

PhD THESIS

**CORPORATE GOVERNANCE AND THE RELATIONSHIP BETWEEN DEFAULT RISK
AND THE EARNINGS RESPONSE COEFFICIENT**

by

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**This thesis is dedicated to my children,
Sofea Maisarah, Adam Zachry and Aidid Zaquan**

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Declaration on Sources

I hereby confirm that the work presented in this thesis is my own and original that has been carried out through the School of Accounting and Commercial Law, Victoria University of Wellington, during my candidature as a PhD student. I declare that the material of this thesis has not been submitted either in whole or in part for the award of any other degree or diploma at this or any other university. To the best of my knowledge and belief, it contains no material previously published or written by other persons or institutions except where due reference has been made.

(Nor Balkish Zakaria)

Abstract

This study examines the effect of corporate governance on the relationship between default risk and the earnings response coefficient (ERC). Using a sample of 2,004 firm-years comprising 334 firms listed on the Bursa Malaysia over a six year period from 2002 to 2007, this study tests whether corporate governance mitigates the effect of default risk on ERC while controlling for the established determinants of ERC — beta, growth, earnings persistence and size.

Using reverse regression, the study confirms that beta is negatively related to ERC and that growth, earnings persistence and size are positively related to ERC. Default risk is found to be negatively related to ERC thus confirming that beta is only a partial measure of risk relevant to ERC. Corporate governance — as indicated by audit quality, audit committee expertise and independence, and board independence and board shareholding — mitigates the negative effect of default risk on ERC.

The results of the study hold both for the pooled sample of 2,004 firm-year observations and on a year by year basis for the 334 firms in the sample. The results are also found to be robust to various sensitivity tests including to alternative measures of the variables. The study thus provides systematic and comprehensive additional evidence on the determinants of ERC. Of itself this is an important contribution to the literature but especially so given that the evidence comes from Malaysia — an emerging economy — whereas the existing empirical literature relates mainly to developed countries.

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CHAPTER ONE: INTRODUCTION

1.1 INTRODUCTION

The pioneering work of Ball and Brown (1968) has led the intellectual discourse on stock price reactions to unexpected changes in accounting earnings. Following their lead, Beaver, Clarke and Wright (1979), Collins and Kothari (1989), Cho and Jung (1991), Dhaliwal, Lee and Fargher (1991), Dhaliwal and Reynolds (1994), Billings (1999), Kim (2005), Shangguan (2007), and Cheng and Nasir (2010) have made significant contributions to the body of knowledge concerning this phenomenon.

Under the semi-strong form of the Efficient Market Hypothesis (EMH), security prices fully reflect all publicly available information. Therefore, following an earnings announcement made by a firm, the market is expected to react to the announcement, although only to the extent of the unexpected component of the news. This occurs because the part of the announcement that is expected by the market would have already been impounded in market prices. In other words, an announcement that contains only information already known to the market is considered to have no information content. Therefore, no reaction to the announcement is expected. An unexpected change in earnings, therefore, is expected to evoke a market reaction. The extent of the change in security price caused by such unexpected change in earnings is indicated by the earning response coefficient (ERC).

The observed market reaction to unexpected change in earnings is not constant across securities, rather it varies in relation to firm and market attributes. Cross sectional variation in ERC has been the subject of extensive and rigorous research at least in developed economies. Among the factors identified as being significant in determining ERC, the most commonly cited are: systematic risk (Lipe, 1990), growth (Collins and Kothari, 1989; Billings, 1999), earnings persistence (Kormendi and Lipe, 1987; Collins and Kothari, 1989) and size (Collins, Kothari and Rayburn, 1987). Researchers confront a number of econometric and methodological problems when measuring ERC. The empirical form of the earnings-return relationship is extremely restrictive in that the ERC is measured on the basis of the strong assumptions of cross sectional constancy and temporal stability of the coefficients (Cho and Jung, 1991).

ERC is the effect of a dollar of unexpected earnings on stock returns and, in principle, can be measured as the slope coefficient in the regression of abnormal stock returns on unexpected earnings (e.g. Cho and Jung, 1991). The ERC is therefore the estimated relationship between equity returns and the unexpected portion of a firm's earnings. Shangguan (2007) defines ERC as the measure of the extent to which stock prices react to earnings surprises.

The construct validity of the theoretical determinants of ERC and the relationship among empirical proxies are not fully known. It remains important therefore to keep testing and analysing the determinants of ERC under different settings and in different environments. Emerging markets seem to experience earnings fluctuations and market volatility as often and severely, if not more, than developed countries. However, there is a relative paucity of

research on ERC determinants in emerging markets. The drivers of ERC and their relative influence in such markets are little known and the literature on the subject is not well developed. It is the aim of this study to fill the gap in part, at least as it pertains to Malaysia.

Of the four ERC determinants listed above, the effect of systematic risk (beta) has been found to be negative and significant (Collins and Kothari, 1989). The risk measured by beta, reflects investors' estimates of the stock's future return volatility in relation to that of the market. Equity beta alone, however, does not appear to adequately capture all the dimensions of risk associated with equity (Fama and French, 1992). Dhaliwal and Reynolds (1994) point out that default risk could provide the dimension not captured by beta. They suggest that the default risk of debt reduces ERC, on the grounds that accounting earnings provide information about the value of the entire firm, not just the value of equity. Moreover, default risk is the mechanism that determines the transfer of wealth from unexpected earnings between shareholders and bondholders.

Kai (2002) provides evidence from the Japanese market that default risk has a negative effect on ERC. Based on Chinese commercial banks, Cheng and Nasir (2010) provide evidence that the credit risk factor of financial institutions contributes significantly to the ERC. Their study provides some comparative empirical evidence with regard to the concept, measurement and usefulness of default risk in explaining ERC. Their results suggest that risk is an important factor that influences the investors' revaluation in emerging economies. Thus, it is possible that default risk could have the same negative effect on ERC in a less developed market.

Sound corporate governance may ensure that firms meet their obligations, especially regarding debt repayment. Proper corporate governance may therefore mitigate the effect of default risk across firms. Bhojraj and Sengupta (2003) suggest that corporate governance can influence the extent of default risk by controlling agency risk and information risk. Ashbaugh, Collins and LaFond (2006) document that corporate governance increases the credit rating which is a possible proxy for default risk.

The current study aims to investigate the role of default risk in explaining ERC and the (possible) mitigating effect of corporate governance mechanisms on default risk. For example, firms with superior corporate governance are expected to better manage their debt obligations in order to avoid adverse consequences affecting not only the value of debt but also that of equity. In contrast, firms with poor corporate governance are likely to engage in more aggressive behaviour often disregarding the interests of both the owners and the debt holders. Independent directors, a corporate governance tool, can act as a control mechanism to check excessive risk taking. For example, if a firm attempts additional borrowings by pledging the same assets that secure the current debt or a significant part of it, strong independent directors (or a higher proportion of them on the board) may resist or oppose such a move and thereby protect existing debt holders' interests. A board without independent directors or with a smaller proportion of them might provide little resistance to such a move.

Thus, the current study not only focuses on how default risk explains ERC but also examines how the relationship between default risk and ERC is impacted by different corporate governance mechanisms in place in Malaysian firms.

1.2 MOTIVATION AND SIGNIFICANCE OF THE RESEARCH

Unlike Anglo-Saxon countries, where equity markets tend to be the primary source of financing, the use of the equity market by Malaysian businesses has always been low. According to Bank Negara Malaysia (BNM) (2010), the volume of banking sector loans to Malaysian firms was 43% of total financing in 1997. By 2009, this had dropped to 31% but nevertheless, banks remained a dominant source of financing for business. The equity market's share, on the other hand, over the same period, was only 10% in 1997 and 11% in 2009.

The proportion of market capitalisation of listed firms in Malaysia to gross domestic product (GDP) was 80.64% in 2009 while in neighboring Singapore it was 101.18% (World Bank). The total volume of credit provided to the private sector as a percentage of GDP in Malaysia was 100.57 in 2008 (World Bank). Malaysian firms rely heavily on banks for both short and long-term capital requirements but in Singapore, the equity market plays a more significant role in providing business finance. The high degree of reliance on debt financing, while favoured on the ground of faster processing and easier access for smaller firms, creates a contractual obligation on the part of the borrowing firm to service the debt in the form of regular interest and principal payments. This in turn introduces default risk.

It is unusual to make seasoned equity offerings in Malaysia. Therefore, even mature listed firms tend to rely primarily on debt from commercial banks to finance their growth needs

rather than on the equity market. Besides easy and quicker access to bank lending, a stable and attractive base lending rate (BLR) is also noted to be an encouraging factor for private firms to prefer bank loans to issuing public equity. For example, the BLR between 2000 to 2010 was stable in the range of 5.5% to 6.75% per annum¹. Firms also raise debt through issuing bonds. Bond issuance requires a rating judgment conducted by Rating Agency of Malaysia (RAM). Debt ratings are essentially determined by the probability that a firm will be able to meet its debt obligations. However, the volume of debt raised from commercial banks far exceeds that raised by bond issues.

As debt is of high significance to the Malaysian market, default risk is closely monitored by market participants. Since risk plays an important role in debt contracts, firms with excessive debt face constraints in the form of debt covenants. At loan inception, the lender estimates the expected credit risk that the borrower presents over the life of the loan. In the absence of provisions to control increases in credit risk, the lender prices the expected outcome into the interest rate set for the loan. Both lender and borrower are impacted by high risk of the borrower. The lender suffers increased risk over the life of the loan and the borrower from high interest rates (Demerjian and Ross, 2007, p. 4). The debt contracting literature suggests that contracts between debt holders and owner-managers contain covenants that restrict management behaviour because owner-managers have incentives to take actions that may negatively affect the debt holders' wealth position.

¹ Refer to historical BLR in Malaysia from <http://www.blr.my/blr-history.htm>.

The debt-equity ratio is a frequently used variable in capital market research. Watts and Zimmerman (1986, p. 216) suggest that researchers using the debt-equity ratio in investigations of discretionary accounting choices are actually testing the debt-equity hypothesis, which they state as follows: 'Ceteris paribus, the larger a firm's debt-equity ratio the more likely the firm's manager is to select accounting procedures that shift reported earnings from future periods to the current period.' This hypothesis is derived from the covenant-based hypothesis which suggests that the closer a firm is to a particular accounting based covenant restriction, the more likely the manager is to choose accounting methods that increase current earnings.

The Asian financial crisis of 1997 adversely affected the performance of many East Asian economies, including Malaysia. It is also believed, however, that the effects of the recession in the East Asian region were exacerbated by a lack of sound corporate governance (Mohammed, Mahenthiran, Rahman and Hamid, 2006). Worldwide this was also apparent in the later collapse of such corporate giants as Enron, Xerox, WorldCom, HIH and Parmalat. The US accounting scandals added to appreciation of the wide ranging effects poor corporate governance can have on a country's economy, through its effect on capital markets.

Sound corporate governance monitors managerial practice in dealing with debt financing. In its absence the cost of debt goes up and firms with high leverage become prone to earnings management, which in turn adversely affects public confidence in the reliability of corporate reporting. In fact many of the bank failures during the Asian financial crisis were due to high leverage in the corporate sector, excessive reliance of many firms on foreign currency debt,

and a lack of accounting transparency (Rahman, 1998). Other contemporary papers to examine the association between governance and the cost of debt include Bhojraj and Sengupta (2003); Cremers, Nair and Wei (2004); Anderson, Mansi and Reeb (2004); Klock, Mansi and Maxwell (2005); Sarkar and Sarkar (2008); and Larry (2010).

The Malaysian corporate landscape has also been blemished by cases of poor corporate governance such as Perwaja Steel and Malaysia Airlines System in 1996, and Renong in 1998. Poor corporate governance, weak investor relations, a low level of transparency in disclosing information by companies listed on the Bursa Malaysia², and the ineffectiveness of regulatory agencies in enforcing legislation, punishing offenders, and protecting minority shareholders, have all been identified as contributing to the collapse of Malaysian companies (Mohamad, 2002, p. 2). These problems have drawn attention to the need to maintain high corporate governance standards, increase transparency, improve investor relations, and for market regulatory agencies such as the Securities Commission (SC) and Bursa Malaysia to press for more effective enforcement of existing legislation.

Graham, Litan and Sukhtankar (2002) suggest that the cost of poor corporate governance is borne more heavily by minority shareholders, especially in emerging markets like Malaysia where many public firms are majority family owned. According to Frost, Gordon and Hayes (2006), improvements in corporate governance practices that contribute to better disclosure in business reporting can facilitate greater market liquidity and capital formation in emerging

² Formerly known as the Kuala Lumpur Stock Exchange (KLSE). KLSE became a demutualised exchange and was renamed Bursa Malaysia in April 2004.

markets. Corporate governance is thus of critical importance to investors, insurers, regulators, creditors, customers, employees and other stakeholders.

Research on determinants of ERC and corporate governance has been dominated by studies on developed countries. There is an increasing awareness that theories corroborated by research on developed countries such as the USA and the UK may have limited applicability to emerging markets. Emerging markets have different characteristics such as different political, economic and institutional conditions, which may limit the application of theoretical models used to explain behaviour in developed markets.

Malaysia provides an excellent setting for the study of the impact of corporate governance. Malaysia differs from developed countries in respect of various institutional characteristics such as concentrated ownership (Shleifer and Vishny 1997; Claessens, Djankov and Lang, 2000), stronger political connections (Johnson and Mitton 2003; Gul 2006), and significant government and family ownership of firms (Lemmon and Lins 2003; and Dogan and Smyth 2002). Moreover, by the standards of most emerging countries, Malaysia has a relatively good database of historical economic information, and the availability of a set of sufficiently long time series data that allows for a meaningful time series investigation.

In more general terms, Malaysia offers an interesting and important case study of relationship-based capitalism that is under pressure to evolve as it attempts to liberalise its capital market for further economic development and growth. Malaysia thus provides a

setting for robust examination of the role of corporate governance in shaping the relationships between default risk and ERC.

1.3 RESEARCH PURPOSE, OBJECTIVES AND QUESTIONS

The study follows the framework adopted in Kim (2005) and Shangguan (2007) to examine the determinants of ERC in emerging markets. The study also extends the work of Dhaliwal and Reynolds (1994) by examining the impact of default risk on ERC. Specifically using data on Malaysian listed firms, the study aims to:

1. Examine the established determinants of ERC, which are beta, growth, earnings persistence and size.
2. Examine the effect of default risk on ERC while controlling for the above determinants of ERC.
3. Examine the mitigating effect, if any, of corporate governance mechanisms on default risk. In particular audit quality, audit committee expertise, audit committee independence, board independence, and board shareholding on the relationship between ERC and default risk.

1.4 THESIS ORGANISATION

The remainder of the thesis is organised as follows. The following chapter (Chapter Two) describes the institutional setting in Malaysia and the chapter begins by explaining the

Malaysian business environment. This chapter highlights the current position of the Malaysian capital market and government domination of the bond market. This chapter explains how a stable BLR applied by commercial banks attracts private firms to engage in long term borrowing. This chapter also discusses various initiatives undertaken in Malaysia to improve corporate governance, especially in the aftermath of the economic crisis of 1997-1998.

Chapter Three provides a review of prior studies from an equity valuation model perspective that serves as the basis for the empirical tests. This chapter also discusses the determinants of ERC and shows how default risk emerges as an additional risk factor in explaining ERC. Agency theory is used as the theoretical framework to examine the possible effects of corporate governance on the relationship between default risk and ERC.

Chapter Four develops the research hypotheses. Equity valuation models, agency theory, and evidence from prior studies provide the basis for consideration of the relationship among ERC, default risk and corporate governance. Six hypotheses are developed, predicting the relationships among ERC, default risk and corporate governance.

Chapter Five describes the research methods employed in the study. In particular, the chapter describes the specification of the sample, data collection, and method of analysis.

Chapter Six reports and discusses the findings of the study. Generally, the findings show that (i) beta, growth, earnings persistence and size are significant factors in explaining ERC (ii) default risk is negatively associated with ERC, and (iii) corporate governance mechanisms mitigate the effect of default risk on ERC.

Chapter Seven concludes the study by summarising the findings and discussing the contribution of the study to the literature. It also identifies limitations of the study and provides suggestions for future research.

CHAPTER TWO: INSTITUTIONAL BACKGROUND

2 INTRODUCTION

This chapter presents the institutional framework of the Malaysian capital market. The chapter emphasises the relative importance of debt in the financing of Malaysian businesses. Section 2.1 outlines the business environment in Malaysia at the beginning of the post-independence era. Section 2.2 discusses the development of the Malaysian capital market together with relevant economic factors. Section 2.3 considers the Malaysian reporting environment focusing on the statutory requirements and other measures operating to ensure high quality reporting and the problems associated with them. Section 2.4 discusses the corporate governance structure of Malaysian firms as well as the initiatives undertaken by relevant organisations to improve corporate governance. Finally, Section 2.5 provides a summary of the chapter.

2.1 BUSINESS ENVIRONMENT IN MALAYSIA

The Malaysian business environment originally followed the British system of trade and commerce. Historically known as Malaya, the country gained its independence from Great Britain in 1957. As a legacy of British colonial rule, the Westminster form of government, inherited at independence, remains today with only minor adaptations (Goh, 2008). Although Malaysia is a federation of 13 states and 3 territories, there is a parliamentary form of government led by a prime minister under a constitutional monarchy.

The country's economic system has a mercantile foundation guarded by an interest-based commercial banking system and an emerging equity market. Compared to the UK equity market, which is one of the oldest and largest in the world, the Malaysian equity market is one of the newer markets in South-East Asia. Despite experiencing exponential growth in the Nineties, the Malaysian market is still considerably smaller than the London Stock Exchange or the markets in New York, Tokyo or Hong Kong.

The Malaysian economy was originally built upon the export of tin and rubber products. However, over the past three decades it has gone through the transition from an agricultural to an industrial economy. According to Aziz (1999) the nation boasted the most efficient plantation economy in the world during the time of the Second World War; so efficient, in fact, that Malayan foreign exchange earnings helped Britain to repay much of its war debt to the United States.

Soon after independence, Malaysia embarked on a programme of rapid industrialisation. As part of this endeavor, it formulated its first Industrialisation Strategy in the 1970s. The Industrialisation Strategy focused on the diversification and industrialisation of the country's economy (Siddiquee, 2006). Initially this strategy was implemented via Import Substitution Industrialisation (ISI) in the 1960s and 1970s. Subsequently, however, Export Oriented Industrialisation (EOI) (in the 1980s and 1990s) became the dominant method. Both forms of industrialisation continue to be part of Malaysian government economic policy. As part of this strategy, companies with strategies compatible with the government's industrialisation

policy are granted several forms of ISI/EOI incentives in the form of subsidies or cash (Fraser, Zhang, and Derashid, 2006).

Social considerations have played an important role in setting the government policy agenda in Malaysia. The Malaysian population comprises two major groups known as Bumiputera³ and non Bumiputera. The indigenous people and the Malays together are called the Bumiputera while all the rest are called the non Bumiputera. The three main ethnic groups - Malay, Chinese and Indians, inherited different economic backgrounds that brought along noticeable income and wealth disparities. Therefore, according to Jomo and Hui (2003), a significant component of post-independence economic policy was to use fiscal policy and other development strategies to address the economic imbalances across the ethnic groups of the population.

The relationships between the ethnic groups have not always been peaceful. Economic issues have often led to social and political tensions between groups. In 1969, a riot broke out between the Chinese and the Malays on the issue of election. The riots proved to be damaging for nation building (Chakravarty and Roslan, 2005). Economic factors were blamed as one of the driving forces causing ethnic tension. The government was widely criticised for its inept handling of the growth and division of economic gains that had in fact widened the economic gap between ethnic groups. Initially the uneven distribution of wealth in Malaysia was largely a legacy of British colonial policy (Bryan, 2005). According to Haque (2003), ethnic groups had been divided into specific employment areas to facilitate

³ Bumiputera means in Malay "sons of soil". The Malays are the main Bumiputera in Peninsular Malaysia. In Sabah, the main Bumiputera are Kadazan, Bajau and Murut, while in Sarawak, they are Iban, Malay, Bidayuh and Melanau. Both Sabah and Sarawak are part of Malaysia.

their administration. Malays were encouraged to fit the paddy field; Indians, the rubber estates; and Chinese, the business arena. Since Malay society was feudal, with all the inequities that such a system brings, the British believed the Malay were particularly ill-suited for modern economic activity. Traditional agriculture, where the majority of Malay peasants worked, was considered irrelevant to the promotion of colonial rule and left largely unattended by the British. They chose to foster a modern urban economy consisting of trade and commerce and considered the immigrant population⁴ to be better suited to those activities (Williams, 2007).

As an independent country, the nation obviously aspired to uplift the economically backward part of the population to a level that allows every ethnic group to contribute to nation building. Successive Malaysian governments have tried to use different economic policies to achieve this goal. As part of this endeavor, the Malaysian government imposed policy instruments called the New Economic Policy (NEP) from 1970 to 1990 and the National Development Policy (NDP) from 1991 to 2000. While there were differences in priorities and strategy between the two, the NDP was still what Torii (1997) called ‘ethnicity-oriented policy’. As a result of this policy, government involvement in the corporate sector increased, effectively intertwining business and politics in Malaysia (Tam & Tan, 2007). The policy to support companies with certain group ownership resulted in another group of companies being “picked” by the government to receive NEP/NDP motivated patronage.

⁴ British colonial intervention in the Malay states in the 1860s expanded the number of Chinese and Indian immigrants for economic purposes (Stockwell, 1982).

Moreover, the introduction of the NEP/NDP resulted in the politicisation of the civil service. The elite Bumiputera of the bureaucracy increasingly took on senior business management roles and functions in state owned enterprises (SOEs) (Chatterjee & Nankervis, 2007). Aziz (1999, p. 19) states '[T]o make matters worse, each of the state governments competed to set up its own state economic development corporation with literally hundreds of subsidiaries that were accountable to no one but themselves. Although some attempts were made to monitor and coordinate their activities, they were feeble at best, and unethical business practices continued unhindered'.

The industrialisation strategy pursued by the government during the Eighties and Nineties contributed, among other things, to the development of a strong corporate sector. National income and consumption grew at a healthy rate alongside savings and investments. The cumulative effect was that business flourished at a faster pace, grew in size and diversity, leading to a higher demand for capital to finance expansion. Businesses found themselves in need of external capital in the face of investment needs far exceeding what internal sources, i.e., retained earnings and owner-supplied equity, could cope with. A natural result was a rapid growth of the capital market.

2.2 MALAYSIA'S CAPITAL MARKET

The Stock Exchange of Malaysia was officially formed in 1964. The common stock exchange continued to function under the name of Stock Exchange of Malaysia and Singapore (SEMS) even after the secession of Singapore from Malaysia in 1965. In 1973, with the termination of

currency interchangeability between Malaysia and Singapore, the SEMS was separated into the Kuala Lumpur Stock Exchange Berhad (KLSEB) and the Stock Exchange of Singapore (SES). The KLSEB was renamed the Kuala Lumpur Stock Exchange (KLSE) in 1994. By the mid-1990s, as the fourth largest bourse in Asia and the fifteenth largest in the world, the KLSE market capitalisation relative to GDP was the highest among Southeast Asian countries (Callen and Reynolds, 1997, as cited in Gomez, 2009, p. 359).

