-0.083	-0.030	-0.101*	0.007	-0.045	-0.094	0.029	-0.049
8. M2_IND								1	0.554**	0.162**	0.049	0.077	-0.033	0.080	-0.095	0.011
9. M3_BSIZE									1	0.300**	-0.079	0.158**	-0.013	-0.005	-0.020	0.061
10. LOGMCAP										1	0.171**	-0.034	-0.020	0.185**	-0.087	-0.081
11. AGE											1	-0.019	-0.017	-0.075	-0.053	-0.012
12. LEVERAGE												1	-0.064	0.027	-0.022	-0.022
13. EPS													1	0.027	-0.062	0.014
14. TS														1	-0.304**	-0.208**
15. IP															1	-0.239**
16. CP																1

Note:

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 1b: Pearson correlation matrix of variables used in the study for the year 2005

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Q-RATIO	1	0.353**	0.084	0.088	0.056	-0.105*	-0.033	0.138**	0.104*	0.467**	0.114*	-0.051	-0.047	0.029	-0.079	0.023
2. DYLD		1	0.107*	0.029	0.013	-0.047	-0.068	0.057	0.045	0.293**	0.103*	0.107*	-0.097	-0.003	-0.053	0.138**
3. V1_CR5			1	0.090	-0.047	-0.295**	-0.085	0.066	0.042	0.134**	0.174**	0.000	-0.063	-0.049	-0.001	0.088
4. V2_GOWN				1	-0.023	-0.103*	-0.068	0.062	0.136**	0.229**	-0.008	0.058	-0.075	-0.006	-0.054	0.040
5. V3_FOWN					1	-0.048	0.003	0.054	0.063	0.261**	0.113*	0.006	0.037	0.078	-0.008	-0.022
6. V4_MOWN						1	0.064	-0.081	-0.058	-0.206**	-0.304**	-0.042	-0.004	-0.063	0.018	0.047
7. M1_DUALITY							1	-0.097	-0.121*	-0.060	-0.125*	-0.113*	0.051	-0.068	0.020	-0.035
8. M2_IND								1	0.573**	0.200**	0.109*	0.017	-0.011	0.061	-0.037	0.015
9. M3_BSIZE									1	0.240**	-0.072	0.054	-0.052	0.035	-0.014	-0.025
10. LOGMCAP										1	0.212**	0.023	-0.035	0.153**	-0.070	-0.069
11. AGE											1	-0.020	-0.009	-0.075	-0.053	-0.013
12. LEVERAGE												1	-0.060	0.013	-0.001	-0.012
13. EPS													1	0.110*	0.004	-0.015
14. TS														1	-0.304**	-0.206**
15. IP															1	-0.236**
16. CP																1

Note:

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 2 Summary descriptive statistics of the years 2002 and 2005

Sample	Minimum		Maximum		Mean		Standard Deviation		Skewness		Kurtosis	
N = 406	2002	2005	2002	2005	2002	2005	2002	2005	2002	2005	2002	2005
Q-RATIO	0.015	0.016	18.720	16.580	1.4619	1.6563	2.3916	2.8205	4.280	3.426	22.360	12.359
DYLD	0	0	1.903	7.714	0.0735	0.1217	0.2088	0.5008	5.675	11.538	36.763	155.919
V1_CR5	0.036	0.176	0.959	0.939	0.517	0.524	0.192	0.187	0.425	0.404	-0.765	-0.850
V2_GOWN[a]	0	0	79.180	78.460	6.633	5.86281	12.019	10.525	3.325	3.737	13.158	17.194
V3_FOWN[b]	0	0	76.010	76.800	4.537	6.11853	8.801	9.922	4.269	3.267	23.959	13.783
V4_MOWN[c]	0	0	68.800	64.830	7.509	7.31458	12.826	12.561	2.279	2.165	5.084	4.384
M1_DUALITY[d]	0	0	1	1	0.32	0.31	0.467	0.462	0.774	0.835	-1.408	-1.308
M2_IND	0	0	8	6	2.96	3.03	0.973	1.008	0.963	0.454	2.718	0.820
M3_BSIZE	4	4	20	15	8.11	7.91	2.224	2.135	0.957	0.626	2.654	0.367
MCAP (in million)	14745	3727	13851120	20999980	685050.43	796440.00	1688701.962	2146930.998	5.036	5.469	28.920	35.408
LOGMCAP	4.169	3.571	7.141	7.322	5.350	5.332	0.552	0.630	0.938	0.651	0.654	0.520
AGE	0	3	41	44	14.51	17.51	12.089	12.089	0.730	0.730	-0.805	-0.805
LEVERAGE	0	0	10.273	1.347	0.271	0.217	0.710	0.201	12.626	1.087	171.328	2.116
EPS	0	0	2.260	2.820	0.157	0.160	0.264	0.247	4.182	6.132	23.595	53.932
TS[d]	0	0	1	1	0.21	0.21	0.407	0.407	1.434	1.434	0.057	0.057
IP[d]	0	0	1	1	0.26	0.26	0.438	0.438	1.107	1.107	-0.779	-0.779
CP[d]	0	0	1	1	0.14	0.14	0.348	0.345	2.078	2.108	2.329	2.455

Note:

[a] comprises of 295and 282 companies for the year 2002 and 2005, respectively. However, there are only 27 and 21 companies hold shares > 25% for the year 2002 and 2005, respectively.