KLSE became a demutualised exchange and was renamed Bursa Malaysia in 2004 with total market capitalisation of RM688 billion. As of 31 December 2010, Bursa Malaysia had 957 listed firms with a market capitalisation of RM991 billion⁵, an increase of 27% from 2009. The main index for Bursa Malaysia is Kuala Lumpur Composite Index (KLCI). A new index series, a joint index by FTSE and Bursa Malaysia was introduced in June 2006.

Prior to 2009, Bursa Malaysia consisted of the Main Board, Second Board and MESDAQ. Larger firms were listed on the Main Board while medium sized ones were listed on the Second Board. High technology firms were governed by the Malaysia Exchange of Securities Dealing and Automated Quotations Berhad (MESDAQ) market. While the Main Board and Second Board are regulated by the Securities Commission (SC), MESDAQ is a self regulated organisation, responsible for the regulation of all its market participants. However the SC oversees MESDAQ's regulatory role to ensure fair and orderly operations and that they are in compliance with the Malaysian Security Industry Act 1983. In August, 2009 the Main and Second Boards were merged and named the Main Market, while the MESDAQ market was

⁵ The exchange rate of Ringgit Malaysia per 1 USD was 3.04. (in 2010); 3.52 (in 2009); 3.33 (in 2008); and 3.46 (in 2007).

renamed as the Access Certainty and Efficiency (ACE) market. Malaysia has a satisfactory record of growth. Table 2.1 indicates that Malaysian economic growth (as measured by real Gross Domestic Product) has been relatively stable since recovering from the East Asian financial crisis of 1997. From 1999 to 2010 growth was positive except in 2009 when growth deteriorated due to the effects of the global financial crisis and weakness in commodity prices.

Table 2.1: Malaysian Economy Growth by GDP

Year	GDP-real growth rate (%)*
1999	5
2000	8.6
2001	0.3
2002	4.2
2003	5.2
2004	7.1
2005	5.2
2006	5.9
2007	6.3
2008	4.6
2009	-1.7
2010	7.2

Source: CIA World Factbook, 2011.

*GDP-real growth rate: GDP growth on an annual basis adjusted for inflation

Growth, structural change and the pressure of competition had made it imperative for Malaysia to further accelerate the development of the capital market. The actions taken to achieve this have made it more highly developed than many other emerging markets. The government's Capital Market Masterplan for 2000-2010 was intended to tackle various weaknesses of the capital market as a whole and focused more on the bond market (Shimomoto, 1999). Bursa Malaysia has taken various measures, including the introduction of computerised trading, a central depository, and efficient clearing and settlement systems, to strengthen market infrastructure. In addition, the regulatory framework has been reviewed to promote IPOs and equity investments by domestic and foreign investors.

The Malaysian bond market began in the post-independence period. The trading of stock and shares through the Bursa Malaysia has far out-spaced the trading of bonds as the secondary market for bonds is rather inactive. The Malaysian bond market is the second largest among those in the East Asian economies next to the Republic of Korea's, but it is small in comparison with those in developed countries. The Malaysian Bond Market comprises securities issued by the government of Malaysia⁶; quasi-government bonds⁷ issued by

⁶ The securities issued by the government of Malaysia include Malaysian Treasury Bills and Bank Negara Bills which are short-term government securities. Longer-term securities include Government Investment Issues, Malaysia Saving Bonds and the more popular Malaysia Government Securities (MGS).

⁷ There are three types of quasi-government bonds offered to the public which are Khazanah, Danaharta and Danamodal. Khazanah bonds are issued by Ministry of Finance, acting as an investment arm for the government. Danaharta bonds issue government guaranteed zero coupon bonds to purchase banks' non-performing loans (NPL). Finally, Danamodal bonds finance the banking institution re-capitalisation program.

government affiliated agencies; Cagamas bonds ⁸ issued by the national mortgage corporation; and bonds issued by corporations, known as private debt securities (PDS).

The PDS market was created to meet the financing needs of an expanding Malaysian economy, particularly to meet the funding requirements of privatised infrastructure projects. It aimed to provide an alternative to bank borrowings and to complement the more mature and sophisticated market of Malaysian Government Securities (MGS) and equity. PDS are essentially debt instruments, issued by corporate bodies and rated by rating agencies such as Rating Agency of Malaysia (RAM). Prior to the mid-Eighties, the PDS market was almost non-existent. According to Ibrahim and Wong (2005), until the end of 1986, the PDS market was virtually non-existent in Malaysia. Private corporations raised funds through the conventional practices of bank borrowings and issuance of company shares. The issuance of bonds to raise funds was untested and therefore many corporations were cautious and tended not to consider this option.

MGS is a debt instrument issued by the BNM on behalf of the Government of Malaysia. These bonds are guaranteed by the Malaysian government and are therefore considered to be risk-free. In Malaysia, the government relies more heavily on the bond market than does the private sector. For example, in 1987, PDS outstanding amounted to only RM395 million (0.5% of GDP), versus the outstanding amount of MGS of RM48.8 billion (60.2% of GDP). MGS also grew more quickly than PDS. By 1992, total funds raised through the issuance of PDS was RM14.4 billion while by 2007, this had grown to RM36.2 billion, an increase of

⁸ Cagamas bonds are issued by Cagamas Berhad, the national mortgage corporation to purchase mortgage loans from banks which were cautious and reluctant to lend due to the tight liquidity in the economy.

RM21.8 billion over 15 years. On the other hand, outstanding MGS was RM66.6 billion in 1992. As at December 2007, the total outstanding MGS was at RM109.5 billion. Thus MGS grew by almost RM42.9 billion over 15 years.

As part of BNM's continuing effort to develop the PDS market, the Rating Agency of Malaysia (RAM) was incorporated in November 1990. RAM is the first credit rating agency in the ASEAN region. The most important functions of RAM are to rate all PDS and to disseminate timely information to potential investors in both the primary and the secondary markets. A second rating agency, Malaysian Rating Agency Corporation, was established in September 1996.

Various steps were taken in the late 1980s to develop the bond market in Malaysia. Initially, efforts were focused on just government and Cagamas bonds. Due to an underdeveloped secondary market for government bonds, open market operations were not often used as a monetary policy tool. To address this issue, the principal dealer (PD) system was introduced in 1989 involving the operations of selected commercial banks and BNM. This was part of the initiatives to develop the primary and secondary markets in public debt securities. As a result, BNM has encouraged the development of a secondary market under which government bonds are traded among financial institutions. Along with the PD system, the Malaysian government also introduced an auction system to put a pricing structure in place. Government bonds, with a maturity period of up to 10 years, are issued by auction through PDs. The auction system and the principal dealer system have contributed significantly to the development of the government bond market.

Table 2.2: Development in Malaysia's capital market

1983	The central bank of Malaysia introduced the Base Lending Rate (BLR) system
1987	The first Cagamas bonds were issued
1989	A system of Principal Dealers (PD) was introduced. They are appointed by BNM to bid for primary issues of specified securities including government bills and bonds.
1990	Establishment of a credit rating agency, RAM
1992	Guidelines on PDS issues
1993	Tax exemption on interest income from PDS (Private Debt Securities) and the first Islamic Unit trust was set up
1996	Scripless trading for unlisted PDS An auction system for the PDS primary market Securities Commission established the Syariah Advisory Council to advise on Islamic Capital market operations
1997	Establishment of bond information and dissemination system MESDAQ established to promote high-growth and technology companies
1999	National Bond Market Committee (NBMC) established to provide the overall policy direction and rationalise the regulatory framework for the orderly development of the market
2000	Malaysian government introduced new measures to further develop the capital market including strengthening the brokerage industry through consolidation, promotion of the bond market with new guidelines, enhancing the operation of the market mechanism, improving corporate governance and promoting the fund management industry
2001	Capital Market Master Plan launched to provide the framework for the development of the Malaysian capital market

Source: 1. Shimomoto (1999), the capital market in Malaysia,

2. Harun (2002), the development of debt markets in Malaysia

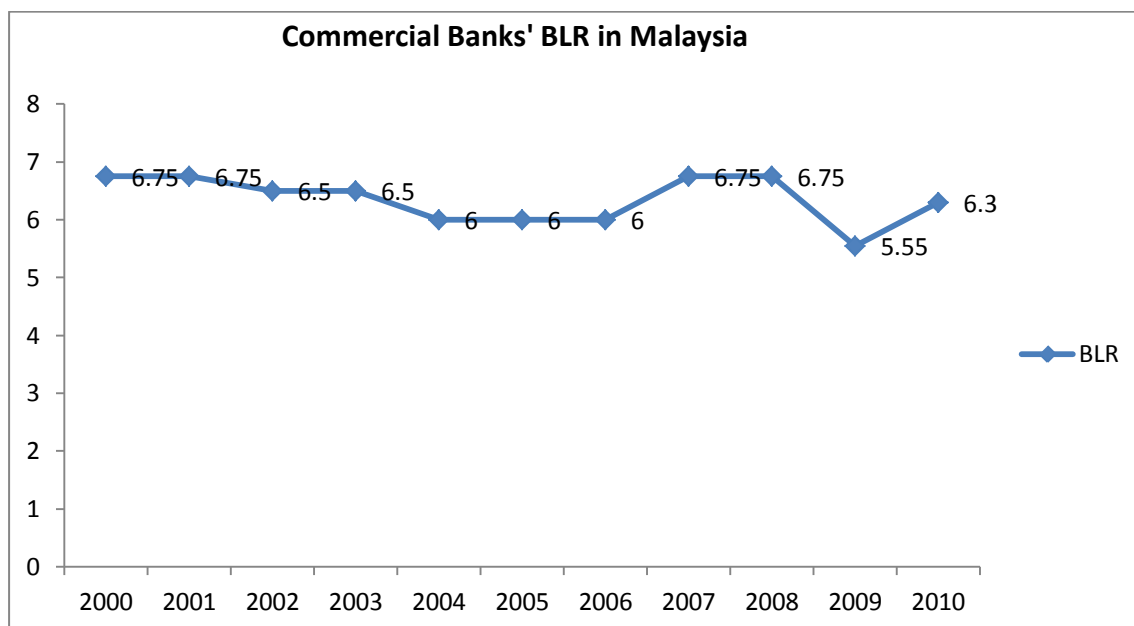
The Malaysian government has also introduced various measures such as strengthening of the brokerage industry through consolidation and trading guidelines for the bond market to enhance market infrastructure and introduce an appropriate regulatory framework. Table 2.2 shows that the capital market in Malaysia has undergone a robust development since the late 1980s by the introduction of PDs and the auction system.

In 1983, BNM introduced a system of base lending rate (BLR). It limits commercial banks from charging high interest rates and has brought about discipline in the commercial bank lending market. Under the BLR system, commercial banks set their interest rate plus the BLR. This allows borrowers to compare interest rates charged by different lenders in terms of the percentage points above the BLR. An attractive, usually low and stable BLR is one of the reasons why the private sector prefers to use commercial bank loans rather than issue equity. In addition, bank loans do not dilute ownership rights and the procedures for obtaining banks loans are much simpler and less costly than offering shares in public.

Corporate bonds are commonly issued together with a bank guarantee. From 1995 onwards, more than 80% of corporate bonds issued by the manufacturing industry came with such guarantees (Suto, 2003, p. 27). Therefore, many businesses in Malaysia still use bank loans for financing given the relatively cheaper rates and the speed to market (The Star, 2009). The mean long-term debt to equity ratio among Malaysian firms was 0.95 in 1993, 0.79 in 1995 and rose to 1.21 in 2009.

Figure 2.1 shows the variation in the BLR in Malaysia over time. On average, the BLR from 2000 to 2010 was very stable ranging from 5.5% to 6.75%. The stability of these rates in Malaysia has encouraged many companies to use long term loans as their source of capital.

Figure 2.1: Commercial Banks Lending Rate



Source: Central Bank of Malaysia Statistics

The heavy reliance of Malaysian private firms on bank loans has led government to create a corporate body called the Corporate Debt Restructuring Committee (CDRC) to resolve conflicts that have arisen between lenders and borrowers, especially after the late 1997 Asian financial crisis. CDRC was established during 1998 and was successful in resolving 57 cases with total outstanding debt of RM45.8 billion, helping to accelerate the country's economic recovery. CDRC is in effect a pre-emptive measure by the Malaysian Government to provide

a platform for corporate borrowers and their creditors to work out feasible debt resolution without having to resort to costly and lengthy legal proceedings. It ensures all avenues are made available to assist distressed corporations to resolve their debt obligations. CDRC's role is to mediate between the companies and their lenders in arriving at viable debt restructuring arrangements.

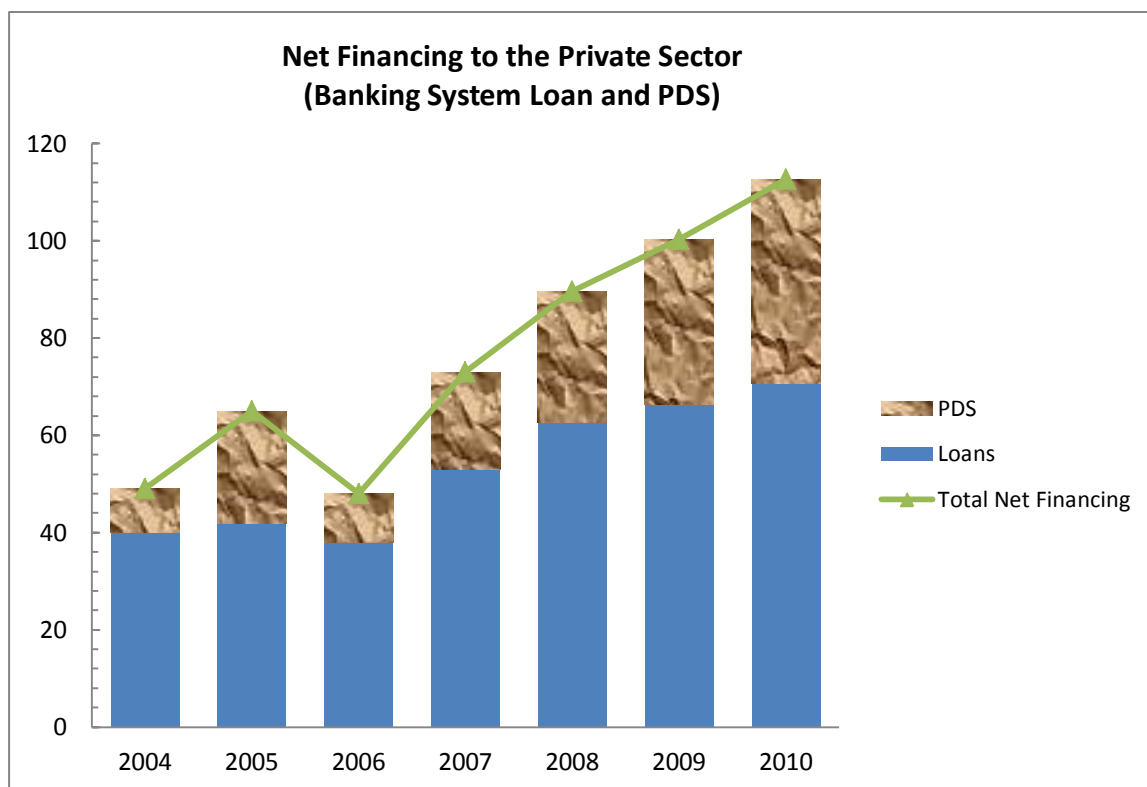
One important requirement for creditor monitoring and control in a market economy is an appropriate legal framework and effective procedures for debt collection. Without such a system of debt collection, debtors lose repayment discipline, the flow of credit is constrained, and creditors are forced to turn to the state to cover their losses if they are to survive (Gray, 1997). La Porta, Lopez, Shleifer and Vishny (2000) find that countries with poor investor protection have smaller and narrower capital markets for both equity and debt.

Prior to 2003, borrowers were chiefly reliant on the Money Lending Act (MLA) of 1951 for protection. After that year, the MLA 1951 was replaced by the MLA 2003. The latter act sought to regulate money lending by a system of licensing. The Malaysian government regarded licensing to be an effective regulatory mechanism to identify and exclude dishonest moneylenders, while at the same time, protecting borrowers. Licensing would also ensure that moneylenders maintained a high standard of trading, or they would incur penalties or suffer revocation or suspension of their licences (Muhammad Ariff, 2009).

Liquidation is the final stage of the debt-collection process. Creditors' control rights over defaulting debtor firms derive ultimately from their power to force liquidation. In Malaysia,

lenders are protected by the Bankruptcy Act of 1967. The minimum amount of outstanding debt to initiate bankruptcy proceeding is RM30,000. Banks always look for additional qualities in their client's business management practice when determining the potential borrowers' debt repayment ability. Corporate governance conduct is one of the more important criteria that banks use before approving loans. Firms with better corporate governance are likely to have greater access to many different lenders including foreign banks. Francis, Hasan and Song (2007) find that firm-level corporate governance provision matters more in bank loan contracting, especially in countries with weaker legal systems.

Figure 2.2: Private Sector Financing Source



Source: Central Bank of Malaysia Statistics

Although the authorities have recognised the importance of the bond market, the government and BNM have been more concerned with economic recovery and the soundness of the banking system. Figure 2.2 shows that the volume of banking loans was significantly greater than PDS throughout 2004 to 2010. This indicates that the private sector in Malaysia relies heavily on bank loans compared to PDS in financing their working capital and funding their investments. Commercial banks played an important role in the Malaysian financial market. Even with the development and growth of the bond market, their role has not diminished. Due to the lack of a well-developed bond market, most of the credit intermediation in the country is done through the banking system.

Changes to the tax system have also influenced the development of the Malaysian capital market. Prior to 1 January 2008, Malaysia had a classical tax system which imposed tax on profit at the corporate level and again on dividends at shareholder level. This created a Two-Tier System (TTS) where profits earned by companies were taxed twice; once at the company level and later in the hands of the shareholders, when they received a distribution of profits by way of a dividend. A single-tier tax system (STS) was introduced in 2008 to replace the classical system. Under this system, corporate income is taxed at the corporate level and this is a final tax. When a company declares dividends, the profits distributed are thus no longer taxable in the hands of the shareholders (MICPA, 2008).

2.3 MALAYSIAN REPORTING ENVIRONMENT

All listed companies in Malaysia are required to publish annual reports in accordance with the Ninth Schedule of the Companies Act 1965 and must follow the accounting standards issued by the Malaysian Accounting Standard Board (MASB). The MASB is authorised by the Financial Reporting Act 1997 (FRA) to develop and issue accounting standards for Malaysian reporting entities. The FRA's purpose was to streamline financial reporting of Malaysian companies in accordance with International Accounting Standards (currently International Financial Reporting Standards (IFRS)) and to allow effective enforcement of financial reporting requirements. The Supreme Court and the Companies Commission of Malaysia (formerly known as the Registrar of Companies) monitor such enforcement in order to promote financial reporting quality. Further, to ensure high quality financial reporting, the Bursa Malaysia Listing Requirements (BMLR) require maintenance of complete accounting records and preparation of financial statements that comply with IFRSs as adopted by MASB.

The three professional accounting bodies in Malaysia, the Malaysian Institute of Accountants (MIA), the Malaysian Institute of Certified Public Accountants (MICPA) and the Malaysian Institute of Management (MIM), together with Bursa Malaysia introduced the National Annual Corporate Reporting Award (NACRA) in 1990 which gives esteem and recognition to organisations deemed to have achieved excellence in annual corporate reporting. The award was designed to encourage achievement of the highest standards in the presentation and reporting of financial and other information required by shareholders, investors and other

interest groups. The criteria used to assess annual reports include, *inter alia*, timely publication of annual reports, compliance with applicable accounting standards, and an unqualified audit report. Annual reports are classified as having good quality of reporting when they meet these NACRA criteria.

In 1995 the Malaysia Securities Commission proposed shifting from the merit-based regulatory regime to a disclosure-based regulation (DBR) regime to encourage transparency and accountability in financial reporting. The plan was divided into three phases and phase one was commenced in 1996, followed by phase two in 2000, and phase three in 2001. Table 2.3 shows the three-phased shift to DBR over that period.

Table 2.3: Three-Phased Shift to DBR

Phase	Time Frame	Focus
I	1996–1999	Flexible/hybrid merit-based regime which emphasises disclosure, due diligence and corporate governance.
II	Jan 2000	Partial DBR which further emphasises disclosure, due diligence and corporate governance, and the promotion of accountability and self-regulation.
III	2001 onwards	Full DBR which emphasizes high standards of disclosure, due diligence and corporate governance as well as the promotion of self-regulation and responsible conduct.

Source: Capital Market Master Plan (KLSE, 2001).

The DBR has three founding principles: disclosure, due diligence, and corporate governance. Disclosure means dissemination of all material information in order to aid investors' investment decision-making. Due diligence, ensures all relevant information is fully and accurately disclosed in a timely manner and corporate governance is used to direct and manage a company's affairs in order to promote business prosperity and corporate accountability (PricewaterhouseCoopers, 2002).

In terms of Malaysian listed companies, disclosure can be divided into two areas: primary market disclosure and continuous disclosure. Primary market disclosure is related to initial public offerings (IPO). The aim of primary market disclosure is to provide potential investors with tools that enable the evaluation of the risks of investing in the IPO, based on the risk profile of the offering company. The Malaysian Companies Act 1965 and the Securities Commission Act 1993 outline these disclosure obligations in full.

Continuous disclosure and reporting obligations, on the other hand, are dictated by the BMLR. According to Nathan, Lin, and Fong (2000, p. 6), continuous disclosure and reporting obligations are imposed on listed firms by the KLSE's listing requirements. They summarise the requirements as follows: (1) to publish financial statements within two months of each financial quarter: each set of statements to include an income statement, a balance sheet, a cash flow statement and explanatory notes; (2) to furnish annual audited accounts, auditors' and directors' reports within four months of the end of the financial year; (3) to state the extent to which they have complied with the Malaysian Code on Corporate Governance and; (4) to make immediate public disclosure of all material information (of a financial and non-

financial nature) concerning its affairs. Parts two and ten of the BMLR set out the obligation to immediately reveal all information necessary to prevent the emergence of false markets. Such disclosures are to include any changes in dividend policy, the acquisition of shares beyond a certain threshold by substantial shareholders, directors, company secretary or auditors; the revaluation of assets; and any proposed new issues of securities.

In spite of all the improvements in financial reporting, disclosure still remains a problem in Malaysia (Nathan et al., 2000). Rahman (1998) suggests that initiatives to increase reporting quality have not achieved their objectives because of the lack of appropriate enforcement efforts. Ball, Robin and Wu (2003) describe a case study of four East Asian countries, including Malaysia. Their study shows that these countries have a similarly low endogenous demand for high-quality financial reporting and disclosure, and have implanted accounting rules developed in overseas common-law countries without making widespread complementary changes in the infrastructure. This experiment achieved no appreciable effect on the quality of financial reporting in these countries. They conclude that mandating IAS/IFRS, without altering the incentives facing financial statement preparers, is at best a superficial exercise.

2.4 CORPORATE GOVERNANCE IN MALAYSIA

According to Gourevitch and Shinn (2005), the story of corporate governance in Malaysia began almost one hundred years ago, when a company called Kuala Kangsar Plantations became the first publicly listed company in Malaysia. In the early days, most publicly listed

companies tended to be trading companies, plantations or tin companies that had their origin either in the United Kingdom, or as subsidiaries of United Kingdom companies. After independence in 1957, the number of listed companies in Malaysia grew rapidly covering a range of different sectors, for example construction, property, infrastructure, technology, trading and services, consumer products, industrial products and plantations. By the end of 1997, there were 708 listed firms in Malaysia (Rahman, 1998), 874 by 2003 (KLSE, 2003), and 957 by 2010 (Bursa Malaysia, 2010).