[b] comprises of 304 and 342 companies for the year 2002 and 2005, respectively. However, there are only 9 and 19 companies hold shares > 25% for the year 2002 and 2005, respectively.

[c] comprises of 318 and 326 companies for the year 2002 and 2005, respectively. However, there are only 42 and 46 companies hold shares > 25% for the year 2002 and 2005, respectively.

[d] denotes dummy variable.

Table 3a: Results of hierarchical regression analyses examining the impact of dividends, ownership structure and board governance on firm value for the year 2002

Independent Variables	DV: Q-Ratio					
	Model 1		**Model 2**		**Model 3**	
	B	S.E.	*B*	S.E.	*B*	S.E.
(Constant)	-11.661***	0.993	-10.803***	1.126	-10.573***	1.152
LOGMCAP	2.426***	0.185	2.236***	0.203	2.266***	0.209
AGE	0.007	0.008	0.009	0.009	0.008	0.009
LEVERAGE	0.094	0.139	0.037	0.139	0.054	0.142
EPS	-0.528	0.375	-0.404	0.376	-0.408	0.378
TS	0.008	0.272	0.103	0.271	0.106	0.275
IP	0.108	0.251	0.059	0.250	0.045	0.251
CP	0.452	0.307	0.432	0.306	0.446	0.308
DYLD			1.318***	0.510	1.348***	0.518
V1_CR5			-0.043	0.537	-0.093	0.541
V2_GOWN			0.019**	0.008	0.020**	0.009
V3_FOWN			-0.020*	0.011	-0.019*	0.012
V4_MOWN			0.004	0.008	0.003	0.009
M1_DUALITY					0.031	0.216
M2_IND					-0.082	0.124
M3_BSIZE					-0.017	0.058
R^2	0.324		0.348		0.350	
Adjusted R^2	0.312		0.328		0.325	
ΔR^2	0.324		0.025		0.002	
F-Statistics	27.190***		2.954**		0.362	
Df	398, 7		393, 5		390, 3	

Note:
The symbols *, **, and *** represent statistical significance at the 10%, 5% and 1% levels, respectively.
[a] denotes the proportion is less than 0.0001, the 0.000 is reported in the table.

Table 3b: Results of hierarchical regression analyses examining the impact of dividends, ownership structure and board governance on firm value for the year 2005

Independent Variables	DV: Q-Ratio					
	Model 1		**Model 2**		**Model 3**	
	B	S.E.	*B*	S.E.	*B*	S.E.
(Constant)	-30.963***	3.383	-26.440***	3.768	-26.663***	3.868
LOGMCAP	6.526***	0.634	5.775***	0.692	5.737***	0.710
AGE	0.005	0.033	-0.005	0.033	-0.013	0.035
LEVERAGE	-2.699	1.913	-3.712**	1.872	-3.701**	1.887
EPS	-0.983	1.570	-0.304	1.535	-0.333	1.540
TS	-1.036	1.061	-1.016	1.034	-1.114	1.044
IP	-1.039	0.974	-1.061	0.947	-1.077	0.949
CP	0.820	1.201	-0.083	1.187	-0.171	1.192
DYLD			4.141***	0.801	4.137***	0.802
V1_CR5			-0.266	2.129	-0.326	2.135
V2_GOWN			-0.014	0.037	-0.013	0.037
V3_FOWN			-0.047	0.039	-0.046	0.039
V4_MOWN			-0.015	0.033	-0.015	0.033
M1_DUALITY					-0.070	0.832
M2_IND					0.613	0.461
M3_BSIZE					-0.155	0.217
R^2	0.229		0.283		0.286	
Adjusted R^2	0.215		0.261		0.259	
ΔR^2	0.229		0.054		0.003	
F-Statistics	16.866***		5.936***		0.592	
Df	398, 7		393, 5		390, 3	

Note:
The symbols *, **, and *** represent statistical significance at the 10%, 5% and 1% levels, respectively.
[a] denotes the proportion is less than 0.0001, the 0.000 is reported in the table.