Heavy reliance on bank loans among Malaysian firms has caused financial institutions to further examine the corporate governance practices of their borrowers in order to have confidence in their borrower repayment ability. This is essential since (as noted by the International Monetary Fund (IMF)) East Asia had exposed itself to unstable financial situations because its financial system was riddled with insider trading, corruption and weak corporate governance. It had resulted in inefficient investment spending and weakened the stability of the banking system (Radelet and Sachs, 1998, p. 2).

Ruin (2001) states that corporate governance is a group of people getting together as one united body with the task and responsibility to direct, control and rule with authority. On a collective effort, this body is empowered to regulate, determine, restrain, curb and exercise the authority given to it. Thus, the corporate governance practice of borrowers is very important since it is the way in which suppliers of finance to corporations could ensure themselves of getting a return on their investments (Shleifer and Vishny, 1997).

The year 1998 was of particular significance to the Malaysian corporate sector. Relatively small companies were permitted to be listed for the first time, enabling them to raise capital from the public⁹. Owner entrepreneurs who had formerly been managers of their own private firms very quickly found themselves directors of publicly listed firms that needed to comply with a large number of regulatory requirements, the significance of which he/she neither understood nor appreciated (Gourevitch and Shinn, 2005). Many of these firms were established using the financial and human capital of family resources (McConaughy, 2000).

The rapid growth of Malaysia's economy has not diluted the concentrated ownership structure in Malaysian companies (Tam & Tan, 2007). This current study finds that the mean shareholding of directors in Malaysia between 2002 and 2007 was 19.32% (although with significant variation across companies-refer Table 6.1). Zhuang, Edward and Capulong (2001) show that the largest shareholder still held on average 30.3% of outstanding shares among all listed companies in Malaysia in 1998, with the top five shareholders owning 58.8%.

Institutional investors such as Permodalan Nasional Berhad (PNB) and Employees' Provident Fund (EPF) play vital roles in enhancing corporate governance in Malaysia. PNB and EPF were the institutional investors established to increase Bumiputera shareholdings. They own

⁹ Bursa Malaysia rules allowing companies to raise capital from the public are that: (1) the company is incorporated in Malaysia, (2) the paid-up ordinary share capital is not less than RM 40 million, (3) at least 25 %, but not more than 50 %, of the paid-up capital is in the hands of a minimum of 500 public shareholders holding not less than 1000 shares each, (4) the company has five consecutive years of after-tax profit of at least RM 1million and an aggregate after-tax profit of not less than RM12 million over the same five years, and (5) the company complies with the corporate disclosure requirements and other rules and by-laws of the Bursa Malaysia.

sizable stakes in listed companies in various sectors. However, the goal of increasing Bumiputera shareholdings up to 30% discourages them from selling shares in the market (Shimomoto, 1999, p. 84).

Given the high concentration of ownership, many companies are dominated by large shareholders who exercise control rights, resulting in significant risk to minority shareholders (Claessens et al. 2000). There is also skepticism about the ability of boards especially that of the non-executive directors, to monitor management, as they are often perceived as a “rubber stamp” only and are selected for reasons other than monitoring (Haniffa and Cooke, 2002).

In the wake of the financial crisis, the Malaysian government began a renewed program to enhance minority shareholder protection, dubbed as ‘top-down reforms’. The top-down reform project began with the establishment of the High Level Finance Committee on corporate governance by the Ministry of Finance in March 1998, which initiated a series of regulatory changes through the Securities Commission (SC), the Kuala Lumpur Stock Exchange (KLSE), and the Registrar of Companies. These changes led to the creation of a Malaysian Code on Corporate Governance, the Malaysian Institute of Corporate Governance, and the Minority Shareholder Watchdog Committee — each of which attracted strong participation by the representatives of the EPF. The motives for these changes were to reassure investors, both domestic and international, so as to hold and attract capital. Domestic groups had the usual response: block holders did not like being challenged, yet domestic investors wanted protection enforced (Gourevitch and Shinn, 2005). Table 2.4 below shows

the corporate governance initiatives and reforms undertaken by Malaysian authorities since 1965 and after the 1997 financial crisis.

Table 2.4: Corporate Governance Initiatives and Reforms

Year	Initiatives and Reforms
1965	True and fair certification by directors of financial statements was introduced.
1993	Audit committee requirement was introduced.
1997	Independent accounting standard setting board was introduced.
1998	Formation of the High Level Finance Committee to conduct a detailed study on corporate governance and to make recommendations for improvements.
1998	Amendments were made to the Security Industry Central depository Act (SICDA) with a view to enhancing transparency in share ownership amidst other improvements.
1998	Malaysian Institute of Corporate Governance was established.
1998	Regulations for directors and CEOs to disclose interest in the publicly listed companies (PLC) were introduced.
1999	Quarterly reporting was introduced.
1999	A revamp of takeovers and mergers code was carried out.
2000	Malaysian Code on Corporate Governance was introduced.
2000	Amendments were made to the Securities Commission Act 1993 by making the Securities Commission the sole regulator for fund raising activities and the corporate bond market.
2001	Audit Committee must have a member who is financially trained.
2001	The Malaysian Capital Market master plan was launched to further streamline and regulate the capital market and to chart the course for the capital market for the next ten years.
2001	The Financial Sector master plan was launched to chart the future direction of the financial system over the next ten years. It outlined the strategies to achieve a diversified, effective, efficient and resilient financial system.
2001	Mandatory disclosure of corporate governance code compliance was introduced.

2001	Establishment of a minority shareholders watchdog group.
2001	Mandatory accreditation programme for directors was introduced.
2002	Internal audit guidelines for PLCs were introduced.
2003	Guidance notes on share splits, guidance for companies to meet compliance and internal control requirements were introduced.
2004	Amendments were made to the security laws and takeover codes for better investors' protection.
2005	Accounting requirements for minority interests in companies' financial statements and guidelines on compliance functions for fund managers to strengthen investors' protection were introduced.
2006	Revised guidelines on securities borrowing and lending were made and the enhanced guidelines for placement of securities for greater shareholders' and investors' protection were issued. Guidelines to strengthen corporate bond market were also introduced.
2007	Public Companies Accounting Oversight Board (PCAOB) was formed. Amendments to audit committee guidelines were made. Malaysian Code on Corporate Governance was revised. Amendments were made to the corporate governance requirements in the Companies Act 1965.

Source: Mahmood (2003); Securities Commission of Malaysia (www.sc.com.my/index.asp; accessed on 02.01.09); Malaysian Institute of Corporate Governance (www.micg.net/home.htm; accessed on 02.01.09)

Among the initiatives taken after the economic downturn, the introduction of the Malaysian Code on Corporate Governance in 2000 is seen as the most important. It was largely derived from the recommendations of the Cadbury Report (1992) and the Hampel Report (1998) in the United Kingdom (FCCG, 2000). The revised listing requirements of KLSE in 2001 on corporate governance practice and disclosure provides greater obligations on publicly listed companies to enhance their corporate governance regimes. Specifically, these amended

listing requirements outline the requirements for financial reporting disclosure on corporate governance matters and continuing listing obligations.

The Malaysian Code on Corporate Governance recommends that the board of directors appoints remuneration and nomination committees, in addition to the audit committee, which has been mandatory since 1993. The establishment of other committees such as a risk management committee and other corporate governance committees are also recommended but are less frequently set up by listed companies.

The code strongly recommends the separation of responsibilities of the board chair from those of the chief executive officer even though the listing requirements of Bursa Malaysia (2001) do not require the segregation of these two positions. The code also states that the board of directors should maintain a sound system of internal control. This led to the issuance of a Guide Statement of Internal Control, in May 2000. This guide explained the key areas that directors must pay attention to before they present a Statement of Internal Control in their company's annual reports. A listed company is required to address in their annual reports the principles and best practice of the Malaysian Code on Corporate Governance relating to internal controls such as identifying principal risks and ensuring implementation of appropriate systems to manage those risks.

Directors appointed to the board of directors of a publicly listed company are required under the listing requirements to attend a directors' training program known as the mandatory accreditation programme. The programme covers topics such as the Companies Act 1965, the

listing requirements, risk management and internal control and relevant securities laws. As for the composition of boards of directors, 90% of listed companies have at least two non-executive directors, and the Malaysian Code on Corporate Governance has set a minimum of 30% independent non-executive directors on boards (Pricewaterhouse Coopers, 2002). The obligations of directors have begun to be monitored by the Government Minority Shareholders Watchdog Committee, created on the recommendation of the High Level Finance Committee on Corporate Governance.

Self-regulatory initiatives also continue to be developed by various industry and professional bodies aimed at promoting knowledge and awareness of corporate governance best practice in Malaysia (Yatim, Kent, and Clarkson, 2006, p.760). Moreover, Malaysia adopted IFRS with only minor departures. With the influence of the strong professional traditions of the Commonwealth, the accounting profession was well-organised through the Malaysian Institute of Accountants and the Malaysian Association of Certified Public Accountants. The Malaysian Accounting Standards Board also became relatively independent of the Ministry of Finance, with greater freedom in setting standards.

Malaysia's legal system plays an important role in corporate governance. The system imposes strong standards of fiduciary duty to minority shareholders and the courts have begun to entertain derivative suits for breaches of this duty, although class-action suits are not common. The Minority Shareholders Watchdog Committee, the SC, and the KLSE have enforced a one share, one vote rule and have ensured that minority shareholders have at least a nominal voice in key corporate decisions. Malaysia's Code of Takeovers and Mergers was

revised in 1999 to resemble the London Stock Exchange City Code in most respects. With regards to providing protection to minority shareholders, Malaysian information institutions are said to have become more robust (Gourevitch and Shinn, 2005). Efforts to protect investors and shareholders were reinforced in 2004 when amendments were made to the securities laws and the takeover code. The accounting for minority interests in companies' financial statements was reviewed in 2005.

The efforts to strengthen and enhance the corporate governance framework can be seen in the revision of the Malaysian Code on Corporate Governance and amendments to the Companies Act 1965 in 2007. The Malaysian Code on Corporate Governance was revised in 2007 to implement the continued collaborative efforts between government and industry. This code was specifically revised to strengthen boards of directors and audit committees and accordingly to ensure that both are effective in performing their roles and responsibilities. This revision details the eligibility criteria for appointment of directors, the role of nominating committees, the eligibility criteria for appointment as an audit committee member, the committee composition, the frequency of meetings and the need for continuous training.

2.5 CHAPTER SUMMARY

This chapter has addressed the institutional setting of this study, that is, the business environment, the capital market, corporate governance, and the Malaysian reporting environment. The quality of the Malaysian capital market has steadily improved since the

Asian crisis which began in late 1997. Bank loans are the most important source of finance for private firms for their working capital as commercial banks offer stable lending rates. As an emerging economy, seeking investment or funds from outside the country is necessary to the Malaysian economy. For this purpose, the Western idea of corporate transparency is seen as important for application by Malaysian companies. Further, following the global economic crisis, better corporate governance standards have been emphasised all over the world, including in Malaysia. If Malaysia wishes to be part of the global market, it must further enhance corporate governance and bring its standards to the highest level possible.

CHAPTER THREE: LITERATURE REVIEW

3 INTRODUCTION

The aim of this chapter is to provide a review of the literature relevant to ERC, default risk, corporate governance, and the relationships among them. The review provides an understanding of the returns-earnings relationship that is in line with equity valuation models. It employs agency theory to form a framework that relates default risk and corporate governance to the returns-earnings relationship. Based on equity valuation models and specifying a positive relation between current earnings and expected future dividends, this study relates unexpected earnings to abnormal stock returns *via* ERC. Following the introduction below, Section 3.1 discusses ERC and its determinants; Section 3.2 discusses default risk and its effect on ERC; Sections 3.3 and 3.4 discuss corporate governance and its effects on default risk; Section 3.5 discusses corporate governance monitoring mechanisms; and finally, Section 3.6 summarises the chapter.

Easton and Zmijewski (1989) describe ERC as the coefficient relating the surprise element in new information in an accounting earnings announcement to abnormal stock returns. It is therefore a measure of the extent to which new earnings information is capitalised in a stock price (Teoh and Wong, 1993). In principle, ERC can be measured as the slope coefficient in a regression of abnormal stock returns on unexpected earnings.

The study of ERC has led to a better appreciation of the nature of earnings information and the role of accounting information within the market's overall information structure. Earnings-returns studies tend to start with a valuation model that links dividend, cash flows or earnings, to value. Cho and Jung (1991), for instance, suggest that all earnings-returns studies use a valuation model that discounts future dividends or cash flows. In explaining ERC it is assumed that accounting earnings are closely related to future dividends. Hence, any unexpected earnings may cause investors to revise their expectations of future dividends thus leading to security price changes (Collins and Kothari, 1989; and Dhaliwal and Reynolds, 1994).

Following Collins and Kothari (1989), the ERC can be derived from the dividend discount equity valuation model as follows:

$$P_{it} = \left[\sum_{k=1}^{\infty} E_t(D_{i(t+k)}) \prod_{\tau=1}^k \{1/[1 + E(R_{i(t+\tau)})]\} \right] \quad (3.1)$$

where:

P_{it} is the price of security i at the time t ;

$E_t(D_{i(t+k)})$ denotes the expectation at time t of dividends to be received at the end of period $t+k$; and

$E(R_{i(t+\tau)})$ is the expected rate of return on the security from the end of $t + \tau - 1$ to the end of $t + \tau$.

Then, if future expected dividends are assumed to be related to current earnings as

$$E_t(D_{i(t+k)}) = \lambda_{i(t+k)} X_{it} \quad (3.2)$$

where:

$(D_{i(t+k)})$ denotes firm i 's dividend at the end of period $t+k$;

X_{it} is firm i 's accounting earnings for period t .

Substituting equation (3.2) into equation (3.1), the price of security i can be written as:

$$P_{it} = \left[\sum_{k=1}^{\infty} \lambda_{i(t+k)} \prod_{\tau=1}^k \{1/[1 + E(R_{i(t+\tau)})]\} \right] X_{it} \quad (3.3)$$

Shareholders unexpected returns can be described as a sum of unexpected price changes and unexpected dividends changes as follows:

$$UR_{it} = R_{it} - E_{(t-1)}(R_{it}) \quad (3.4)$$

$$= [P_{it} + D_{it}] / P_{i(t-1)} - [E_{t-1}(P_{it}) + E_{t-1}(D_{it})] / P_{i(t-1)}$$

$$= [P_{it} - E_{t-1}(P_{it}) + D_{it} - E_{t-1}(D_{it})] / P_{i(t-1)}$$

Hence it follows that:

$$\begin{aligned}
UR_{it} &= \left\{ \left[\sum_{k=1}^{\infty} \lambda_{i(t+k)} \prod_{\tau=1}^k \{1/[1 + E(R_{i(t+\tau)})]\} \right] X_{it} \right. \\
&\quad \left. - \left[\sum_{k=1}^{\infty} \lambda_{i(t+k)} \prod_{\tau=1}^k \{1/[1 + E(R_{i(t+\tau)})]\} \right] E_{t-1}(X_{it}) + \lambda_{it} X_{it} - \lambda_{it} E_{t-1}(X_{it}) \right\} \\
&\quad / P_{i(t-1)} \\
&= \left\{ \lambda_{it} + \left[\sum_{k=1}^{\infty} \lambda_{i(t+k)} \prod_{\tau=1}^k \{1/[1 + E(R_{i(t+\tau)})]\} \right] \right\} [X_{it} - E_{t-1}(X_{it})] / P_{i(t-1)} \\
&= \left\{ \lambda_{it} + \left[\sum_{k=1}^{\infty} \lambda_{i(t+k)} \prod_{\tau=1}^k \{1/[1 + E(R_{i(t+\tau)})]\} \right] \right\} UX_{it} / P_{i(t-1)} \tag{3.5}
\end{aligned}$$

$$= ERC. UX_{it} \tag{3.6}$$

Equation (3.6) relates unexpected earnings to unexpected returns and the coefficient on unexpected earnings scaled by price is the ERC (the total bracketed term in 3.5)

where:

$[X_{it} - E_{t-1}(X_{it})]$ is the unexpected earnings in period t .

3.1 ERC AND ITS DETERMINANTS

Capital market researchers have consistently found the following factors to be significant determinants of ERC: beta, growth, earnings persistence, size and some non-financial variables such as industry (see Bernard and Ruland, 1987; Easton and Zmijewski, 1989; Collins and Kothari, 1989; Biddle and Seow, 1991; Cho and Jung, 1991; Dhaliwal and Reynolds, 1994; Kai, 2002; Kim, 2005; Cheng and Nasir, 2010). If the determinants of ERC can be identified, the ERC can be used to predict the impact on returns of changes by firms in respect of their operations or reporting (Bernard and Stober, 1989).

3.1.1 Beta

From the mathematical expression for ERC at (3.5 – 3.6) above it is evident that ERC declines with increasing expected rate of return. That is, given the common association of higher risk with higher expected return, ERC declines with increasing risk. Specifically, if it is assumed that expected rate of return is determined by the (Sharpe-Lintner-Mossin) SLM capital asset pricing model (CAPM), ERC is negatively related to beta. The CAPM states that

$$E(R_{it}) = R_{ft} + [E(R_{mt}) - R_{ft}]\beta_{it} \quad (3.7)$$

where:

$E(R_{it})$ is the expected return on the firm;

R_{ft} is the risk-free rate of interest;

$E(R_{mt})$ is the expected return of the market;

β_{it} is the systematic risk of the firm,

then assuming that beta is either constant through time or highly autocorrelated through time, it follows that ERC is negatively related to beta, that is, to systematic risk¹⁰.

Consistent with Collins and Kothari (1989), Easton and Zmijewski (1989) also find that ERC is negatively related to beta. Subsequent studies that have tested various capital market phenomena using ERC have included beta as a control variable and found a negative relationship (for example, Vafeas, 2000; Shangguan, 2007; and Cheng, Crabtree and Smith, 2008).

3.1.2 Growth

Collins and Kothari (1989) show that cross sectional difference in earnings-return relationships are in part explained by differences in growth. However, they use the market to book value of equity as the proxy for expected growth, which is also likely to be affected by earnings persistence. The study by Martikainen (1997) shows that losses which can be expected to be temporary, that is those that have low persistence, have greatest impact on firms with high growth opportunities. That is, ERC is positively related to growth. Barth,

¹⁰ Similarly, the ERC is negatively related to the risk free rate (if beta is less than one) and *vice versa*. The higher the risk free rate, the higher is the expected return and hence the lower the ERC if beta is less than one. Using yields of long-term U.S government bonds as a proxy for the risk-free interest rate, Collins and Kothari (1989) find a significant negative association between interest rates and ERC each year.

Elliot and Finn (1999) confirm that ERC is higher for firms reporting sustained increase in earnings.

Skinner and Sloan (2002) reinforce the role of growth on ERC. They provide evidence to show that the inferior returns to growth stocks relative to value stocks is due to the asymmetrically larger negative price response to negative earnings surprises for growth stocks. Ghosh, Gu and Jain (2005) distinguish the effect of growth according to earnings increases resulting from revenue growth or other sources (cost decreases). They find that ERCs are higher for firms with earnings growth resulting from revenue growth.

3.1.3 Earnings persistence

Earnings persistence measures the degree to which current period earnings shocks persist in the future and thus affect future earnings expectations (Collins and Kothari, 1989; and Richardson, Sloan and Soliman, 2005). Kormendi and Lipe (1987) and Park and Pincus (2000) find firms differ in their ERCs because of differences in their degrees of earnings persistence.

Kormendi and Lipe (1987) find empirical support for the Miller and Rock (1985) analytical finding that the magnitude of the return reaction to an earnings innovation should be a function of the persistence of earnings. Subramanyam and Wild (1996) note that the impact of earnings persistence is determined by the magnitude of revisions of future benefits and the

length of time the revision is expected to persist. They deduce that the expected length of revision horizon is directly related to an entity's going concern status and show empirically that the ERC, as a measure of earnings informativeness, declines markedly as the probability of termination of a firm increases. That is, ERC is positively related to earnings persistence.

Lipe (1990), using the same sample of 145 firms as in Kormendi and Lipe (1987), studies the relationship between earnings and stock returns assuming that the market has a second source of current period information in addition to earnings. Lipe (1990) finds that the ERC is positively related to the ability of past earnings to predict future earnings and also to earnings persistence.

3.1.3 Firm size

Freeman (1987) and Collins et al. (1987) find that returns lead earnings for large firms. However, once differences in the information environment are controlled for by varying the return holding period, there is little difference in the extent to which price changes covary with earnings changes across firms of different sizes (Collins and Kothari, 1989).

Easton and Zmijewski (1989) find firm size to be positively related to ERC but the association is not consistently significant and size may just proxy for other sources of cross-sectional variation in ERC. Imhoff and Lobo (1992) add firm size in a sensitivity test while examining the effect of uncertainty in analysts' forecasts on ERC. Measuring firm size by

market value of common equity, they find that their results are not driven by firm size. Brown (1994) summarizes the role of size by stating that size itself is unlikely to be a determining variable of ERC but tends to be related to other variables that do determine ERC.

3.1.4 Other ERC determinants

Industry is a non financial variable that may impact ERC. Bernard and Ruland (1987) examine 27 industries to estimate time series regression of industry returns on unexpected industry historical cost and current cost income. They find a significant cross-industry variation in ERC. Biddle and Seow (1991) investigate the relation between ERC and industry characteristics. They find ERC varies considerably across industries and that ERCs are positively related to growth, product type and barriers to entry, and negatively related to financial and operating leverage.

The quality of audit too may affect ERC. Teoh and Wong (1993) find larger auditors are more credible and audit quality is a positive and significant determinant of ERC. Based on a matched pair sample according to industry membership, they find that the ERCs of Big 8 client firms are significantly higher than those for non-Big 8 clients. Using data across 28 countries and 20 industries, Kwon, Lim and Tan (2007) provide evidence that clients of industry specialist auditors have a higher ERC. They suggest the earnings quality of firms is strengthened when firms are audited by a specialist auditor. Their evidence also suggests that the incremental impact on ERC from having industry specialist auditors decreases as the legal environment strengthens.

A firm's monopoly power may also affect ERC. Based on 144 Korean firms listed on the Korean Stock Exchange during 1986 to 1992, Lee, Jin and Huh (2005) examine the effect of a firm's monopoly power on ERC. They define firms designated as market-dominant enterprises by the Monopoly Regulation and Fair Trade Act as firms with monopoly power. They compare the ERCs of firms designated as market-dominant enterprises with non-designated ones. Their results show that the ERC is positively related to a firm's monopoly power.

3.2 DEFAULT RISK

Default risk is the risk of a borrower being unable to pay its creditor(s) on time and in full. According to Vassalou and Xing (2004), default risk is the probability the firm's assets will be less than the book value of its liabilities. They suggest default risk would cause lenders to require a spread over the risk-free rate. The size of this spread is a function of the probability of default of the individual firm. The higher the default probability the higher the spread (i.e., the higher the interest rate the lender is likely to charge the borrower as compensation for bearing higher default risk).

Default risk may arise as a result of a firm's poor performance and high leverage. Zeitun, Tian and Keen (2007) suggest that firms' capital structures are fundamental in predicting default as they affect a firm's ability to access external sources of funds. Based on a Jordanian sample of firms, their results show default probability is negatively related to high

cash flow and greater sales volume. Their results imply that financial performance affects default risk.

Default risk may also arise as a result of weak internal control. Doyle, Ge and McVay (2007) examine the determinants of weaknesses in internal control for 779 firms disclosing material weaknesses in their internal controls. Measuring financial health as an aggregate loss indicator variable and a proxy for the likelihood of bankruptcy, they find that firms disclosing material weaknesses in internal control are significantly weaker in both of their financial health measures.

Firms' ownership also affects default risk probability. Zeitun and Tian (2007) define firms with default risk as those that have had a receiver or liquidator appointed or that have been delisted from the Amman Stock Exchange. In addition, firms that have stopped issuing financial statements for two or more years are considered to be in default. Their findings show that the largest five shareholders and government ownership are significant and negatively correlated with the probability of the default.

3.2.1 Default risk as an additional ERC determinant

Default risk has a role in explaining ERC as beta may not fully capture the relevant risk of particular securities or portfolios (Fama and French, 1992). Based on US data, Laxmi (1988) examines whether expected common stock returns are positively related to the debt-to-equity ratio after controlling for beta and size. His results suggest that beta may be an inadequate

measure of risk. He proposes the firm's debt to equity ratio as a more natural proxy for the risk to common equity of a firm.

From analytical results, Dhaliwal et al. (1991) develop the hypothesis that ERC is a negative function of default risk. They use the matched-pair technique to empirically isolate the effects of leverage, as a measure of default risk on ERC. They compare the ERCs based on 2 partitions: all equity *versus* levered firms, and low-leverage firms *versus* high-leverage firms. Their results show that ERC is larger for all-equity and low-leverage firms. They also suggest using other proxies for default risk, for example, bond rating.

Based on a sample of 3587 firm-year observations over an 11-year period of 1978-1988, Dhaliwal and Reynolds (1994) examine the effect of default risk on the ERC. They use bond rating as a proxy for default risk to test the hypothesis that ERC is a negative function of default risk. Their results show that the effect of default risk is negative and significant to ERC. They also find that the results are sufficiently robust to withstand a validity test using the debt-to-equity ratio as an alternative proxy for default risk. They suggest that 'equity beta is unlikely to capture fully the appropriate discount rate and that the default risk of debt may provide an additional proxy for the discount rate' (p. 418).

Billing (1999) revisits the findings of Dhaliwal and Reynolds (1994) using 8620 firm-year observations for 1986-1996 bond-rating and 1982-1996 debt-equity samples. He finds the negative relation between bond ratings and ERC found in Dhaliwal and Reynolds (1994) is largely due to bond ratings reflecting expected earnings growth and this is likewise, in part,

true for the debt-to-equity ratio. He concludes that default risk of debt has a limited role in explaining ERC that is not captured by beta and expected earnings growth.

In a study on the Japanese market, Kai (2002), measures default risk by using 3 proxies: the debt ratio, an index based on earnings, power and safety, and the signal from negative earnings. His study hypothesises that the lower the default risk, the higher the ERC. He finds that ERC increases as default risk decreases for the first two proxies but not for the signal from negative earnings.

In a study on 114 Korean firms during 1984-1998, Kim (2005) examines the effect of default risk on ERC. He follows the suggestions made by Dhaliwal et al. (1991) regarding the use of issuance and redemption of debt as a proxy for changes in the level of default risk. His results show however, that the Korean evidence is only weakly consistent with the expectation that ERC is a negative function of default risk. He claims that the issuance and redemption of debt may not be a good proxy for assessment of the effect of default risk on ERC.

Shangguan (2007) re-examines the relationship between default risk and ERC in the presence of illiquid growth opportunities, based on a 1988-2000 sample of US manufacturing firms. He documents evidence that the negative marginal effect of default risk on ERC is mitigated by illiquid growth opportunities. He claims that illiquid growth opportunities may reduce the firms' equity risk and default risk by inducing a risk aversion incentive.

Cheng and Nasir (2010) examine the impact of seven financial risk factors on the earnings return relationship for 14 Chinese commercial banks. Their results indicate that the banks have a strong earnings-return relationship but of the seven risk factors only liquidity risk is significantly related to ERC.

The prior studies on ERC and default risk are summarised in Table 3.1

Table 3.1: Summary of Prior Studies on ERC and Default Risk

Author/s	ERC specification (Unexpected earnings)	Default Risk measures	Result
Cheng and Nasir (2010)	Unexpected annual earnings were computed using the naive expectation model, which assumed that the next period's expectation is simply the current period's annual earnings.	Seven financial risks were grouped as factors used for factor analysis which included interest risk factor, liquidity risk factor, credit risk factor, solvency risk factor, stock price risk factor, market risk factor and exchange risk factor.	Liquidity risk factor contributed significantly to the earnings return relation among China commercial banks.
Shangguan (2007)	72 months stock return with 60 months before and 12 month for the current year. Unexpected annual EPS was deflated by price.	Long term debt / total asset	The negative marginal effect of debt on the ERC is mitigated by illiquid growth default risk by inducing a risk aversion incentive.
Kim (2005)	Random walk with a drift model, averaging EPS changes for the five previous years.	Capital structure change events were identified for Korean sample firms by identifications of issues and redemptions of bonds.	This study uses a general to specific method of regression analysis to avoid problems associated with omitted variables. The results show that issues and redemption of debt appear to be associated with factors other than default risk of debt.
Kai (2002)	Earnings per share (EPS) was subtracted from last year EPS and deflated by prior year stock price.	1)Debt ratio 2)index based on Japan earnings power and safety 3)positive and/or negative earnings	ERC increases as default risk decreases for the debt ratio and earnings, safety and power index proxies but not for the signal from negative earnings.

Billings (1999)	Changes in EPS, scaled by price at the end of the year $t-1$ $[(EPS_t - EPS_{t-1}) / P_{t-1}]$	The <i>Standard & Poor's</i> Senior Bond Rating	Negative relation between ERC and default risk is due to bond ratings which reflects the expected earnings growth. With the inclusion of growth the effect of the debt/equity ratio weakens while the bond rating effect disappears.
Dhaliwal and Reynolds (1994)	Use Integrated Moving Average (IMA 1, 1) and random walk model where changes in earnings deflated by price. Found similar result for both methods.	Bond rating and debt to equity ratio	The coefficient relating unexpected changes in earnings to abnormal returns is negatively related to the default risk of debt after controlling for earnings persistence and equity beta.
Dhaliwal, Lee and Fargher (1991)	Subtracted previous year earnings from actual earnings and deflated by alternative deflators; price and percentage unexpected earnings. However the deflator results contradict each other. When price deflator is used, the estimated coefficient is positive and statistically significant.	Levered firms were matched with all equity firms by firm size and industry (two digit SIC). By using bond rating, they find that default risk is significantly different across the pairs of sample firms	ERC is larger for all equity and low leverage firms..

3.3 CORPORATE GOVERNANCE

Corporate governance is defined as a system by which companies are directed and controlled (Cadbury, 1992). It consists of two components: corporate, which refers to corporations and governance, which refers to the act, fact or manner of governing (Lanno, 1999). In Malaysia, the Finance Committee on Corporate Governance (FCCG, 2000) defines corporate governance as the process and structure used to direct and manage the business and affairs of a company towards enhancing business prosperity and corporate accountability. The ultimate objective is to realise long term shareholder value, while at the same time taking into account the interest of other stakeholders.

Agency theory explains the origin of conflict and ways to minimise conflict arising between parties in a contract (Jensen & Meckling, 1976). In a company, the parties involved are owners (the principals) and managers (the agents). As stated by Jensen and Meckling (1976, p.308), a company is a 'set of formal and informal contracts under which one or more principals engage another person as their agent to perform some service on their behalf, the performance of which requires the delegation of some decision making authority to the agent'. Conflicts between managers and owners arise when they have dissimilar and contrary interests such that the acts of the managers do not meet the interests of the owners. Jensen and Meckling (1976) point out that the agents (manager in a company) are assumed to make decisions that maximise their own interests and that may not be consistent with the interests of the principals (the owners of the company). Where such conflict occurs it results in cost to the principals and this cost is known as agency or conflict cost (Watts & Zimmerman, 1990).

Within the framework of agency theory, corporate governance provisions arise as a result of agency conflict between different parties of a company. Because of the differences between the interests and incentives of managers, shareholders and other resource providers, sound corporate governance mechanisms must be put in place to reduce such conflict (Beasley, 1996).

As a control mechanism, Jensen (1994) outlines four basic categories of corporate governance: (1) legal and regulatory mechanisms; (2) internal control mechanisms; (3) external control mechanisms; and (4) product market competition. The current study focuses on internal control mechanisms of corporate governance as these mechanisms are within the control of a company and can thus vary across different companies¹¹. 'The internal governance structure of a firm consists of the functions and processes established to oversee and influence the actions of the firm's management' (Davidson, Goodwin, and Kent, 2005, p.244).

Proper corporate governance conducts may control and minimise the default probability as well as ensuring good performance and maintaining high firm value. As has been reviewed in Section 3.2, default risk could arise due to excess leverage, poor financial performance and weak internal control practises. Sound corporate governance *via* its monitoring may help to mitigate default risk.

¹¹ Controls such as legal and regulatory mechanisms are constant across companies and therefore will not explain cross sectional differences in corporate characteristics such as ERC.

3.3.1 Corporate governance and leverage

Debt is a disciplining device for solving agency problems. Debt constrains managerial expropriation by imposing fixed obligations on corporate cash flows (Jensen and Meckling, 1976; Jensen, 1986). Corporate governance mechanisms may reduce the extent of debt financing and associated unnecessary corporate diversification decision. Based on China's listed firms, Larry (2010) examines how ownership structure relates to corporate diversification strategy and debt-equity financing. He finds that government-controlled firms have less leverage than non-government controlled ones. His results provide evidence that government-controlled firms use less debt financing and that government ownership mitigates the positive association between unrelated corporate diversification and leverage. Firms that are ultimately owned by the government have a stronger negative relationship between corporate diversification and leverage.

Corporate ownership and control may have impacts on debt. Committing a particular default may not reduce a manager's net-worth by much but nevertheless it may be sufficient to tarnish his/her image and reputation. The same however, cannot be said of a controlling shareholder who employs himself and decides on the borrowing. Faccio, Lang and Young, (2001) analyse firm ownership, control and leverage of all listed corporations with credible accounting data in the five largest European economies and nine East Asian economies. Their results are a study in contrasts. European capital market institutions were effective in containing the abuse of debt and also competition for capital from informed external suppliers restricted the leverage of group affiliates that seemed more vulnerable to expropriation. On the other hand, Asian capital market institutions were ineffective in

containing the abuse of debt and their group affiliates that were more vulnerable to expropriation were more levered, giving the controlling shareholder control of more resources to expropriate without direct liability for more debt.

Klock et al. (2005) find that antitakeover governance provisions lower the cost of debt financing and are favourably viewed in the bond market. Examining the relation between the cost of debt financing and a governance index that contains various antitakeover and shareholder protection provisions, they divide their data into firms with the strongest management rights (strongest antitakeover provisions) and firms with the strongest shareholder rights (weakest antitakeover provisions). Their findings show that strong antitakeover provisions are associated with a lower cost of debt financing while weak antitakeover provisions are associated with a higher cost. The result suggests bondholders may perceive takeovers as facilitating wealth transfers from debt holders to equity holders.

Sarkar and Sarkar (2008) examine the role of debt in corporate governance in India where debt is an important source of external finance. They compare and evaluate the role of debt in group affiliated *versus* standalone firms to study whether the governance role of debt is sensitive to firm's ownership and control structures. Their results show that in the early years of institutional change in India, debt did not have any disciplinary effect on either group affiliated or standalone firms. However, the effect appeared in the later years as institutions became more market oriented. They find that the disciplining role of debt is sensitive to the corporate ownership and control structures.

According to Wittenberg-Moerman (2008), timely loss recognition may decrease information asymmetry in loan trading by enhancing corporate governance of a borrower and by increasing the amount and quality of information available to secondary loan market participants. Based on a US sample firms, her results show that good corporate governance and increased quality of the information to market participants and timely loss recognition reduce information asymmetry in the secondary loan trade and thus reduce the bid-ask spread at which loans are traded.

3.3.2 Corporate governance and financial performance

Several studies present evidence suggesting effective governance may improve firm performance. Hermalin and Weisbach (1988) examine the determinants of board composition based on New York Stock Exchange (NYSE) traded companies. They find that firms that perform poorly tend to remove insiders and add outsiders on their boards. The replacement of insiders with outsiders may be motivated by shareholders responding to inadequate monitoring by the current board (Parker, Peter and Turetsky, 2002). However it could also result simply from the firing of the insider identified with the poor performance and with no insiders left to fill the vacancies. Based on 800 US firms, Agrawal and Knoeber (1996) find relationships between firm performance and insider shareholdings, outside director, debt and corporate control activity whenever each of these mechanisms is included in separate regressions.

Poor corporate governance has been regarded as one of the key factors that caused the Asian financial crisis in 1997 (Mitton, 2002). Based on a study of 25 emerging markets around the world, Johnson, Boone, Breach and Friedman (2000) present evidence that the weakness of legal institutions for corporate governance had an important effect on the extent of depreciations and stock market declines in the Asian crisis. They find corporate governance variables provide better explanatory power for the crisis than macroeconomic variables. They also point out that poor economic prospects exacerbate agency problems, which in turn caused the stock markets to crash and currencies to depreciate, especially in countries with weak corporate governance.

Although published financial statements provide important information, financial distress might be made more predictable with the addition of corporate governance variables to accounting information. Based on a study of 46 healthy and 46 financially distressed Canadian firms, Elloumi and Gueyie (2001) suggest that the composition of board may provide additional information about the likelihood of a firm's financial distress.

Corporate governance mechanisms are also vital to the likelihood of survival for distressed firms. Parker et al., (2002) investigate the association of various corporate governance attributes and financial characteristics with the survival likelihood of distressed firms. Using a sample of US firms from the period 1988-1996, their results suggest firms that replaced their CEOs with outsiders were more than twice as likely to experience bankruptcy. On the other hand, higher levels of block holder and insider ownership are positively associated with firm survival.

Gompers, Ishii and Metrick (2003) construct a 'Governance Index' based on 24 governance mechanisms to proxy for the level of shareholder rights in about 1500 large firms during the 1990s. They find that firms with stronger shareholder rights had higher firm value, higher profits, higher sales growth, lower capital expenditure and made fewer corporate acquisitions.

Ehikioya (2009) examines the link between corporate governance structures in Nigeria. His study uses a sample of 107 firms quoted in the Nigerian Stock Exchange for the fiscal years 1998 to 2002. His results show that ownership concentration has a positive impact on performance. Although the results reveal no evidence to support the impact of board composition on performance, there is significant evidence to support that CEO duality adversely impacts firm performance.

Based on publicly listed companies in New Zealand, Reddy, Locke and Scrimgeour (2010) examine the effect that principles-based corporate governance practices have on firm financial performance. They measure firm performance by Tobin's Q; ratio of market value to book value of assets (MB) and return on assets (ROA). Their results show that the presence of a remuneration committee has had a positive influence on firm performance.

3.4 CORPORATE GOVERNANCE AND DEFAULT RISK

Myers (2001, p. 96) asserts that ‘conflicts between debt and equity investors only arise when there is a risk of default. If debt is totally free of default risk, debt holders have no interest in the earnings, value or risk of the firm. But if there is a chance of default, then equity investors stand to gain at the expense of debt investors’. According to Sheikh and Wang (2011) while transferring value from debt holders to shareholders, managers can bring into play numerous options. For instance, managers can invest in riskier assets, borrow more and pay out cash to shareholders, cut back equity-financed capital investments and postpone immediate bankruptcy or reorganisation by obscuring financial problems from the creditors.

Although previous studies (see Dhaliwal and Reynolds, 1994; Kai, 2002; Kim, 2005, Shangguan, 2007; Cheng and Nasir, 2010) have shown that default risk is significant to ERC as an additional risk factor, default risk however is a non-systematic risk. Default risk may be mitigated with a proper conduct of corporate governance. Corporate governance can be employed to monitor firms’ debt and repayment activities. Boards of directors, for instance, are charged among other things, with monitoring and disciplining senior management, and similarly lending agreements typically require boards to supply audited financial statements to the firm’s creditors (Dichev and Skinner, 2002).

Corporate default may have an impact on the firm's ownership and governance. Based on 111 US publicly traded firms that either went bankrupt or privately restructured their debt, Gilson (1990) found that creditors exercise significant influence over resource allocation decisions, especially in financially distressed firms. His results show that whenever banks increase their monitoring on distressed firms, more than half of the directors and CEOs resign. Moreover, the average size of the board also declines.

Upon examining the effect of governance variables on bond ratings, Bhojraj and Sengupta (2003) find that institutional ownership and outside directors have a favourable impact on default risk. Using a sample of 1005 industrial bond issues for the period of 1991–1996, and after controlling for other potential determinants of ratings and yields, they show that firms with larger institutional ownerships enjoy higher bond ratings and lower bond yields. Their findings also indicate that institutional ownership and outside directors have stronger effects on bond ratings for lower rated bonds. They assert that the monitoring role of governance mechanisms would be more critical when dealing with debt of poor quality.

Weak corporate governance may increase the probability of a firm becoming financially distressed. Lee and Yeh (2004) examine three corporate governance variables: percentage of directors allied with the controlling shareholder; the percentage of the controlling shareholders shareholding pledged for bank loans; and the deviation in control away from the cash flow rights. Based on Taiwanese listed firms which are characterised as primarily family controlled with a high degree of ownership concentration, they find that all three

proxies for corporate governance risk mentioned are positively related to the risk of financial distress in the following year.

Employing an agency theory framework, Ashbaugh-Skaife et al. (2006) examine whether credit ratings have any relationship to corporate governance practices for a sample of US firms. Focusing on the value of governance from the bondholders' perspective, their results show that firms incur higher debt financing costs as a result of poor governance. Their results also indicate that credit ratings are positively related to: takeover defense, accrual quality, earnings timeliness, board independence, board ownership and board expertise while CEO power and the number of block holders, on the other hand, are negatively related to credit ratings.

Chiang, Yeh and Chen (2008) divide their Taiwanese sample firms into high-tech and conventional industries to examine how corporate governance characteristics may affect default risk. Their overall findings show that firms face higher default risk with larger institutional ownership, higher percentage of large shareholders, and stock pledge ratio while higher managerial ownership appears to reduce the firm's default risk. For the high-tech industry sub-sample, their results indicate that the relation between government ownership and default risk is negative and both large shareholders and board size have positive effects on default risk. However, in the conventional industry sub-sample, default risk is greater for firms with larger institutional ownership and stock pledge ratio are. Their overall results imply that corporate governance mitigates default risk, at least to some extent.

In a study to investigate whether the quality of a firm's corporate governance practices and its sustainability disclosures are inversely related to its assessed default risk, James-Overheu and Cotter (2009) find that, for a sample of Australian firms, annual report disclosures about corporate governance practices and sustainability practices are not useful for the assessment of default risk, when firm size is controlled for.

Recognising the importance of the quality of corporate governance on a firm's credit rating, rating agencies are found to incorporate corporate governance factors in their rating methods. Standard and Poor's (2002) rating framework focuses on four major components of governance: ownership structure and influence; stakeholder's rights and relations; financial transparency; and board structure and processes. Credit rating agencies are concerned with corporate governance because weak corporate governance could impair a firm's financial position and leave debt stakeholders vulnerable to losses (Fitch Ratings, 2004).

3.5 CORPORATE GOVERNANCE MONITORING MECHANISMS

Prior studies have shown that corporate governance mechanisms can alleviate agency costs and any inefficiency that arise from moral hazards. The external auditor, the board of directors and the board's audit committee are the key players in a firm's corporate governance structure. The basic function of the board is to oversee the performance of management and to determine whether the business is being soundly managed. Keenan (2004) points out that the board's key tasks can be divided into three main areas: determining the strategy of the business; identification and appointment of senior management,

particularly the CEO; and ensuring that the company has appropriate, adequate and relevant information, and a control and audit system is in place. Enhancing the effectiveness of the board should thus improve performance and ensure that shareholder interests are promoted (Boo, 2003). The audit committee (AC) is an operating committee of the board of directors charged with oversight responsibility of financial reporting and disclosure. The AC thus needs to meet regularly with the company's external and internal auditors to review the corporation's financial statements, audit process, and internal accounting controls.

3.5.1 Audit quality

Audit quality is vital to ensure the reliability of a firm's financial reports and the opinion on going concern status. Quality audits are performed to verify conformance to reporting standards through review of objective evidence. According to Gallegos (2004), the external auditor's report in corporate financial statements is seen as providing key assurance to the shareholders' interests. Auditors have an important role in facilitating reliable external assessment of the financial well-being of a company.

The Generally Accepted Auditing Standards¹², AU Section 341 specifies that in performing audit procedures, the auditor may identify information about certain conditions which indicate substantial doubt about the entity's ability to continue as a going concern for a reasonable period of time, for example, financial difficulties arising from possible default on a loan. Mutchler, Hopwood and McKeown (1997) find that auditors' going-concern opinion

¹² Generally Accepted Auditing Standards (GAAS) are the rules by which a Certified Public Account (CPA) must conduct while performing an audit of a company or government entity's financial statements. It was established by the American Institute of Certified Public Accountants in 1947.

decisions are significantly correlated with the probability of bankruptcy and with an audit-report lag variable. Based on a sample of bankruptcy-filing companies from 1974 to 1985, they find that the going-concern opinion is significantly correlated with both payment and covenant defaults.

Abbott, Parker and Peters (2003) examine whether auditors use the client's private information related to debtor-in-possession (DIP) financing in their going concern decisions. DIP financing consists of post-bankruptcy financing which is positively related to emergence from bankruptcy. Based on 124 financially distressed firms, their results suggest that auditors are more likely to modify their going concern decision for clients receiving DIP financing.

Ashbaugh and Warfield (2003) investigate the corporate governance role of external audits where companies traditionally rely more on debt than on equity capital. They partition the German audit market into dominant auditors' clients and all other auditors' clients. They find a positive relation between a company's demand for audit services and the stakeholders' interest in auditors (proxy provided by shareholders dispersion and foreign suppliers of audit service). Their results suggest that auditors play a corporate governance role subject to companies' relations with alternative stakeholders.

Auditor quality may reduce the impact of market conditions on client financial decisions and capital structure. Chang, Dasgupta and Hillary (2009) examine the effect of auditor quality on financing decisions based on a sample of companies listed in the Compustat Industrial

Annual files between 1985 and 2005. The results indicate that companies audited by Big 6¹³ firms are more likely to issue equity than take on debt than are those audited by non-Big 6 firms. Their results also show that companies audited by Big 6 auditors are capable of making larger equity issues than are those audited by non-Big 6 auditors. However, they find that improvement in market conditions reduces such difference. Additionally, the debt ratios of companies decrease less in response to favourable market conditions, at least over the medium term, when auditor quality is high.

Clients of a reputable auditor, e.g., Big 4¹⁴ and affiliates, are expected to exhibit higher accruals quality than clients of local auditors. However, Kabir, Sharma, Islam and Salat (2011) provide evidence that Big 4 affiliates do not have a positive impact on the accruals quality of their clients in an emerging market, Bangladesh. Kabir et al. (2011) suggest that affiliation with a Big 4 international accounting firm may not improve the quality of audit provided by the local affiliate unless there is market demand for quality differentiated audits and a strong monitoring and enforcement regime is in place.