Table 4a: Results of moderated regression analyses between ownership structure and dividends with board governance on firm value for the year 2002 (DV = Q-Ratio)

Dependent Variable: Q-Ratio	Model 1 (Direct Effect)	Model 2 (Interaction Effect)		
		A	*B*	*C*
(Constant)	-10.573***	-9.917***	-10.947***	-11.640***
Control variables:				
.LOGMCAP	2.266***	2.156***	2.275***	2.318***
AGE	0.008	0.011	0.008	0.007
LEVERAGE	0.054	-0.038	0.046	0.001
EPS	-0.408	-0.390	-0.428	-0.477
TS		0.106	0.147	0.102
0.041				
IP		0.045	0.047	0.036
0.032				
CP		0.446	0.499*	0.472
0.479				
Dividends:				
DYLD	1.348***	0.946*	0.206	-2.139
Ownership structure:		-0.520	0.170	1.437
V1_CR5	-0.093	0.028***	0.037	0.020
V2_GOWN	0.020**	-0.018	0.006	0.063
V3_FOWN	-0.019*	0.003	0.008	-0.013
V4_MOWN	0.003			
Board governance:				
M1_DUALITY	0.031	-0.459	0.032	0.022
M2_IND	-0.082	-0.068	0.032	-0.086
M3_BSIZE	-0.017	-0.011	-0.018	0.077
Interaction with Duality (M1):				
DYLD X M1		6.545***		
V1 X M1		0.837		
V2 X M1		-0.067**		
V3 X M1		0.015		
V4 X M1		0.001		
Interaction with Board Independence (M2):				
DYLD X M2			0.386	
V1 X M2			-0.089	
V2 X M2			-0.005	
V3 X M2			-0.008	
V4 X M2			-0.002	
Interaction with Board Size (M3):				
DYLD X M3				0.353*
V1 X M3				-0.171
V2 X M3				0.000
V3 X M3				-0.009*
V4 X M3				0.002

(Cont.) Table 4a: Results of moderated regression analyses between ownership structure and dividends with board governance on firm value for the year 2002 (DV = Q-Ratio)

R^2	0.350	0.382	0.353	0.360
Adjusted R^2	0.325	0.350	0.319	0.327
ΔR^2	0.350***	0.032***	0.003	0.011
F-Statistics	13.989***	4.040***	0.325	1.265
Df	390, 15	385, 5	385, 5	385, 5

Note:
The symbols *, **, and *** represent statistical significance at the 10%, 5% and 1% levels, respectively.
[a] denotes the proportion is less than 0.0001, the 0.000 is reported in the table.
Models 2A to 2C are those that incorporate interaction effects.

Table 4b: Results of moderated regression analyses between ownership structure and dividends with board governance on firm value for the year 2005 (DV = Q-Ratio)

Dependent Variable: Q-Ratio	Model 1 (Direct Effect)	Model 2 (Interaction Effect)		
		A	*B*	*C*
(Constant)	-26.663***	-26.679***	-27.751***	-24.846***
Control variables:				
LOGMCAP	5.737***	5.956***	6.283***	6.048***
AGE	-0.013	-0.010	-0.017	-0.005
LEVERAGE	-3.701**	-3.576*	-2.322	-3.209*
EPS	-0.333	-0.335	-0.671	-0.639
TS	-1.114	-1.312	-1.077	-1.094
IP	-1.077	-1.099	-1.355	-1.104
CP	-0.171	-0.394	-0.605	-0.242
Dividends:				
DYLD	4.137***	4.265***	-18.270***	-19.332***
Ownership structure:				
V1_CR5	-0.326	-1.825	-2.656	-5.424
V2_GOWN	-0.013	-0.030	0.123	0.052
V3_FOWN	-0.046	-0.064	-0.081	-0.006
V4_MOWN	-0.015	-0.014	0.059	0.031
Board governance:				
M1_DUALITY	-0.070	-4.123	-0.153	0.017
M2_IND	0.613	0.583	0.215	0.617
M3_BSIZE	-0.155	-0.163	-0.187	-0.631
Interaction with Duality (M1):				
DYLD X M1		-4.655		
V1 X M1		6.198		
V2 X M1		0.147		
V3 X M1		0.077		
V4 X M1		0.004		

(Cont.) Table 4b: Results of moderated regression analyses between ownership structure and dividends with board governance on firm value for the year 2005 (DV = Q-Ratio)

Interaction with Board Independence (M2):				
DYLD X M2			6.213***	
V1 X M2			0.728	
V2 X M2			-0.049	
V3 X M2			0.011	
V4 X M2			-0.024	
Interaction with Board Size (M3):				
DYLD X M3				2.817***
V1 X M3				0.665
V2 X M3				-0.008
V3 X M3				-0.006
V4 X M3				-0.005
R^2	0.286	0.295	0.326	0.318
Adjusted R^2	0.259	0.258	0.291	0.283
ΔR^2	0.286	0.009	0.040	0.032
F-Statistics	10.424***	0.955	4.600***	3.585***
Df	390, 15	385, 5	385, 5	385, 5

Note:
The symbols *, **, and *** represent statistical significance at the 10%, 5% and 1% levels, respectively.
[a] denotes the proportion is less than 0.0001, the 0.000 is reported in the table.
Models 2A to 2C are those that incorporate interaction effects.