¹³ Competition among public accountancy firms intensified from the Big 8 became the Big 6 in 1989, when Ernst & Whinney merged with Arthur Young to form Ernst & Young, and Deloitte, Haskins & Sells merged with Touche Ross to form Deloitte & Touche.

¹⁴ This group of public accountancy firms was once known as the "Big 8" (1987), and was reduced to the "Big 6" (1989-1998) and "Big 5" (1998-2001) by a series of mergers. The Big 5 became the Big 4 after the demise of Arthur Andersen in 2002. The final Big 4 are Deloitte, Ernst & Young, PricewaterhouseCoopers (PwC) and KPMG.

3.5.2 Audit committee expertise

The rules set by the Sarbanes–Oxley Act of 2002 (SOX)¹⁵ require the presence of at least one financially knowledgeable director on the AC and the independence of all its members while the NYSE requires all members of the AC to be independent and financially knowledgeable. The NYSE also requires at least one member of the AC to have accounting knowledge. Auditing experts believe committees with such composition provide effective monitoring because they are free from any influence from the firm’s CEO and possess the financial and accounting background needed to understand what is going on in the firm.

Accounting expertise is important to AC because AC best practice requires members to have relatively high degree of accounting sophistication. ‘Good governance promotes relationships of accountability among the primary corporate participants to enhance corporate performance. It holds management accountable to the board and the board accountable to shareholders. In this paradigm, the board is in place to ensure that management is working in the best interests of the corporation and its shareholders by working to enhance corporate economic value. The AC’s role flows directly from the board oversight function. Such oversight includes ensuring that quality accounting policies, internal controls, and independent and objective outside auditors are in place to deter fraud, anticipate financial risks and promote accurate, high quality and timely disclosure of financial and other material information to the board, to the public markets, and to shareholders (Blue Ribbon Committee (BRC) report, 1999, p. 20).

¹⁵ Also known as the Corporate and Auditing, Accountability and Responsibility Act. SOX, is a United States federal law enacted on July 30, 2002, which set new or enhanced standards for all U.S. public company boards, management and public accounting firms.

Defond, Hann and Hu (2005) analyse 702 announcements of newly appointed outside directors to AC from the Corporate Library database from 1993 to 2002. They find a positive market reaction to the appointments of accounting experts to ACs but no reaction to appointments of non-accounting experts to such committees. Additionally, they find that the market reacts positively to firms with relatively strong corporate governance. They suggest that strong governance helps to channel the expertise toward enhancing shareholder value. Chan and Li (2008) examine the relation between independence of audit committee and firm value. Based on 200 sample firms, their findings indicate the independence of AC results in higher firm value when a majority of expert-independent directors serve on the board. Based on a sample of 1052 firm-year observations in the U.S., Anderson et al. (2004) find no relation between debt costs and financial experts serving on the audit committee.

3.5.3 Audit committee independence

The composition of the AC contains important information on the credibility and independence of the committee. An independent AC acts as a safety net protecting the auditor from undue pressure from management by providing assurance that the auditor appointment and reappointment decisions are in the hands of the committee and not in those of management. An independent AC is also more likely to mitigate any pressure on the auditors by management matters of disagreement on accounting treatments, to issue an unqualified report and therefore enable the auditor to be more objective and effective.

Carcello and Neal (2000) present evidence on AC composition and auditors' going concern reporting behaviour. In a sample of financially distressed US firms in 1994, they find an inverse relation between the likelihood of receiving a going-concern qualification and the percentage of affiliated directors on the AC. In other words, in firms experiencing financial distress, the greater the percentage of affiliated directors on AC, the lower the probability auditors will issue going-concern qualifications.

The AC is an appropriate device for strengthening the monitoring system, financial reporting quality and corporate governance environment. Piot (2005) examines the AC determinants based on 285 listed firms in France. His results show that the existence of an AC and its independence are both negatively correlated with insider ownership. His findings indicate an AC complying with corporate governance recommendations has positive impact on leverage if the firm has a high Investment Opportunity Set (IOS)¹⁶. This occurs because debt holders who invest in high IOS companies demand greater guarantees regarding the value of the firm.

AC members are required to be independent in order to monitor the firm's activities in the capital market. Para 15.10 BMLR stresses this issue by highlighting AC composition in Malaysia. Malaysian listed firms are required to ensure that a majority of their AC members are independent. The BRC (1999) and the National Association of Corporate Directors (NACD) (1999), both suggest ACs are likely to be more effective in protecting the credibility of the firm's financial reporting if committee members are independent of management.

¹⁶ Kallapur and Trombley (2001, p. 4) define IOS as value of options to make positive Net Present Value investments

Chen, Kilgore and Radich (2009) examine the relationship between firms' characteristics and incentives for the voluntary formation of audit committees. Based on a random sample of 224 non-top 500 firms listed on Australian Stock Exchange for 2005, their results show a significant and positive association between voluntary formation of ACs and cost of debt, firm size, board size, directors' independence, and board chair independence. Additionally, their results suggest ACs will be established in situations where the agency cost of debt is high: there are economies of scale; a desire to reduce information asymmetries; and a desire to reduce risk and liabilities of outside directors.

3.5.4 Board independence

Another important corporate governance mechanism is board quality as this manifests in board independence and board ownership. Pearce and Zahra (1992) examine the association between corporations' environments, strategies, and past performance and the composition of their boards of directors. Their results indicate a positive association between outside board members and financial performance. Beasley (1996) examines the relationship between the composition of the board of directors and financial statement fraud using a sample of 75 firms subject to fraud and another 75 firms free from fraud. He finds that no-fraud firms have boards with a significantly higher percentage of outside members than do fraud firms.

Using the expense ratio as a measure of board effectiveness, Del Guercio, Dann and Partch (2003) analyse whether board structure and director independence in closed-end investment

companies¹⁷ are related to shareholder interests in ways consistent with boards being effective monitors. Using 506 closed-end funds, their results show smaller boards and boards with a higher percentage of independent directors to be more effective.

In the UK, Peasnell, Pope and Young (2005) examine the relationship between earnings management and board monitoring. They use outside board members and AC as proxies for board monitoring. Their results show the likelihood of managers making income-increasing abnormal accruals is negatively related to the proportion of outsiders on the board. They suggest that boards contribute towards the integrity of financial statements.

Ding and Wermers (2005) analyse the relationship between performance and governance structure of US open-end, domestic-equity mutual funds during the 1985–2002 period. Examining the role of fund boards, they find that boards with a greater number of independent directors are associated with better performance and are more likely to replace underperforming portfolio managers. They assert that board structure, as measured by its degree of independence, is an important determinant of governance quality. Black, Jang, and Kim (2006) find stronger governance increases a firm's value. They find that Korean firms with 50% outside directors have a higher Tobin's Q (roughly 40% higher share price). Their evidence supports the idea that greater board independence causally predicts higher share prices in emerging markets.

¹⁷Del Guercio et. al (2003) explain that the closed-end fund industry is a useful setting for analysing the extent to which boards of directors serve shareholder interests because that boards of closed-end funds have limited monitoring responsibilities. This is in contrast to industrial corporations where boards often provide strategic expertise as well as monitoring management.

Dunstan, Keeper, Truong and van Zijl (2011) examine the relationship between board structure and firm value and the extent to which this relationship may be affected by the level of growth options relative to assets-in-place. Based on a sample of 543 firm-year observations from the firms listed on the New Zealand Stock Exchange, they find a higher percentage of independent directors on the board and a larger board size to be more value relevant for firms with higher growth options.

However, outside directors in the board may not always improve governance practices. Investigating the effect of board composition on earnings management in Canada, Park and Shin (2004) find no significant relationship between discretionary accruals and board composition. They do not find that monitoring by outside directors is more effective after the issuance of the Toronto Stock Exchange's Corporate Governance Guidelines of 1994.

3.5.5 Board shareholding

Board ownership is an essential corporate governance mechanism ensuring boards have a direct impact, either individually or collectively, on any corporate performance. If the board holds a higher proportion of equity ownership in a firm, the risk of being unable to meet debt repayment obligations would be lower because the board members have incentives to safeguard their own reputation in the labour market for directors and also the reputation of the firm in the debt market. Therefore, higher board ownership is likely to be negatively associated with default risk.

The standard agency cost theory suggests that increasing controlling owners' equity interest in a firm can reduce asymmetric information and increase monitoring of managers (Shleifer and Vishny, 1986). A study by Yermack (1996) using Tobin's Q as an approximation of market valuation based on 452 large US industrial corporations finds that officers' and directors' stock ownership are significantly related to market value and negatively correlates with board size.

Greater board ownership implies higher responsibility as they own the company. Bhagat and Bolton (2008, p. 258) mention that 'corporate boards have the power to make, or at least ratify, all important decisions including decisions about investment policy and management compensation policy'. They find that ownership of board members and CEO-Chair separation is significantly and positively correlated with better contemporaneous and subsequent year return-on-assets.

3.6 CHAPTER SUMMARY

The foregoing review of the literature began by identifying the major ERC determinants of: beta, growth, earnings persistence, and size. It then moved on to consider the economic context of earlier work. Most of the studies examined have been undertaken on developed markets. Emerging markets however, have their own unique characteristics and it is believed that they might also provide important insights into the relationship between abnormal return and unexpected earnings. The review then proceeded to consider the evidence on default risk accounting for the gap left by beta in explaining variation in ERC.

Finally, the review considered the possible mitigating effect of corporate governance on the relationship between default risk and ERC. To this end it examined the benefits of corporate governance monitoring tools in the prevention of excessive risk taking, the provision of high quality financial reporting, and superior firm performance.

CHAPTER FOUR: HYPOTHESES DEVELOPMENT

4 INTRODUCTION

This chapter develops the hypotheses to test the relationships among ERC, default risk and corporate governance. Following this introduction, Section 4.1 describes the framework of the study based on the theoretical framework discussed in the previous chapter. Section 4.2 outlines the development of the hypotheses and is divided into six sub-sections related to the six testable hypotheses. Section 4.3 discusses the control variables while Section 4.4 provides a summary of the chapter.

4.1 THE STUDY FRAMEWORK

The present study examines the role of corporate governance in the default risk-ERC relationship in the Malaysian corporate sector. As described in Section 3.1, prior researchers have consistently found that beta, growth, earnings persistence, and firm size are the principal determinants of ERC. However, Fama and French (1992) suggest that equity beta may be an incomplete or inappropriate proxy for risk adjustment, as beta does not appear to capture all the dimensions of the riskiness of equity. Their findings show that the relationship between beta and average return in NYSE stocks is weak in the period 1941-1990 and disappeared in the period 1963-1990. Thus, accepting that beta does not adequately capture all aspects of equity risk, default risk emerges as a strong contender to capture the part of equity risk not captured by beta.

The capital structure theory advanced by Modigliani and Miller (1958) is relevant in this context. Businesses face two types of risks — business risk and financial risk. Business risk, which primarily arises from economic factors such as demand elasticity of firms' products, input prices, and competition within industry, is independent of a firm's capital structure while financial risk is a function of a firm's debt-equity mix. The degree of undiversifiable business risk determines the required return on unlevered equity.

The cost of servicing debt is a fixed commitment. As a result, the earnings per share (EPS) of a levered firm is more sensitive to changes in earnings before interest and taxes (EBIT) compared to that of an unlevered one. Financial risk resulting from debt in the capital structure of the firm thus increases the required return on equity. Modigliani and Miller (1958) show that in the absence of taxes, the impact of the higher required return on equity is exactly offset by the lower cost of debt capital and thus the weighted average cost of capital (WACC) is invariant to leverage. However, under a classical tax structure, the still lower after tax cost of debt results in WACC being a linear decreasing function of leverage.

These results reflect the assumptions made by Modigliani and Miller (1958) regarding capital markets. In particular, Modigliani and Miller (1958) do not recognise, on the one hand, the monitoring benefits resulting from debt holders having an interest in the firm and, on the other hand, that firms would incur bankruptcy costs in the event of default. In the real world, the combined impact of these factors is such that the relationship between leverage and

WACC is likely to be convex from below, with the optimum capital structure being where additional debt leads to an increase in WACC.

Highly levered firms attract greater monitoring by debt holders and other actors in the firm's corporate governance structure. Debt holders and others monitor the activities of the firm to secure payment of interest and principal and to avoid the risk of bankruptcy that may result from default. Banks and other creditors have an extremely important role to play in fostering efficiency in medium and large private or state-owned firms. According to Gray (1997), creditors (like equity holders) can monitor firms either actively or passively. The active mode involves hands-on evaluation of a firm's operations, investment decisions, and capacity and willingness to meet debt obligations. The passive mode depends on property collateral for security. Although the level of debt is an internal decision, higher debt is expected to be associated with higher monitoring from debt holders (Agrawal and Knoeber, 1996; and Daniels, 1995).

Firms with higher debt are more likely to engage in earnings management to avoid debt covenant violations (DeFond and Jiambalvo, 1994). However, debt could also have a positive monitoring effect. Grossman and Hart (1982) assert that debt forces managers to conduct operations more efficiently in order to lessen the probability of bankruptcy, loss of control and loss of reputation. The degree of monitoring by debt-holders will depend, *inter-alia*, on the size of the debt holders' stake in the business (Daniels, 1995). Debt could also spur opportunistic behaviour by management in the form attempts to frustrate debt covenant

restrictions or actions causing wealth transfer from debt-holders to managers or owner-managers (Jensen and Meckling, 1976).

Lenders need information on the creditworthiness of potential borrowers. Even if such information is available from potential borrowers, bank employees are often not trained in techniques of market analysis and loan appraisal (Gray, 1997), and thus experience difficulty using that information. This problem leads to information risk, the risk of having private information that would adversely affect the default risk of debt. Strong corporate governance can reduce information risk by inducing firms to disclose information in a timely manner (Bhojraj and Sengupta, 2003). Timely and detailed disclosure reduces lenders' perception of default risk. Therefore, lenders will trust potential borrowers more if the firm concerned has sound corporate governance.

This study extends prior studies (Dhaliwal and Reynolds, 1994; Kai, 2002; Kim, 2005; Shangguan, 2007, and Cheng and Nasir, 2010) by investigating whether corporate governance practices in emerging markets are able to mitigate the effect of default risk on ERC. In this study, the focus is on the characteristics of firms in one such market, Malaysia.

Figure 4.1: Study Framework

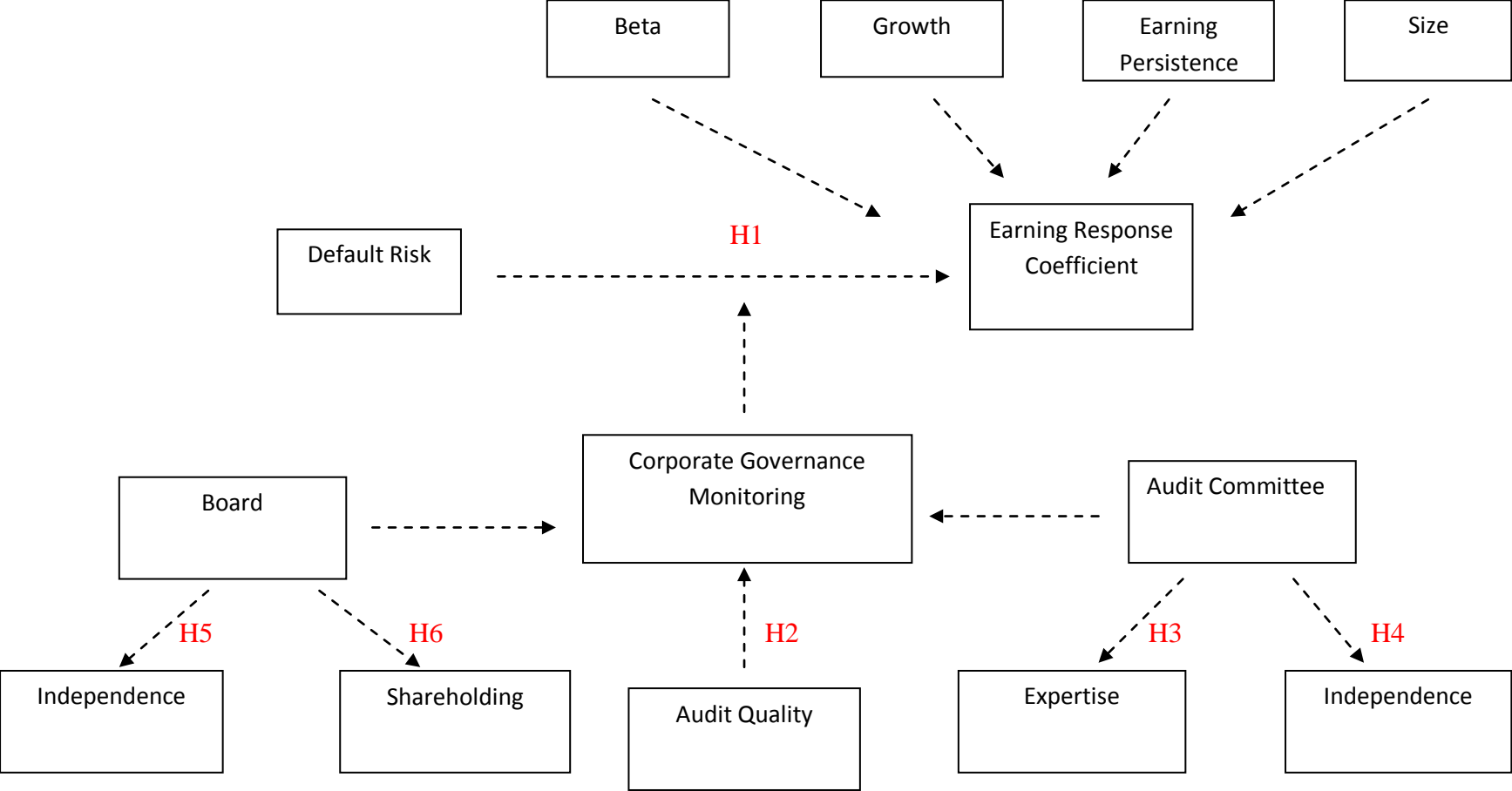


Figure 4.1 illustrates the overall structure of the study. The expected links between default risk, ERC and corporate governance, as modeled in Figure 4.1, set the framework used to develop the hypotheses of this study. Hypothesis 1 examines whether default risk has any effect on ERC after controlling for equity beta, growth, earnings persistence and size. Hypotheses 2 to 6 test the effects of various corporate governance mechanisms on the relationships between default risk and ERC specifically those of audit quality, AC expertise, AC independence, board independence and board shareholding. The development of the hypotheses is discussed in the following section.

4.2 HYPOTHESIS DEVELOPMENT

4.2.1 Default risk and ERC

Total risk can be decomposed into systematic risk and unsystematic risk. Systematic risk arises from factors common to all securities whereas unsystematic risk reflects variations in factors unique to a given security. According to the CAPM of Sharpe (1964), Lintner (1965) and Black (1972), beta is the sole determinant of systematic risk — it reflects sensitivity to variations in return on the market portfolios of all risky assets. In mathematical terms, the systematic risk, SR_j , in portfolio (or security) j is given by $SR_j = \beta_j^2 \sigma_m^2$, where β_j is the beta of the portfolio and σ_m^2 is the variance of return on the market portfolio.

Despite these theoretical links, empirical studies have found either no link or weak links between beta and return. In particular, as reported above, Fama and French (1992) find weak links. However, the results of the empirical studies are subject to the difficulty of conducting tests with proxies for the market portfolio of risky assets rather than the true market portfolios and therefore inconclusive (Roll, 1977; and Roll and Ross, 1994). Nevertheless, Dhaliwal et al. (1991) find that default risk appears to complement beta in explaining return. Firms heavier in debt are perceived to have greater risk of default (Ashbaugh-Skaife et al., 2006; and Cheng and Subramanyam, 2008).

Fargher, Wilkins and Webb (2001) find that debt covenant violations are associated with significant increases in both systematic and unsystematic risks. They also show that the change in unsystematic risk associated with technical default is a significant predictor of future exchange delisting, even after controlling for other factors typically associated with increasing financial distress. Market-perceived equity risk of a firm increases as the default risk of its debt increases (Bhamra, Kuehn and Strebulaev, 2010).

Systematic and unsystematic risks have mixed effects on ERC. Dichev (1998) provides evidence that firms with a higher bankruptcy probability and firms that have experienced exchange delisting (an alternative measure of default risk) earn lower than average future stock returns. Moreover, Chambers, Freeman and Koch (2004) suggest that ERCs increase with both systematic and specific risks because risk is positively associated with the sensitivity of dividend expectations to firm-specific news. On the other hand, Easton and Zmijewski (1989) find that ERCs decline with systematic risk because the dividend discount

rate increases with systematic risk. Dhaliwal and Reynolds (1994) present evidence that firms with lower debt ratings (higher debt-equity ratios) have a lower ERC after including proxies for equity beta and earnings persistence. Additional debt reduces ERC by introducing higher equity and default risks (Kai, 2002; and Kim, 2005).

With the assumption that higher default risk is associated with higher expected future return, investors appreciate information on default risk as it may protect them from inappropriate investment decisions. Franke and Krahnen (2007) find that in a collateralised loan obligation (CLO) transaction, the bank transfers default risk of the underlying loans to other market participants, i.e., the investors. Since the bank usually has inside information about its borrowers, it has to offer some credit enhancements in a CLO-transaction to protect investors against potential effects of asymmetric information.

The first hypothesis is;

H1 *Ceteris paribus, default risk has a significant negative relationship with ERC*

4.2.2 The effect of audit quality on the association between default risk and ERC

Corporate governance attributes can act as non-financial indicators to creditors. If corporate governance practices are sound, there is likely to be more trust in a firm's commitment to meeting its obligations with respect to debt. This is especially so in emerging markets where the legal system is weaker (La Porta et al., 2000; and Francis et al., 2007). It is expected that

sound corporate governance could mitigate default risk by providing more powerful monitoring tools.

Providers of debt capital are likely to pay attention to the overall quality of the monitoring devices and tools put in place within borrower firms, as well as to the quality of their financial reporting, for assessment of operating and financial risks. Broye and Weill (2008) provide evidence that the stronger the protection of creditor rights and disclosure requirements, the higher the demand for audit quality by highly-leveraged companies.

A firm is perceived as a nexus of contractual relationships between different interested groups (Jensen and Meckling, 1976). The most important among these agency relationships are those between managers (agents) and shareholders (principals) and between creditors (principals) and shareholders (agents). In these relationships, the agents are expected to act in the best interests of the principals. However, various mechanisms must be put in place to ensure that agents protect the interests of other parties involved. One such mechanism is auditing of the financial statements (Jensen and Meckling, 1976; Chow and Rice, 1982; Watts and Zimmerman, 1986; and Arnold and Lange, 2004). The value of this crucial role depends largely on audit quality.

Audit quality can be defined as the probability that an error or irregularity will be detected and that if detected, such a breach, i.e., an error or irregularity, will be reported (DeAngelo, 1981). In other words, high audit quality is associated with an absence of material omissions or misstatements in financial statements. Chang et al. (2009) find that debt to equity ratios of

companies decrease in response to favourable market conditions when audit quality is high. Firms that were audited by Big 6 are more likely to issue equity as opposed to debt than those audited by small audit firms.

An auditor is required to make a going concern qualification if the auditor believes a company may not survive 12 months from its balance sheet date. In the aftermath of the Enron bankruptcy in 2001 and the subsequent collapse of Arthur Andersen in 2002, debate arose on the quality of audits performed by accounting firms, especially those by the large Big 4 accounting firms. However, it could be argued that auditors are not responsible for predicting bankruptcy, and it is possible for companies to fail for reasons other than those that auditors could reasonably have anticipated 12 months in advance (Francis, 2004). The model of audit quality describes audit quality as the combination of two dimensions: competency to detect any misstatement and independence to report such misstatement (Al-Ajmi and Saudagaran, 2011). Large audit firms are expected to be more likely to discover and disclose any internal control deficiencies due to reputation concerns, investment in technology and training, and litigation concerns (Ashbaugh-Skaife, Collins and Kinney, 2007).

Reputable auditing firms receive a brand name price premium in competitive markets, which implies that quality differentiation exists. Pittman and Fortin (2004) examine the impact of auditor choice on debt pricing in firms' early public years when they are lesser known. Their evidence suggests that retaining a Big 6 auditor, can reduce debt-monitoring costs by enhancing the credibility of financial statements, and thus enable young firms to lower their borrowing costs. Craswell, Francis and Taylor (1995) explain that although all public

accounting firms must comply with minimum professional standards, the Big 6 firms voluntarily invest in higher levels of expertise and have incentives to provide higher-quality audits to protect their reputation. According to Mansi, Maxwell and Miller (2004), the insurance and information role of audits are economically significant to the cost of debt. They find a negative relation between auditor quality and the return investors require on corporate bonds. This impact is approximately twice as large for noninvestment-grade firms compared to investment-grade ones.

Large auditing firms are more concerned with their reputation than lower-tiered auditors (DeAngelo, 1981). These reputation concerns may lead to more thorough audits to avoid erroneous conclusions. Willenborg (1999) suggests that it is widely perceived that larger, more prestigious audit firms have greater incentives not to perform low-quality audits at high-quality prices. Higher quality audits should reduce the information asymmetry between informed managers and uninformed suppliers of capital and thus could affect company's financing decisions. Auditors with high reputation perform more transparent audit and are believed to be better at alerting the possibility of financial distress.

The next hypothesis is:

H2 *Ceteris paribus, the negative effects of default risk on ERC decrease in magnitude as audit quality increases*

4.2.3 The effect of audit committee expertise on the association between default risk and ERC

DeZoort, Hermanson, Archambeault and Reed (2002) define an effective audit committee as a body that has qualified members with the authority and resources to protect stakeholder interests. Committee members are drawn from members of the company's board of directors. The AC is typically empowered to acquire the consulting resources and expertise deemed necessary to perform their responsibilities. The AC needs to understand and address the risks that threaten the achievement of the organisation's objectives. In the US, the role of AC was a focus of the Sarbanes–Oxley Act (SOX) in 2002. SOX mandated every US company to have an AC. SOX also requires such ACs to comprise exclusively independent members. SOX further requires that ACs should have at least one financially knowledgeable member.

AC members are expected to be thorough in their oversight role and to deal objectively with management in carrying out their responsibilities. Chan and Li (2008) find that the presence of expert-independent directors on the board and the AC enhances firm value. Collier and Zaman (2005) suggest that AC will help to establish confidence in the financial markets.

AC quality may reduce the firm's potential for default in debt contracts by overseeing internal control practices. The quality of the AC relates to the level of governance expertise (Fama 1980) and, in particular, financial expertise among its members (BRC 1999). Krishnan (2005) examines the impact of AC quality on the existence of internal control problems. She

finds that firms with a higher level of financial expertise on the AC are less likely to have internal control problems.

The reported empirical evidence supports the argument that a financially knowledgeable AC is beneficial to the firm. Indeed, Agrawal and Chadha (2005) show that the probability of earnings restatement is lower in firms whose ACs have an independent director with a background in accounting or finance while Abbott, Parker and Peters (2004) find that the absence of a financial expert on the AC is significantly associated with an increased probability of financial misstatement and financial fraud. Furthermore, Xie, Davidson and DaDalt (2003) show that the presence of investment bankers on the AC is associated with lower discretionary accruals in the firm. Davidson, Xie and Xu (2004) report a positive market response to the addition of a financial expert to the AC. Both papers report that the reaction is primarily driven by the appointment of directors with auditing or accounting experience. Accounting, auditing or financial expertise on the AC is vital to ensuring that firms are always adequately monitoring their debt obligations.

It is hypothesised that,

H3 *Ceteris paribus, the negative effects of default risk on ERC decrease in magnitude as audit committee expertise increases*

4.2.4 The effect of audit committee independence on the association between default risk and ERC

The benefit of having independent directors on the audit committee is still the subject of much debate, with conflicting results reported in the literature. Hayes, Mehran and Scott (2004) show that the firm's performance measured by the market to book ratio is unrelated to the fraction of outside directors serving on the AC and Beasley (1996) finds that the presence of an AC and its composition do not affect the likelihood of financial statement fraud. In contrast, Klein (2002) shows that firms with independent ACs are less likely to manage their earnings (indicated by abnormal accruals) than firms with insider-dominated ACs. Abbott et al. (2004) find that the presence of an AC comprised entirely of independent directors decreases the likelihood of both financial misstatement and financial fraud. Moreover, Carcello and Neal (2000) report an inverse relation between the likelihood of receiving a going-concern report and the percentage of affiliated directors sitting on the AC. Independent directors on ACs also have been found to control earnings aggressiveness (Klein, 2002; and Peasnell, et al., 2005).

Incidence of fraud and financial distress is often associated with internal control problems (Krishnan, 2005). Higher AC independence results in a better financial reporting quality (Carcello and Neal, 2003; and Felo, Krishnamurthy and Solieri, 2003) as an independent AC is significantly less likely to be associated with the incidence of internal control problems. Conventional wisdom has it that ACs carry out their oversight of the financial reporting process more effectively if they include a strong base of independent outside directors. As noted above, Klein (2002) provides evidence to support this assertion. She finds a negative

relation between AC independence and abnormal accruals. Wild (1994) believes that the AC helps alleviate agency problems by facilitating the timely release of unbiased accounting information by managers to shareholders, creditors, and other parties, thus reducing the information asymmetry between insiders and outsiders.

To the extent that better monitoring of the financial reporting process leads to less managerial opportunism and better financial transparency, this should lead to lower default risk for bondholders.

The following hypothesis is proposed:

H4 *Ceteris paribus, the negative effects of default risk on ERC decrease in magnitude as audit committee independence increases*

4.2.5 The effect of board independence on the association between default risk and ERC

Independent (non-executive) directors would be expected to increase the effectiveness of the board's monitoring function and promote the quality of reported earnings (Jaggi, Leung and Gul, 2009). Pincus, Rusbarsky and Wong (1989) suggest that the presence of outside directors on the board could increase the quality of monitoring because they are not affiliated with the company as officers or employees, and are thus independent representatives of the shareholders' interests.

Independent directors acting as representatives of shareholders, have a particularly strong incentive to prevent and detect opportunistic reporting behaviour by management (Fama and Jensen 1983). This incentive potentially is driven by two factors. First, the directors may seek to protect their reputation as experts in monitoring, because the market for directors punishes those associated with corporate disasters or poor performance (Fama 1980; Fama and Jensen 1983; and Gilson 1990). Second, from a legal liability perspective, directors who fail to exercise reasonable care in discharging their monitoring responsibilities are potentially subject to severe sanctions (Gilson 1990; and Sahlman 1990).

From a creditor's perspective, perhaps one of the most important factors influencing the integrity of the financial accounting process involves the board of directors. Standard and Poor's note in their credit rating documentation that board oversight of the accounting information process is a paramount concern in assessing firm default risks (Anderson et al., 2004). Hence, independent boards of directors have vital role in monitoring shareholders' and creditors' security by ensuring that financial information is accurate and that financial controls and systems of risk management are robust and defensible.

The next hypothesis proposed:

H5 *Ceteris paribus, the negative effects of default risk on ERC decrease in magnitude as board independence increases*

4.2.6 The effects of board shareholding on the association between default risk and ERC

Separation of ownership and control has been recognised to have a potentially adverse effect on firm value (Mustapha and Che Ahmad, 2011). The incentive to pursue personal benefits increases when the manager owns a smaller portion of the firm's shares (Mat Nor and Sulong, 2007). The incentive to make sub-optimal investments and misappropriate assets declines as a manager's share ownership increases because his/her share of a firm's profit increases with ownership while benefits from perquisite consumptions are constant (Ang, Cole and Wuh Lin, 2000; and Fleming, Heaney and McCosker, 2005). When managers own shares in the firm, they have incentives to increase the value of the firm rather than shrink it (Jensen and Meckling, 1976).

Bhojraj and Sengupta (2003) highlight the importance of board of directors from the creditors' perspectives. They assert that board may influence the integrity of the financial accounting process. Boards of directors are charged, among other things, with monitoring and disciplining senior management, and lending agreements typically require that boards supply audited financial statements to the firm's creditors (DeFond and Jiambalvo, 1994; and Dichev and Skinner, 2002).

The final hypothesis is:

H6 *Ceteris paribus, the negative effects of default risk on ERC decrease in magnitude as board shareholding increases*

4.3 CONTROL VARIABLES

In order to test the hypotheses, it is necessary to control for other variables which also determine ERC. These control variables are beta, growth, earnings persistence, and size.

4.3.1 Beta and ERC

Higher beta increases the discount rate that the market uses to price the unexpected revision of future earnings; therefore, beta is negatively associated with ERC. Collins and Kothari (1989) find evidence of a significant negative association between beta and ERCs based on a reverse regression of unexpected earnings on returns. Easton and Zmijewski (1989) report a significant partial correlation between ERC and beta. Lipe (1990) reports a significant negative correlation between beta and ERC. Dhaliwal and Reynolds (1994), Kai (2002), and Shangguan (2007), also find the same significant and negative correlation between ERC and beta. Kumar and Lim (2008) document that the coefficient on the interaction of earnings and beta indicates the marginal change in ERC for a unit change in beta, keeping other ERC determinants constant. They find a negative coefficient implying that ERCs decline as beta increases.

4.3.2 Growth and ERC

Collins and Kothari (1989) suggest that growth could affect future earnings and hence, ERC. They use the market to book ratio (MTB) as the indicator of growth. The difference between the market value and book value of equity represents the value of investment opportunities open to the firm. The MTB ratio depends on the extent to which the return in the firm's assets and expected future investments' exceed its required rate of return on equity. Therefore, future earnings and cash flows are affected by growth opportunities. The higher the MTB ratio, the higher is the expected growth in earnings and cash flows (Martikainen, 1997). Ghosh et al. (2005) discover that firms with revenue-supported increases in earnings have higher ERCs and firms reporting sustained increases in both revenues and earnings have higher quality earnings and a larger ERC than firms reporting sustained increases in earnings alone.

Billings (1999) examines the association between default risk and ERC with the inclusion of expected earnings growth in the model. He argues that the relation between bond ratings and ERC is not significant, while the association between debt/equity ratios and ERC is weakened. His findings suggest part of the reason for the negative association between default risk and ERC is that the proxies for default risk also reflect expected earnings growth. Hackenbrack and Horgan (2002) suggest that growth does not positively explain ERC, however, Shangquan (2007) provides evidence that earnings growth measured by market to

book asset ratio is a positive and significant determinant of ERC in the presence of illiquid growth opportunities¹⁸.

4.3.3 Earnings persistence and ERC

The relation between accounting earnings and security returns can be analysed at the level of earnings alone, the change in earnings alone, or both, scaled by price. Donnelly (2002) considers situations where earnings follow a mixed process with both permanent (follow a random walk) and transitory components (non-recurring). He demonstrates that if earnings are either completely permanent or entirely transitory, the ERCs estimated by levels and changes models should coincide. However, if earnings comprise a mixed process of permanent and transitory components, the ERCs estimated by the levels will differ from that estimated by the changes model.

Persistent earnings are usually viewed by financial analysts and investors as a positive attribute of firms' earnings quality and thus are valued more than transitory earnings. Collins and Kothari (1989) find that earnings persistence is associated with a larger ERC. Barth, et al. (1999) show that an earnings increase following a past increase is associated with a stronger stock price boost than an earnings increase following a series of decreases. Therefore, earnings persistence is a key ERC determinant as it measures the degree to which current period earnings shock persists in the future and affects future earnings expectations. Thus,

¹⁸ The illiquid growth opportunities are measured by both factor analysis of three years average capital expenditure, R&D and average employment growth rates and the residual errors from regressing the firm's perception of growth opportunities on the market perception.

ERC is an increasing function of the extent to which the information in an earnings announcement results in a revision in expected earnings persistence.

4.3.4 Size and ERC

Collins and Kothari (1989) demonstrate that the earnings-returns relation varies with firm size, where size is a proxy for differences in the information environment¹⁹. Differences in the information environment affect the extent to which price changes anticipate earnings changes (Collins et al. 1987; and Freeman, 1987). Once differences in the information environment are controlled for by varying the return holding period, there is little difference in the extent to which price changes covary with earnings changes across firm size.

Shangguan (2007) provides evidence that firm size is a significant and positive function of ERC. Separating the study sample between December year-end firms and non-December year-end firms produce mixed results. The interaction of cumulative abnormal returns and firm size shows a positive and significant result for ERC in the presence of illiquid growth opportunities for the December year-end sample. For the non-December year-end sample, only the illiquid growth opportunity measurement, which is based on factor analysis of three years' average capital expenditure, R&D and average employment growth rates, give the positive and significant result for firm size and ERC.

¹⁹ Information environment is defined broadly to include all sources of information relevant to assessing firm value. It includes government reports on macroeconomic conditions, industry reports and trade association publications, firm-specific news in the financial press and reports issued by analysts and brokerage houses in addition to accounting reports, and vertical and intra-industry information transfers via sales and industry reports.

However, Martikainen (1997) analyses the impact of leverage and growth opportunities on accounting losses and ERC and find that the results are not sensitive to firm size after the sample was divided into different categories of market value of equity. Moreover, according to Cho and Jung (1991), most ERC studies agree that firm size is not an economic determinant of ERC.

4.4 CHAPTER SUMMARY

In summary, beta is expected to have a negative impact on ERC, while growth and earnings persistence show a positive impact. However, the impact of size is uncertain. Given the apparent inadequacy of beta as a complete explanation for the impact of risk on ERC, default risk presents as a further candidate for explanation of the variation of ERC across different companies.

Six hypotheses are proposed for testing. The first hypothesis proposes that the greater the default risk the lower the ERC after controlling for beta, growth, earnings persistence, and firm size. The other five hypotheses propose that various corporate governance mechanisms — audit quality, AC expertise, AC independence, board independence, and board shareholding mitigate the negative impact of default risk on ERC. The next chapter describes the analysis employed in testing these hypotheses.

CHAPTER FIVE: RESEARCH DESIGN

5 INTRODUCTION

This chapter outlines the methodology employed to test the hypotheses proposed in the previous chapter. Following this introductory section, Section 5.1 introduces the quantitative design used in this study. Section 5.2 discusses the model specification. Section 5.3 describes the study period and sample selection. Section 5.4 discusses the definition and measurement of the variables while Section 5.5 discusses the data analysis. Finally, Section 5.6 provides a summary of the chapter.

5.1 QUANTITATIVE METHOD DESIGN

To examine the relationships among ERC, default risk and corporate governance, a quantitative analytical framework is adopted that combines the capital market and corporate governance attributes. The study is archival whereby quantitative historical data is collected and analysed to test the formal hypotheses. Specifically, firms' financial data and other published corporate data were gathered from databases and annual reports. The model and variable specification, and data collection procedures are discussed in the sections that follow.

5.2 MODEL SPECIFICATION

As shown at (3.6) in chapter 3,

$$UR = ERC * (UX/P) \quad (5.1)$$

Thus, if ERC is determined by the n variables X_1, X_2, \dots, X_n , then

$$UR = f(X_1, X_2, \dots, X_n) * (UX/P) \quad (5.2)$$

Thus the coefficient of $X_i * (UX/P)$ in a regression of UR on $\{X_i * (UX/P)\}$ can indicate the effect of X_i on ERC. However, UX is likely to be subject to significant measurement errors and thus, instead of a direct regression, reverse regression should be used as the method of estimation (Collins and Kothari (1989) and the later studies, e.g., Cho and Jung (1991), Dhaliwal and Reynolds (1994), Cready, Hurtt and Seida (2000), and Gunny, Jacob and Jorgensen (2009)). That is, the effect of $\{X_i\}$ is tested by a regression based on:

$$UX/P = [1/f(X_1, X_2, \dots, X_n)]/UR$$

that is, the regression equation

$$UX/P = a_0 + a_1 UR + a_2 UR * X_1 + a_3 UR * X_2 + \dots + a_{n+1} UR * X_n + \varepsilon \quad (5.3)$$

It is important to note that in this form, the test on the coefficients actually relates to the inverse of the ERC, the Return Response Coefficient (RRC). Therefore, if the coefficient on $UR * X_i$ is found to be significant and negative, that should indicate that X_i is positively related to ERC.

To test the role of beta, growth, earnings persistence and size, the regression is run with just those variables as the $\{X_i\}$. These variables then become the controls in the tests of the hypotheses. Hypothesis 1, the impact of default risk, is carried out by adding a measure of default risk to the set $\{X_i\}$ and estimating the following regression equation:

$$UX/P = a_0 + a_1UR + a_2UR * DER + a_3UR * BETA + a_4UR * GROWTH + a_5UR * EPERS + a_6UR * SIZE + \varepsilon \quad (5.4)$$

Thus $\hat{a}_2 > 0$ and significant would indicate that default risk has a negative impact on ERC while controlling for beta, growth, earnings persistence and size. Hypotheses 2 to 6 are tested by additionally including, in turn, the interaction of $UR*DER$ with the measure of the relevant corporate governance mechanism. Thus a regression in the form

$$UX/P = a_0 + a_1UR + a_2UR * DER + a_3UR * DER * CORPORATEGOVERNANCE + a_4UR * BETA + a_5UR * GROWTH + a_6UR * EPERS + a_7UR * SIZE + \varepsilon \quad (5.5)$$

is estimated and $\hat{a}_3 < 0$ and significant would indicate that the corporate governance variable mitigates the effect of default risk on ERC.

This study is based on firm-specific accounting and market data for a period of 6 years from 2002 to 2007. Given the relatively short period for which suitable data is available, time series analysis (which follows a company's change over time) is not feasible for this study. Furthermore, Collins and Kothari (1989) suggest that cross-sectional analysis is more suitable for an ERC study because the ERC varies cross-sectionally with holding period return intervals. In addition, Easton and Harris (1991) suggest that due to variation of the ERC

across time periods, cross-sectional, rather than time series analysis is more appropriate. The data for the individual companies is therefore combined to conduct tests both on a pooled basis for the whole six year period (2002-2007) and on a year by year basis.

5.3 STUDY PERIOD AND SAMPLE SELECTION

The population for this study comprises firms listed on Bursa Malaysia during the period 2002 to 2007 — a period which reflects the 2001 disclosure changes and avoids the turbulence of the financial crisis of 1997. Firm specific and corporate governance data for this period were obtained from Thomson Datastream, Bursa Malaysia website, and individual company annual reports.

The closing data point was 30 September 2008, at which point there were 804 Malaysian firms listed on Bursa Malaysia according to Thomson Datastream 3.5. From this total, 91 high tech firms from the ACE market were identified and excluded as they were subject to different market regulations. A further 102 firms belonging to the financial services sector (banks and insurance) and REITS were also excluded because of: (i) their unique economic characteristics — most notably, high leverage; and (ii) the different compliance and regulatory environments under which they operate (they were subject to the Malaysia Banking and Financial Institutions Act 1989). And finally, a further 181 firms were excluded because they were restructured, classified as PN17 (financially distressed) by Bursa Malaysia, experienced distortions in their business operations due to suspension of trading, or otherwise ceased to exist during the study period.

Further grounds for exclusion arose from the study's data requirements. For example, to calculate cumulative abnormal returns (CAR) for 2002, the study needed monthly returns of a 60-month estimation period from 1997 to 2001. To forecast earnings persistence for the 2002, the study required data on earnings per share (EPS) for 20 consecutive quarterly periods (i.e., from the first quarter of 1998 to the final quarter of 2002). A further 96 firms were excluded from the sample on the ground that there was not insufficient data to allow computation of CAR and earnings persistence for these companies.

The selection process thus resulted in data on 334 firms with financial reporting dates ending between 31 January 2002 and 31 December 2007, a total of 2,004 firm years. The sample selection process is summarised in Table 5.1.

Table 5.1: Sample Selection Procedure

Selection Criteria	Number of Observations
Total Malaysian listed firms on Thomson Datastream 3.5 as at 30 September 2008	804
Less firms from ACE market	(91)
Less firms from the financial services sector (banks and insurance) and REITS	(102)
Less firms that were restructured, merged, ceased to exist or were suspended	(181)
Less firm with insufficient monthly returns and EPS data	<u>(960)</u>
Total firms in the final sample	<u><u>334</u></u>
Sample firm-years	
Total firm-years for 334 firms with financial reporting dates ending between	
31 January 2002 to 31 December 2007 (6 years)	2,004

5.4 MEASUREMENT OF VARIABLES

This section describes the definition and measurement of the variables used in the empirical tests. The dependent variable is unexpected earnings scaled by price and the independent variables entering the regression are: (i) unexpected returns; (ii) the key variable of interest, default risk, (iii) the control variables: beta, growth, earnings persistence and size; and (iv)

corporate governance moderating variables — audit quality, AC expertise, AC independence, board independence and board shareholding. The following sub-sections detail the measurement of each of these variables.

5.4.1 Unexpected earnings

Prior researchers have estimated unexpected earnings either by assuming that earnings follow a random walk (see Dhaliwal et al., 1991; Dhaliwal and Reynolds, 1994; Billings, 1999; Kai, 2002; and Shangguan, 2007) or by using forecasting models such as an integrated moving average (IMA) process (see Dhaliwal and Reynolds, 1994). Dhaliwal and Reynolds (1994) used both methods, random walk and IMA (1,1) but the results for the two methods were found to be essentially the same.

Under the random walk approach, unexpected earnings are calculated as the change in annual earnings. An IMA (1,1) process, allows for both permanent and transitory components in earnings, and thus the earnings level can act an additional proxy for unexpected earnings where the previous period's earnings are not purely permanent.

The present study assumes a random walk and hence unexpected earnings is calculated as the change in annual EPS (current year EPS minus previous year EPS). The unexpected earnings are then deflated by the previous year stock price. That is, the dependent variable is:

$$EPS_t = EPS_{t-1}/P_{t-1} \quad (5.6)$$

where:

EPS_t is firm's earning per share for year t ,

EPS_{t-1} is firm's earning per share for year $t-1$, and

P_{t-1} is the firm's share price at the end of year $t-1$.

5.4.2 Unexpected Returns

Given annual data, unexpected return is estimated by annual Cumulative Abnormal Return (CAR). This is the aggregate rate of return that an investment has gained or lost in excess of the expected rate of return cumulated over a year. Abnormal return is the difference between actual return and expected return where expected return is estimated by use of Sharpe's (1963) market model. Monthly share prices and monthly Kuala Lumpur Composite Index (KLCI) data from Thomson Datastream was used to calculate monthly returns using the formula $\ln(\text{month}_t / \text{month}_{t-1})$ and the market model was then estimated for each company using 60 monthly returns:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (5.7)$$

where:

R_{it} = rate of return on firm i for month t , and

R_{mt} = rate of return of KLCI for month t

Thus, for example, for 2002 the market model was estimated using monthly returns calculated for January 1997 to December 2001. The resulting estimates of the regression coefficients, $\hat{\alpha}_i$ and $\hat{\beta}_i$ are then used to calculate monthly abnormal returns (AR_{it}) for 2002 as:

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt}) \quad (5.8)$$

The CAR for 2002 is then calculated by cumulating the AR for the 12 months of 2002.