Notes

1 Enron and WorldCom in U.S. have collapsed under massive restatement of their financial statements. New York Times, "After 10 years, corporate oversight is still dismal," (January 26, 2003).

2 A notable corporate governance surveys, see Shleifer and Vishny (1997), Denis and McConnell (2003), Farinha (2003a), and Mintz (2005). Also, see Claessens and Fan (2002) for a survey on corporate governance in Asia.

3 The legislative response in the U.S. has been to pass the Sarbanes-Oxley Act (SOX) in July 2002 to improve the quality, integrity and accuracy of the financial statement of the corporation (Jain and Rezaee 2005).

4 McKinsey & Company (2002) suggest that "*good"* governance include the following characteristics: (i) a majority of outside directors on the board; (ii) truly independent outside directors with no ties with management; (iii) significant shareholdings by directors; (iv) material proportion of directors' pay being stock-related; (v) formal directors' evaluation in place; and (vi) high responsiveness to investors' requests on governance issues.

5 Expropriation refers to behaviors through which controlling shareholders/ management transfer assets and profits from corporation to themselves at the expense of minority shareholders. Another term used for expropriation is tunneling. Johnson *et al.* (2000) and Mitton (2002) provide examples of tunneling in developed countries and in Asian emerging economies.

6 This study limits tests to dividends since dividend are currently the dominant method of distributing cash to investors in Malaysia, and also due to small sample data of share repurchases because still not many firms in Malaysia exercise this method of cash distributions.

7 See Shleifer & Vishny 1997; Claessens *et al.* 2000b; Claessens *et al.* 2000d; Claessens & Fan 2002; Dhnadirek & Tang 2003; Denis & McConnell 2003; Lins 2003; Earle *et al.* 2005; Lskavyan & Spatareanu 2006; Selarka 2005; among others.

8 Investors Digest, February 2002.

9 Business Times, 11th Jan 2003.

10 Jayasankaran, S., "Turning back the clock," *Far Eastern Economic Review,* 24th April 2003.

11 Government to issue RM 5.5 billion bonds to assume debt of LRT firm. http://www.thestar.com.my, November 30th, 2001.

12 Malaysian Business, 1st July, 2003.

13 "The Potential of Valuecap" Business Week, The Star, 1st Feb 2003.

14 The Main Board companies have a minimum paid-up capital of Ringgit Malaysia (RM) 60 millions while the Second Board companies are those that have a minimum paid-up capital of RM40 millions. The sample does not consider the Second Board firms listed on Bursa Malaysia due to their different paid-up capital and have different listing requirements.

15 The government ownership is comprised of the companies whose shares held by federal/state government investment agencies, federal/state government trust agencies and federal pension funds; that include Khazanah Nasional Berhad (the investment arm of the Ministry of Finance), Permodalan Nasional Berhad (manages various national unit trusts), Employees Provident Funds (EPF), pilgrimage board funds (Lembaga Tabung Haji), the military pension funds (Lembaga Tabung Angkatan Tentera) etc.

16 See, for instance, Holderness *et al.* 1999; Booth *et al.* 2002; Hu and Kumar 2004; Belden *et al.* 2005; Renneboog and Szilagyi 2006; Krivogorsky 2006; Gani and Jermias 2006.

17 See, McConnell and Servaes (1990); Morck *et al.* (1988); Short and Keasey (1999).

18 Other two alternative tests also can be used to detect multicollinearity. First, variance inflation factor (VIFs) scores reveal no problems with multicollinearity if all scores are less than 10 (Chatterjee & Price 1991). Second, by calculating the Condition Index (Besley *et al.* 1980). If the Condition Index is less than 30, it indicates weak relations among the independent variables (Besley *et al.* 1980). Therefore, it appears that multicollinearity is not a problem. Results from the two tests are not reported in here.

19 According to Gujarati (2003), multicollinearity could be a problem when the correlation exceeded 0.80. However, this study considers that multicollinearity problem exists when the correlation exceeded 0.5.

20 Normality tests based on skewness, kurtosis and Kolmogorov-Smirnov test (K-S test) are also conducted. However, the results are not reported here. The data is said to be normal if the standard skewness is within ± 1.96 and standard kurtosis of ± 3.0. Transformation technique for certain variables by using logarithm is also undertaken.

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