5.4.3 Default risk

Two variables have been widely used in the literature as measures of default risk. They are the debt to equity ratio and bond ratings. Dhaliwal and Reynolds (1994) use bond ratings to measure default risk and use the debt to equity ratio to test the robustness of their result. They find qualitatively similar results between the two measures of default risk.

The debt to equity ratio is the traditional measure of a firm's financial risk. It measures the proportion of its assets financed by interest-bearing obligations. If earnings before interest and tax (EBIT) decrease, a firm runs the risk of default on its debt obligations. On the other hand, bond ratings rely on *inter alia* accounting information and may be a noisy measure of default risk (Vassalou and Xing, 2004).

This study uses the debt to equity ratio as the main measure of default risk. Bond ratings were available for only 118 firms traded on the Bursa Malaysia over the study period. However, as shown in Table 5.2 the debt to equity ratio of these 118 firms and their bond ratings was

found to be significantly negatively correlated, thus adding confidence to use of the debt to equity ratio as the measures of default risk for the study²⁰.

Table 5.2: Correlation between Bond Rating and Debt to equity

		Bond	DER
Bond Rating (Bond)	Pearson Correlation	1.000	-.615**
	Sig. (2-tailed)		.000
	N	118	118
Debt to Equity (DER)	Pearson Correlation	-.615**	1.000
	Sig. (2-tailed)	.000	
	N	118	118

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

5.4.4 Corporate governance variables

In order to find the influence of corporate governance monitoring on the association between default risk and ERC, several corporate governance attributes were chosen to represent the monitoring of firms' tendency to default in their debt repayments. The variables chosen to test whether corporate governance mitigates the effect of default risk on ERC were — audit quality, AC expertise, AC independence, board independence and board shareholding. The corporate governance data was hand collected from individual company annual reports.

²⁰ The correlation was calculated by takings the debt to equity ratio for each company and the value assigned to the bond rating as shown in Appendix B.

5.4.4.1 Audit quality

Audit quality may be measured in a number of ways. For example, auditor size, frequency of audit qualification, and auditors' industry specialization. Among these measures, audit firm size has been the most commonly used as data on Big versus non-Big audit firms is readily available in most markets. Consistent with this practice, this study measures audit quality by a dummy with value 1 if the firm is audited by a Big 4 auditor and 0 otherwise.

5.4.4.2 Audit committee expertise and audit committee independence

BMLR requires that at least one member of the AC must be a member of the Malaysian Institute of Accountants (MIA); or if he/she is not a member of MIA, the person must have at least three years' of working experience and have passed the examination specified in Part I of the First Schedule of the Malaysia Accountants Act 1967 or be a member of one of the associations of accountants specified in Part II of the First Schedule of the Malaysia Accountants Act, 1967. As such, in this study, AC expertise is measured by the percentage of AC members that meet these BMLR requirements.

The AC is an independent committee charged with overseeing a company's financial reporting process. Haniffa and Cooke (2005) suggest that independent non-executive directors of AC are free from any relationship that would interfere with the exercise of independent judgment as committee members. BMLR requires that the AC shall consist of at

least 3 members, a majority of whom shall be independent non-executive directors. Hence, in this study, AC independence is measured as the percentage of independent non-executive directors to the total number of members of the AC.

5.4.4.3 Board independence and board shareholdings

The BMLR requires that one third or two members, whichever is higher, of the total number of directors, must be independent. Hence, in this study, board independence is measured by the percentage of independent non-executive directors to the total number of members on the board. Board shareholding is measured by the percentage of shares held by all the directors together against the total number of outstanding shares.

5.4.5 Control variables

The control variables in this study are the established determinants of ERC: beta, growth, earnings persistence and size.

5.4.5.1 Equity beta

Equity beta indicates the tendency of a security's returns to respond to variation in market returns and is estimated in this study as the slope coefficient in the market model. Thus estimates of beta were obtained simultaneously with estimation of CAR.

5.4.5.2 Growth opportunity

Growth is measured as the market to book ratio. This measure has been widely used in prior studies and has been found to be significantly related to ERC (e.g., Vafeas, 2000; Kim, 2005; and Shangguan, 2007). In this study growth opportunity is measured by market value of the firm to the book value of its equity.

5.4.5.3 Earnings persistence

Earnings persistence can be generated by using a forecasting model such as autoregressive integrated moving average (ARIMA). The model is generally referred to as the ARIMA (p, d, q) model where p is the order of the autoregressive component, q is the order of the moving average component and d is the degree of consecutive differencing. The ARIMA model is flexible and is widely used in time series analysis.

Dhaliwal and Reynolds (1994) and Kim (2005) use an integrated moving average (IMA) (1, 1) model to compute earnings persistence based on the series of EPS. An IMA model is an ARIMA model with zero order of the autoregressive component, $p(0)$.

In this study, firms' EPS for twenty consecutive quarters prior to the test period were collected and used to estimate ARIMA (0,1,1,) to forecast earnings persistence. For example, in order to calculate earnings persistence for 2002, quarterly EPS were collected from the first quarter of 1998 up to the final quarter of 2002. These 20 quarterly EPS were used to

generate the moving average parameter estimate (q)²¹. Following Dhaliwal and Reynolds (1994); and Sandholm (2007), $1 - q$ represents the earnings persistence.

In order to ensure that the distribution conforms, as closely as possible, to a normal distribution, square root transformation was carried out and this was used as the final measure in estimating earnings persistence. A square root transformation was used instead of natural logs as the variable included 0 values.

5.4.5.4 Firm size

Firm size can be measured in a number of ways. Common measures of firm size include market capitalisation (see Dhaliwal and Reynolds, 1994; and Shangguan 2007), revenue volumes (see Bonaccorsi, 1992; and Karim, Ahmed, and Islam, 2006), size of total assets (see Billings, 1999; and Harford, Mansi and Maxwell, 2008) and number of employees (see Smith, Smith and Verner, 2006; and Angelini and Generale, 2008). The present study used firms' total assets as the measure of size.

Table 5.3 summarises the measurement of variables.

²¹ q is a measure of the extent of mean reversion in earnings changes (Narayanamoorthy, 2006, p. 767)

Table 5.3: Definition and Measurement of Variables

Variable	Definition	Measurement
UX/P	Unexpected earnings deflated by price	Unexpected earnings are derived by the changes in annual EPS (current year EPS less prior year EPS) deflated by price at the end of the prior year
CAR	Cumulative abnormal return	Abnormal returns were measured by the differences between actual returns and expected returns where expected returns were obtained from the market model. Estimated over a period of 60 months (estimation period) preceding the relevant years over which abnormal returns are cumulated.
DER	Default risk	Debt-to-equity ratio, calculated by dividing total long term debt by total equity
BETA	Equity beta	Coefficient of regression from the market model estimated using a 60-months estimation period.
GROWTH	Firm growth opportunity	Growth is measured as the ratio of the market value of firm to the book value of equity
EPERS	Earnings persistence	Twenty quarterly EPS prior to the testing years were collected to generate the earnings persistence parameter (q). ARIMA (0,1,1) model was used to generate q . $1 - q$ represent the earnings persistence.
SIZE	Firm size	Total assets (<i>in millions RM</i>)
AUDITQ	Audit quality	Dummy 1: if the firm is audited by Big 4 Auditors and 0 otherwise.
ACEXPRT	Number of experts in AC	Number of AC members that recognised by MIA; or gained membership of one of the associations of accountants specified in Part II of the First Schedule of the Malaysia Accountants Act, 1967; or passed the examination specified in Part I of the First Schedule of the Malaysia Accountants Act, 1967. (<i>please refer to Appendix D for the First Schedule of the Malaysia Accountants Act, 1967</i>)

ACINED	Independent non-executive directors in AC	Percentage of independent non-executive directors in AC to the total number of directors
BODINED	Independent non-executive directors in board	Percentage of independent non-executive directors in board to the total number of directors
BODSHARE	Board shareholding	Percentage of shares held by all directors to the total number of shares outstanding

5.5 DATA ANALYSIS

In order to examine the effect of default risk on ERC and the mitigating effect of corporate governance on this relationship the following reverse regressions were estimated.

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*BETA_{it} + a_3CAR*GROWTH_{it} + a_4CAR*EPERS_{it} + a_5CAR*SIZE_{it} + \varepsilon_{it} \quad (1)$$

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + f(\text{control variables}) + \varepsilon_{it} \quad (2)$$

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*AUDITQ_{it} + f(\text{control variables}) + \varepsilon_{it} \quad (3)$$

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*ACEXPERT_{it} + f(\text{control variables}) + \varepsilon_{it} \quad (4)$$

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*ACINED_{it} + f(\text{control variables}) + \varepsilon_{it} \quad (5)$$

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*BODINED_{it} + f(\text{control variables}) + \varepsilon_{it} \quad (6)$$

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*BODSHARE_{it} + f(\text{control variables}) + \varepsilon_{it} \quad (7)$$

The first regression attempts to estimate the effect of the established determinants of ERC: beta, growth, earnings persistence and size. The second regression tests the effect of default risk on ERC. The remaining regressions test whether corporate governance mitigates the impact of default risk on ERC.

5.6 CHAPTER SUMMARY

This chapter has described the research methodology adopted, the selection of the sample and the definition and measurement of the test variables used in the study. The study uses reverse regression as the main quantitative analytical tool to test the hypotheses developed in the previous chapter.

CHAPTER SIX: ANALYSIS OF RESULTS

6 INTRODUCTION

The previous chapter outlined the methodology adopted in this study with particular reference to the methods used to collect, process, and utilise the data in undertaking the tests of the hypotheses developed in Chapter 4. It explained how the key variables of default risk, ERC and corporate governance monitoring that form the core of this study, are measured and operationalised. This chapter reports the results obtained from quantitative analyses of the effect of default risk on ERC and the mitigating effect of corporate governance on the association between default risk and the ERC. Section 6.1 provides a descriptive analysis of the characteristics of the sample. The findings from univariate and bivariate analyses are presented in Section 6.2. The findings of the multivariate analyses are reported in Section 6.3 and the results of robustness tests are discussed in Section 6.4. Section 6.5 presents the findings discussion and Section 6.6 provides conclusions of the analyses.

6.1 DESCRIPTIVE ANALYSIS

Table 6.1 shows the descriptive statistics of the determinants of ERC and the continuous corporate governance variables. As shown in the table, the mean of the ratio of unexpected earnings to price is 0.006. The range is between -0.052 and 0.426 and the standard deviation is 0.014. The median of 0.004 and mean of 0.006 do not differ significantly indicating that this variable is symmetrically distributed. The mean (median) of CAR is 0.007 (-0.002) with standard deviation of 0.231. The ratio of long term debt to equity (DER) shows a mean of

Table 6.1: Descriptive statistics of the ERC determinants and corporate governance continuous variables

	UXP	CAR	DER	BETA	GROWTH	EPERS	SIZE	ACEXPERT	ACINED (%)	BODINED (%)	BODSHARE (%)
Mean	.006	.007	1.489	1.097	.900	.024	412.073	1.332	71.2	37.110	19.320
Median	.004	-.002	1.589	1.049	.850	.027	392.042	1.009	66.6	35.313	7.730
Std. Deviation	.014	.231	.722	.595	.389	.016	86.194	.532	11.0	10.680	24.125
Minimum	-.052	-.558	.080	-.870	.190	.000	301.902	1.000	25.0	20.000	.000
Maximum	.426	.564	2.840	2.860	1.840	.061	608.676	3.000	100	67.25	77.570

UXP is ratio of changes in annual EPS (unexpected earnings) to previous year equity price.

CAR is cumulative abnormal return derived from the market model using Kuala Lumpur Composite Index (KLCI)

DER is ratio of book value of long term debt to market value of equity

BETA is systematic risk from market model using Kuala Lumpur Composite Index (KLCI)

GROWTH is ratio of market to book value of equity

EPERS is square root of earnings persistence factor

SIZE is total assets in million (RM)

ACEXPERT is the number of experts recognise by MIA in Audit Committee.

ACINED is the percentage of independent non-executive directors in the Audit Committee

BODINED is the percentage of independent non-executive directors in the board.

BODSHARE is the percentage of shares hold by directors over total outstanding shares.

1.489, which indicates that for each unit of equity, Malaysian firms on average have almost 1.5 units of long term debt. This high value is consistent with the earlier discussion of the high reliance of Malaysian businesses on debt finance — perhaps due to the attractive and stable BLR.

Turning to the description of ERC determinants, the mean (median) of beta is 1.097 (1.049). This value is close to the market wide mean of 1.0 and indicates that the firms in the sample are not unusually highly geared. The mean (median) value of growth is 0.900 (0.850). Given that this is measured as the ratio of market to book value of equity, the values suggest that on average the firms are low growth firms. Earnings persistence has a mean (median) of 0.24 (0.27). The mean (median) size of the firms, as measured by the value of total assets, is RM412.073 million (RM392.042 million) and varies significantly across firms.

Finally, referring to the corporate governance variables, the mean (median) value of ACEXPERT of 1.332 (1.009) shows that on average at least one member of the AC in the sample is an expert. While a high number of experts on the AC might be costly, too few members will leave the firm exposed to internal control questions and other audit issues. The descriptive statistics shows that the maximum (minimum) value of AC expertise is 3 (1). This shows that all the sample firms comply with the BMLR which requires that at least one member of the AC must be an expert.

The mean (median) proportion of independent non-executive directors on the AC is 71.2% (66.6%). However, the minimum proportion is 25% which is inconsistent with the BMLR requirement that the majority of the members of the AC must be independent. The mean (median) proportion of independent non-executive directors of the board is 37.11% (35.31%). The mean (median) percentage of the shares held by directors is 19.32% (7.73%). The data shown in Table 6.1 does not suggest significant departures from normality — means and medians are roughly equal. A statistical test for the presence of outliers was carried out and the proportion of outliers was found to be acceptable.

The audit quality of the sample firms is represented by a dichotomous variable. Audit quality takes a value of 1 if a firm is audited by Big 4 and a value of 0 otherwise. Table 6.2 shows that 72.3% of the firms were audited by the Big 4 audit firms.

Table 6.2: Descriptive statistics of corporate governance dichotomous variables — Audit Quality

		Big 4 = 1	Non Big 4 = 0
AUDITQ	(N)	1449	555
	(%)	72.30	27.69

AUDITQ takes the value of 1 if the firm is audited by Big 4 Auditors; 0 otherwise

6.2 UNIVARIATE AND BIVARIATE ANALYSES

The univariate analysis carried out in the study involves an analysis of the means and the bivariate analysis involves a correlation analysis. The results of the analyses are reported in the following sub sections.

6.2.1 Analysis of mean values between high default risk and low default risk firms

Table 6.3 reports mean values of ERC determinants and those of the corporate governance monitoring variables between high and low default risk firms. As Table 6.1 shows, the sample has a mean (median) debt to equity ratio (DER) of 1.489 (1.589). The mean value of 1.489 is used to partition the high default risk firms from low default risk ones. As such, if the firm's DER is 1.489 and above, the firm is considered a high default risk firm while if its DER is lower than 1.489, it is considered a low default risk firm. This result in 36% of the firms being classified as high default risk firms.

Table 6.3 compares high default risk firms with low default risk firms with respect to DER. The differences in mean values of the two sub-sets of firms are tested for significance using the *t* test. Table 6.3 indicates that low default risk firms in Malaysia comprise almost two-third of the whole population (64%). The results show that the differences in mean values are statistically significant for CAR, growth, earnings persistence, size, and AC expertise. Higher default risk firms appear to have higher CAR, growth, earnings persistence, total assets and have more AC experts.

Table 6.3: Analysis of mean differences in ERC determinants and corporate governance between high default risk and low default risk firms

		Mean									
N ²²		CAR	BETA	GROWTH	EPERS	SIZE	AUDITQ	ACEXPERT	ACINED	BODINED	BODSHARE
DER											
High DER	723	0.009	1.12	0.93	.025	424.54	0.61	2.16	27.60	22.41	14.42
Low DER	1281	0.006	1.08	0.88	.023	405.05	0.62	2.14	27.72	22.23	14.39
Difference	(t-stat)	-1.690*	-.466	4.307**	-2.123*	-1.659*	-.224	4.292**	.044	-1.449	-.437

²² N = firm-year observations = 2,004. See Table 5.3 for definition and measurement of variables

** Significant at $p < 0.01$ (1-tailed).

* Significant at $p < 0.05$ (1-tailed).

6.2.2 Correlation analysis

A correlation analysis was performed for the test variables. Table 6.4 shows Pearson correlation coefficient among all pairs of continuous as well as dichotomous variables.

As Pearson correlation measures the strength of a linear relationship between two variables, it is seen that cumulative abnormal return (CAR), beta (BETA), growth (GROWTH), earnings persistence (EPERS), size, audit quality (AUDITQ), AC independence (ACINED), board independence (BODINED) and board shareholding (BODSHARE) are significantly correlated with the ratio of unexpected earnings to price (UX/P). However, the correlations appear moderate, albeit statistically significant.

Although there are some significant correlations among pairs of several variables, the highest correlation occurs between board independence and AC independence with a correlation coefficient of 0.599. This is to be expected as the AC is a subset of the full board. The correlation coefficient for board independence with board shareholding of 0.515 is also high.

The negative relationships between DER and audit quality, AC expertise and board independence suggest that a significant relationship exists between default risk and corporate governance although the relationship are not obviously strong as evidenced by the correlation coefficients of -0.062, -0.111 and -0.055. Multivariate analysis, rather than bivariate correlations, is more appropriate in interpreting relationships between these variables. While correlation analysis shows the degree of association between pairs of variables, it does not

control for the effects of other variables on the variables of interest. Multivariate analysis resolves this issue and therefore this tool is used to investigate the impact of each of the corporate governance variables and their interactions with default risk on ERC.

The correlations in Table 6.4 suggest that multicollinearity among the independent variables is not a problem as none of the Pearson coefficients exceeds 0.7 (Pallant, 2007). This issue is further discussed in Section 6.4.2.

Table 6.4: Correlation matrix of the market model and ERC determinants variables

	UXP	CAR	BETA	GROWTH	EPERS	SIZE	DER	AUDITQ	ACEXPRT	ACINED	BODINED
CAR	.283**										
BETA	.051*	-.009									
GROWTH	.068**	-.241**	-.036								
EPERS	-.197**	-.055**	-.018	-.122*							
SIZE	.136*	-.028	.224**	-.010	-.018						
DER	-.015	-.049*	-.013	-.048*	-.016	-.005					
AUDITQ	.053**	.018	.020	-.086**	.012	-.025	-.062**				
ACEXPRT	-.018	.012	.021	-.004	-.138**	-.013	-.111**	.355**			
ACINED	.103**	.011	.013	-.038*	-.044*	-.009	-.033	.411**	.262**		
BODINED	.050*	-.066**	.023	-.042*	.000	-.007	-.055**	.150**	.406**	.599**	
BODSHARE	.058**	-.031	-.005	-.011	.010	-.001	-.022	.465**	.357**	.511**	.515**

The sample consists of 2,004 firm-year observations from 2002-2007. The correlation coefficients are based on Pearson Correlation. See Table 5.3 for definition and measurement of variables. ** Correlation is significant at the 0.01 level (1-tailed) and * Correlation is significant at the 0.05 level (1-tailed).

6.3 MULTIVARIATE ANALYSIS

As discussed in Chapter Five, seven regression equations are estimated to test the hypotheses developed earlier in the study. Having a basic functional form for the abnormal returns-unexpected earnings relationship, for which 2,004 firm-year observations covering a 6-year period (2002-2007) were available for the estimation, it was recognised that other specifications might also hold (Kim, 2005). A linktest²³ procedure was thus carried out to perform the model specification test. The linktest result shows a non significant result of $_hatsq$ ²⁴ evidenced by a p value of 0.311 ($p > 0.05$). This result suggests that the ERC determinants model used in this study is specified correctly. This evidence suggests that the model is free from omitted variables or other specification errors²⁵.

Having panel data, it was also acknowledged that there was a possibility of correlations between unobserved effects and independent variables. By using a Fixed Effects Model (FEM) with dummies for years, these possible correlations are taken into account. Other possible choices were to ignore the problem and use Ordinary Least Square (OLS) or to use a Random Effects Model (REM). The Lagrangian Multiplier (LM) test showed that OLS was

²³ Linktest performs a model specification link test for a single equation model. This is based on the idea that if a regression is properly specified, one should not be able to find any additional independent variables that are significant except by chance.

²⁴ Linktest creates two new variables, the variable of prediction, $_hat$ and the variable of squared prediction, $_hatsq$. The model is then refitted using these two variables as predictors. $_hat$ should be significant since it is the predicted value while $_hatsq$ should not be significant, because if the model is specified correctly, the squared prediction should not have much explanatory power.

²⁵ The statistics are related to structural equation (1). A similar result was found for equation (2) whenever default risk appears in the model

unsatisfactory (Chi-Square 561.74, $p < 0.001$) and the Hausman test (Chi-Square 122.11, $p < 0.001$) showed that the FEM was superior to the REM²⁶.

The seven regression equations were then estimated as follows.

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*BETA_{it} + a_3CAR*GROWTH_{it} + a_4CAR*EPERS_{it} + a_5CAR*SIZE_{it} + year\ fixed\ effect + \varepsilon_{it} \quad (1)$$

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + f(control\ variables) + year\ fixed\ effect + \varepsilon_{it} \quad (2)$$

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*AUDITQ_{it} + f(control\ variables) + year\ fixed\ effect + \varepsilon_{it} \quad (3)$$

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*ACEXPERT_{it} + f(control\ variables) + year\ fixed\ effect + \varepsilon_{it} \quad (4)$$

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*ACINED_{it} + f(control\ variables) + year\ fixed\ effect + \varepsilon_{it} \quad (5)$$

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*BODINED_{it} + f(control\ variables) + year\ fixed\ effect + \varepsilon_{it} \quad (6)$$

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*BODSHARE_{it} + f(control\ variables) + year\ fixed\ effect + \varepsilon_{it} \quad (7)$$

(See Table 5.3 for the definition and measurement of the variables)

²⁶The results are related to structural equation (1). The similar LM and Hausman tests were also carried out for the other equations (2-7) and the statistics provided the same indication—the FEM was the most appropriate model.

Regressions (1) to (7) were run for the pooled dataset and for each of the years 2002 through 2007. The regressions examined the ERC determinants, and how default risk explains ERC with and without allowance for corporate governance effects. The results from the regressions are reported in the following sub-sections.

The predictions outlined in the hypotheses are in terms of the relationship between ERC and equity beta (-), growth (+), earnings persistence (+), and size (+). In reverse regressions, these relations are inverted as it estimates the abnormal return response coefficient (RRC). Predictions for the RRC are thus the converse of ERC.

6.3.1 ERC determinants

Table 6.5 presents the results of regressing UX/P on CAR, the interactions of CAR²⁷ with beta, growth, earnings persistence and size in the estimation of ERC determinants. This is to answer the first research question which focuses on ERC determinants.

²⁷ The interaction of CAR with beta, growth, earning persistence and size arises from the use of reverse regression in order to minimise the measurement error associated with unexpected earnings.

TABLE 6.5: Results of the ERC determinants

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*BETA_{it} + a_3CAR*GROWTH_{it} + a_4CAR*EPERS_{it} + a_5CAR*SIZE_{it} + year\ fixed\ effect + \varepsilon_{it} \quad (1)$$

Independent Variables	Pooled Estimate (t-stat)	2002 Estimate (t-stat)	2003 Estimate (t-stat)	2004 Estimate (t-stat)	2005 Estimate (t-stat)	2006 Estimate (t-stat)	2007 Estimate (t-stat)
CAR	.032 (7.57)**	.031 (7.33)**	.031 (7.34)**	.032 (7.59)**	.030 (7.09)**	.031 (7.32)**	.030 (7.10)**
CAR*BETA	.007 (3.38)**	.007 (3.37)**	.007 (3.40)**	.007 (3.36)**	.007 (3.40)**	.007 (3.37)**	.007 (3.39)**
CAR*GROWTH	-.010 (-4.14)**	-.010 (-4.08)**	-.011 (-4.55)**	-.011 (-4.61)**	-.011 (-4.58)**	-.010 (-4.16)**	-.011 (-4.56)**
CAR*EPERS	-.389 (-6.67)**	-.386 (-6.62)**	-.375 (-6.43)**	-.387 (-6.64)**	-.385 (-6.60)**	-.379 (-6.50)**	-.381 (-6.53)**
CAR*SIZE	-17.430 (-2.46)**	-17.370 (-2.45)**	-17.500 (-2.47)**	-17.410 (-2.46)**	-17.470 (-2.47)**	-17.450 (-2.46)**	-17.480 (-2.47)**
Constant	.005 (16.09)**	.005 (16.10)**	.005 (16.08)**	.005 (16.08)**	.005 (16.07)**	.005 (16.08)**	.005 (16.08)**
Observations	2,004	334	334	334	334	334	334
Year fixed effect	included	included	included	included	included	included	included
Adj.R ²	.151	.149	.151	.150	.149	.148	.150

Note: ** Significant at $p < 0.01$ (1-tailed) and * Significant at $p < 0.05$ (1-tailed).

Table 6.5 shows that the coefficient of the interaction of CAR with beta is significant and positive in all the regressions, both pooled and year wise indicates that beta has a significant negative relationship with ERC. This result is consistent with prior research (e.g., Dhaliwal et al., 1991; Dhaliwal and Reynolds, 1994; Billings, 1999; Shangguan, 2007). These prior studies suggest that systematic risk is negatively related to ERC.

Similarly, in Table 6.5 the coefficient of the interaction of CAR with growth shows that growth has a significant positive relationship with ERC. This is consistent with the results found in the earlier studies (see Collins and Kothari, 1989; Martikainen, 1997; Billings, 1999; Park and Pincus, 2000; Kim, 2005; Ghosh et al., 2005; Shangguan, 2007). The coefficient of the interaction of CAR with earnings persistence shows that earnings persistence is also positive and significant in explaining ERC. This also confirms the findings of previous researchers (Kormendi and Lipe, 1987, Collins and Kothari, 1989; and Dhaliwal and Reynolds, 1994). Similarly the coefficient of CAR and size shows that size is positive and significant in explaining ERC. This result is consistent with Billings (1999) and Vafeas (2000). However, the result contradicts Martikainen (1997), who found that firm size is not a significant determinant of ERC; similarly for the UK study by Donnelly and Walker (1995). Shangguan (2007) finds a significant result for the interaction of CAR with size but its significance decreased from 1% to 10% when fiscal year-end observations are used compared to those of December year-end²⁸.

²⁸ This study uses a fiscal year- end sample due to data limitations. Use of December year ends could result in a much smaller sample.

TABLE 6.6: Results of the ERC determinants with default risk (DER)

$$UX_{it}/P_{it} = \alpha_0 + a_1 CAR_{it} + a_2 CAR * DER_{it} + f(\text{control variables}) + \text{year fixed effect} + \varepsilon_{it}$$

(2)

Independent Variables	Pooled Estimate (t-stat)	2002 Estimate (t-stat)	2003 Estimate (t-stat)	2004 Estimate (t-stat)	2005 Estimate (t-stat)	2006 Estimate (t-stat)	2007 Estimate (t-stat)
CAR	.023 (5.44)**	.022 (5.20)**	.020 (4.73)**	.021 (4.96)**	.020 (4.71)**	.019 (4.49)**	.019 (4.51)**
CAR*DER	.011 (7.09)**	.011 (7.06)**	.011 (7.11)**	.011 (7.07)**	.011 (7.10)**	.011 (7.07)**	.011 (7.06)**
CAR*BETA	.006 (3.09)**	.006 (3.12)**	.006 (3.12)**	.006 (3.09)**	.006 (3.10)**	.006 (3.07)**	.006 (3.13)*
CAR*GROWTH	-.014 (-5.60)**	-.014 (-5.53)**	-.013 (-5.20)**	-.014 (-5.57)**	-.015 (-5.99)**	-.013 (-5.22)**	-.014 (-5.61)**
CAR*EPERS	-.474 (-8.06)**	-.376 (-6.39)**	-.362 (-6.15)**	-.372 (-6.33)**	-.486 (-8.26)**	-.469 (-7.97)**	-.375 (-6.37)**
CAR*SIZE	-19.220 (-2.75)**	-19.110 (-2.73)**	-19.180 (-2.74)**	-19.230 (-2.75)**	-19.140 (-2.74)**	-19.120 (-2.74)**	-19.200 (-2.74)**
Constant	.005 (16.80)**	.005 (16.78)**	.005 (16.75)**	.005 (16.76)**	.005 (16.83)**	.005 (16.89)**	.005 (16.75)**
Observations	2,004	334	334	334	334	334	334
Year fixed effect	included	included	included	included	included	included	included
Adj.R ²	.172	.169	.167	.169	.172	.166	.167

Note: ** Significant at $p < 0.01$ (1-tailed) and * Significant at $p < 0.05$ (1-tailed).

6.3.2 The effect of default risk on ERC

Table 6.6 shows the effect of default risk, as measured by DER, on ERC. The coefficient of the interaction between CAR and DER is significant and positive in both the pooled and year by year regressions and thus DER has a significant negative relationship with ERC. The results for beta, growth, earnings persistence and size remain as in the base model. This applies to both the pooled and year by year regressions.

The result for DER is consistent with the previous studies (for example, Dhaliwal et al., 1991; Dhaliwal and Reynolds, 1994; Shangguan, 2007; and Cheng and Nasir, 2010). The significant negative relationship between DER and ERC is consistent with the expectation that default risk adds to the explanation for the risk relevant to ERC. A plausible interpretation of this finding is that the market-perceived equity risk of a firm increases as the default risk goes up in an emerging market²⁹. Thus, this result supports hypothesis 1: default risk has a significant negative relationship with ERC.

6.3.3 The mitigating effect of audit quality on the relationship between default risk and ERC

Table 6.7 gives the results of the regressions with default risk and audit quality. The coefficient on the interaction of CAR with DER and AUDITQ is significant and negative and therefore the interaction of DER and AUDITQ has a significant positive relationship with

²⁹ Alternatively, Dhaliwal and Reynolds (1994) also interpret this as a decrease in expected future dividends when default risk rises.

Table 6.7: Results of the mitigating effect of audit quality on the relationship between ERC and default risk

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*AUDITQ_{it} + f(\text{control variables}) + \text{year fixed effect} + \varepsilon_{it} \quad (3)$$

Independent Variables	Pooled Estimate (t-stat)	2002 Estimate (t-stat)	2003 Estimate (t-stat)	2004 Estimate (t-stat)	2005 Estimate (t-stat)	2006 Estimate (t-stat)	2007 Estimate (t-stat)
CAR	.022 (5.24)**	.021 (5.00)**	.021 (5.02)**	.022 (5.21)**	.021 (5.23)**	.022 (5.25)**	.022 (5.22)**
CAR*DER	.012 (7.76)**	.012 (7.81)**	.012 (7.73)**	.012 (7.74)**	.012 (7.73)**	.012 (7.77)**	.012 (7.76)**
CAR*DER*AUDITQ	-.008 (-6.39)**	-.008 (-6.33)**	-.008 (-6.42)**	-.008 (-6.40)**	-.008 (-6.44)**	-.008 (-6.43)**	-.008 (-6.44)**
CAR*BETA	.006 (2.99)**	.006 (2.92)**	.006 (2.95)**	.006 (2.97)**	.006 (2.91)**	.006 (2.98)*	.006 (2.95)**
CAR*GROWTH	-.013 (-5.47)**	-.013 (-5.49)**	-.013 (-5.46)**	-.014 (-5.89)**	-.014 (-5.87)**	-.013 (-5.52)**	-.013 (-5.54)**
CAR*EPERS	-.378 (-6.29)**	-.377 (-6.27)**	-.372 (-6.19)**	-.376 (-6.26)**	-.375 (-6.24)**	-.377 (-6.27)**	-.373 (-6.21)**
CAR*SIZE	-17.510 (-2.53)**	-17.390 (-2.51)**	-18.970 (-2.74)**	-17.350 (-2.51)**	-17.360 (-2.51)**	-17.570 (-2.54)**	-17.450 (-2.52)**
Constant	.006 (17.27)**	.006 (17.21)**	.006 (17.33)**	.006 (17.22)**	.006 (17.24)**	.006 (17.25)**	.006 (17.27)**
Observations	2,004	334	334	334	334	334	334
Year fixed effect	included	included	included	included	included	included	included
Adj.R ²	.189	.186	.190	.188	.186	.188	.189

Note: ** Significant at $p < 0.01$ (1-tailed) and * Significant at $p < 0.05$ (1-tailed).

ERC. The results for the other variables remain as in regression (2). This result supports hypothesis 2: the negative effects of default risk on the ERC decreases in magnitude as audit quality increases. That is, higher audit quality mitigates the effect of default risk on ERC.

The result is perhaps surprising as audit firms in Malaysia are subject to only limited scrutiny by regulators and the audit environment has very low litigation risk (Johl, Jubb and Houghton, 2007). Although Big 4 audit firms hold nearly 75% of the market, there are reservations as to their quality. For example, the World Bank (2002) has raised concerns on the audit quality of the Big 4 firms in Asian countries, including Malaysia, especially in the aftermath of the Asian financial crisis.

6.3.4 The mitigating effect of AC expertise on the relationship between default risk and ERC

Table 6.8 shows the results of the regressions with default risk AC expertise. The coefficient of the interaction between CAR, DER and ACEXPERT is significant and negative and thus the interaction of DER and ACEXPERT has a significant positive relationship with ERC. This finding for AC expertise thus supports hypothesis 3: the negative effects of default risk on the ERC decrease in magnitude as AC expertise increases. This implies that default risk decreases in magnitude as AC expertise goes up. It supports the argument that the experience and expertise of the AC enables it to better monitor and issue timely warnings regarding debt obligations.

Table 6.8: Results of the mitigating effect of AC expert on the relationship between ERC and default risk

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*ACEXPERT_{it} + f(\text{control variables}) + \text{year fixed effect} + \varepsilon_{it} \quad (4)$$

Independent Variables	Pooled Estimate (t-stat)	2002 Estimate (t-stat)	2003 Estimate (t-stat)	2004 Estimate (t-stat)	2005 Estimate (t-stat)	2006 Estimate (t-stat)	2007 Estimate (t-stat)
CAR	.025 (5.74)**	.024 (5.51)**	.024 (5.53)**	.025 (5.73)**	.026 (5.96)**	.024 (5.47)**	.025 (5.78)*
CAR*DER	.010 (6.34)**	.010 (6.31)**	.010 (6.29)**	.010 (6.32)**	.010 (6.33)**	.010 (6.34)**	.010 (6.32)**
CAR*DER*ACEXPERT	-.002 (-3.36)**	-.002 (-3.34)**	-.002 (-3.28)**	-.001 (-3.19)**	-.001 (-3.16)**	-.001 (-3.14)**	-.002 (-3.31)**
CAR*BETA	.006 (2.92)**	.006 (2.97)**	.007 (3.09)**	.006 (2.98)**	.007 (3.08)**	.006 (2.98)**	.006 (2.95)**
CAR*GROWTH	-.013 (-5.45)**	-.013 (-5.39)**	-.013 (-5.41)**	-.013 (-5.38)**	-.014 (-5.87)**	-.013 (-5.39)**	-.012 (-5.03)**
CAR*EPERS	-.443 (-7.37)**	-.445 (-7.40)**	-.439 (-7.30)**	-.441 (-7.34)**	-.448 (-7.45)**	-.431 (-7.17)**	-.436 (-7.23)**
CAR*SIZE	-19.030 (-2.72)**	-19.210 (-2.74)**	-19.330 (-2.76)**	-18.010 (-2.57)**	-19.420 (-2.77)**	-17.950 (-2.57)**	-17.910 (-2.56)**
Constant	.005 (16.37)**	.005 (16.38)**	.005 (16.41)**	.005 (16.43)**	.005 (16.44)**	.005 (16.41)**	.005 (16.42)**
Observations	2,004	334	334	334	334	334	334
Year fixed effect	included	included	included	included	included	included	included
Adj.R ²	.176	.177	.176	.173	.178	.171	.173

Note: ** Significant at $p < 0.01$ (1-tailed) and * Significant at $p < 0.05$ (1-tailed).

6.3.5 The mitigating effect of AC independence on the relationship between default risk and ERC

Table 6.9 shows the results of regressions with default risk and AC independence. The coefficient on the interaction between CAR, DER and ACINED is significant and negative and thus the interaction of DER and ACINED has a significant positive relationship with ERC. The results are thus similar to those obtained for the regression with audit quality and AC expertise. That is, the results support hypothesis 4: the negative effects of default risk on ERC decrease in magnitude as AC independence increases.

Table 6.9: Results of the mitigating effect of AC independence on the relationship between ERC and default risk

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*ACINED_{it} + f(\text{control variables}) + \text{year fixed effect} + \varepsilon_{it} \quad (5)$$

Independent Variables	Pooled	2002	2003	2004	2005	2006	2007
	Estimate (t-stat)	Estimate (t-stat)	Estimate (t-stat)	Estimate (t-stat)	Estimate (t-stat)	Estimate (t-stat)	Estimate (t-stat)
CAR	.022 (5.33)**	.021 (5.08)**	.022 (5.36)**	.021 (5.10)**	.022 (5.41)**	.022 (5.38)**	.021 (5.12)**
CAR*DER	.012 (7.72)**	.012 (7.68)**	.012 (6.74)**	.012 (7.63)**	.012 (7.79)**	.012 (7.71)**	.012 (7.75)**
CAR*DER*ACINED	-.012 (-8.96)**	-.012 (-8.88)**	-.013 (-9.64)**	-.012 (-8.93)**	-.014 (-10.39)**	-.014 (-10.22)**	-.012 (-8.89)**
CAR*BETA	.005 (2.48)**	.005 (2.53)**	.005 (2.43)**	.005 (2.51)**	.005 (2.53)**	.005 (2.51)**	.005 (2.48)**
CAR*GROWTH	-.012 (-4.97)**	-.012 (-4.91)**	-.013 (-5.38)**	-.014 (-5.79)**	-.013 (-5.40)**	-.014 (-5.81)**	-.012 (-4.93)**
CAR*EPERS	-.410 (-7.05)**	-.407 (-6.99)**	-.421 (-8.04)**	-.406 (-6.98)**	-.418 (-7.18)**	-.406 (-6.99)**	-.412 (-7.08)**
CAR*SIZE	-14.240 (-2.07)*	-14.520 (-2.11)*	-13.640 (-1.98)*	-14.120 (-2.05)*	-14.360 (-2.08)*	-14.210 (-2.07)*	-14.260 (-2.07)*
Constant	.006 (17.59)**	.006 (17.55)**	.006 (17.52)**	.006 (17.49)**	.006 (17.55)**	.006 (17.49)**	.006 (17.42)**
Observations	2,004	334	334	334	334	334	334
Year fixed effect	included	included	included	included	included	included	included
Adj.R ²	.193	.194	.192	.191	.195	.194	.193

Note: ** Significant at $p < 0.01$ (1-tailed) and * Significant at $p < 0.05$ (1-tailed).

6.3.6 The mitigating effect of board independence on the relationship between default risk and ERC

Table 6.10 shows the results of regressions with default risk and board independence. The coefficient on the interaction between CAR, DER and BODINED is significant and negative and thus the interaction of DER and BODINED has a significant positive relationship with ERC. This finding for board independence supports hypothesis 5: the negative effects of default risk on the ERC decrease in magnitude as board independence increases. This finding is consistent with Bhojraj and Sengupta (2003). The result implies that with greater independence among board members, the board is better able to monitor the higher risk of default arising from increasing debt obligations.

Table 6.10: Results of the mitigating effect of board independence on the relationship between ERC and default risk

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*BODINED_{it} + f(\text{control variables}) + \text{year fixed effect} + \varepsilon_{it} \quad (6)$$

Independent Variables	Pooled	2002	2003	2004	2005	2006	2007
	Estimate (t-stat)	Estimate (t-stat)	Estimate (t-stat)	Estimate (t-stat)	Estimate (t-stat)	Estimate (t-stat)	Estimate (t-stat)
CAR	.026 (6.02)**	.027 (6.25)**	.026 (6.04)**	.028 (6.48)**	.027 (6.25)**	.028 (6.48)**	.027 (6.25)**
CAR*DER	.010 (6.27)**	.010 (6.24)**	.010 (6.20)**	.010 (6.19)**	.010 (6.17)**	.010 (6.19)**	.010 (6.22)**
CAR*DER*BODINED	-.004 (-3.88)**	-.004 (-3.79)**	-.003 (-2.91)**	-.004 (-3.72)**	-.003 (-3.03)**	-.004 (-3.83)**	-.004 (-3.70)**
CAR*BETA	.006 (2.95)**	.006 (2.90)**	.006 (2.97)**	.006 (3.00)**	.006 (2.94)**	.006 (3.01)**	.006 (3.96)**
CAR*GROWTH	-.015 (-6.01)**	-.014 (-5.61)**	-.013 (-5.21)**	-.015 (-6.05)**	-.013 (-5.26)**	-.014 (-5.66)**	-.015 (-6.08)**
CAR*EPERS	-.415 (-6.89)**	-.413 (-6.86)**	-.412 (-6.84)**	-.416 (-6.91)**	-.410 (-6.80)**	-.419 (-6.96)**	-.414 (-6.87)**
CAR*SIZE	-17.730 (-2.54)**	-17.820 (-2.56)**	-17.870 (-2.57)**	-17.780 (-2.55)**	-17.970 (-2.57)**	-17.880 (-2.56)**	-17.510 (-2.51)**
Constant	.005 (16.79)**	.005 (16.75)**	.005 (16.76)**	.005 (16.81)**	.005 (16.79)**	.005 (16.71)**	.005 (16.68)**
Observations	2,004	334	334	334	334	334	334
Year fixed effect	included	included	included	included	included	included	included
Adj.R ²	.177	.178	.177	.180	.178	.180	.176

Note: ** Significant at $p < 0.01$ (1-tailed) and * Significant at $p < 0.05$ (1-tailed).

6.3.7 The mitigating effect of board shareholding on the relationship between default risk and ERC

Table 6.11 shows the results of regressions with default risk and board shareholding. The coefficient on the interaction between CAR, DER and BODSHARE is significant and negative and thus the interaction of DER with BODSHARE has a positive relationship with ERC. This finding supports hypothesis 6: the negative effects of default risk on ERC decrease in magnitude as board shareholding increases.

This result implies that increases board ownership increases the quality of monitoring of debt obligations. A possible explanation for this finding could be the high ownership concentration. Large shareholders who exercise control rights would be particularly concerned to protect their interests in the firm from being at risk due to excessive debt obligations.

Table 6.11: Results of the mitigating effect of board shareholding on the relationship between ERC and default risk

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*BODSHARE_{it} + f(\text{control variables}) + \text{year fixed effect} + \varepsilon_{it} \quad (7)$$

Independent Variables	Pooled Estimate (t-stat)	2002 Estimate (t-stat)	2003 Estimate (t-stat)	2004 Estimate (t-stat)	2005 Estimate (t-stat)	2006 Estimate (t-stat)	2007 Estimate (t-stat)
CAR	.021 (4.87)**	.022 (5.10)**	.021 (4.88)**	.022 (5.09)**	.022 (5.12)**	.021 (4.85)**	.021 (4.88)**
CAR*DER	.012 (7.59)**	.012 (7.49)**	.012 (7.53)**	.012 (7.51)**	.012 (7.49)**	.012 (7.53)**	.012 (7.52)**
CAR*DER*BODSHARE	-9.167E (-3.33)**	-9.138E (-3.32)**	-9.163E (-3.33)**	-9.189E (-3.34)**	-9.171E (-3.33)**	-9.141E (-3.32)**	-9.144E (-3.32)
CAR*BETA	.007 (3.30)**	.007 (3.22)**	.007 (3.40)**	.007 (3.415)**	.007 (3.39)**	.007 (3.37)**	.007 (3.39)**
CAR*GROWTH	-.012 (-4.83)**	-.012 (-4.89)**	-.013 (-5.23)**	-.013 (-5.29)**	-.013 (-5.21)**	-.013 (-5.26)**	-.012 (-4.87)**
CAR*EPERS	-.462 (-7.49)**	-.460 (-7.45)**	-.456 (-7.39)**	-.466 (-7.55)**	-.445 (-7.23)**	-.474 (-7.68)**	-.459 (-7.44)**
CAR*SIZE	-15.610 (-2.22)*	-15.320 (-2.17)*	-15.140 (-2.15)*	-15.120 (2-15)*	-15.580 (-2.21)*	-16.060 (-2.28)*	-15.510 (-2.20)*
Constant	.006 (17.00)**	.006 (17.02)**	.006 (17.09)**	.006 (17.06)**	.006 (17.07)**	.006 (17.08)**	.006 (17.03)**
Observations	2,004	334	334	334	334	334	334
Year fixed effect	included	included	included	included	included	included	included
Adj.R ²	.183	.181	.179	.185	.185	.184	.182

Note: ** Significant at $p < 0.01$ (1-tailed) and * Significant at $p < 0.05$ (1-tailed).

6.4 ROBUSTNESS OF RESULTS

A number of tests were carried out to ensure that the results obtained were robust. This involved tests on the statistical assumptions, multicollinearity, heteroscedasticity, and also sensitivity analyses.

6.4.1 Statistical assumptions

The assumptions of normality, linearity, and independence of residuals were checked by inspecting respective histograms and normal probability plots (P-P) of the standardised residuals of each regression. The histogram of standardised residuals of each regression appeared to be normally distributed. The normal P-Ps for all the regressions indicate that the points lie in reasonably straight diagonal lines, suggesting no major deviations from normality.

6.4.2 Multicollinearity

Problems arise in estimation of the regression coefficients if the independent variables are highly correlated. Such multicollinearity often results in inflated standard errors of the fitted coefficients. As noted earlier, the correlation table (Table 6.4) shows that there are significant correlations between pairs of some of the individual independent variables. Although all the coefficients are less than 0.7, thus suggesting the absence of serious multicollinearity, nevertheless a check for multicollinearity was conducted by checking the variance inflation

factor (VIF) for each variable entering the regressions. The VIF measures the degree to which each variable is explained by other explanatory variables (Chau and Gray, 2002; and Owusu-Ansah, 1998). Table 6.12 shows the values of the VIF of each of the variables in the regressions.

The results, as reported in Table 6.12, indicate that the VIF values are all below 10, with a maximum value of 4.77. This suggests that the multicollinearity among the explanatory variables is unlikely to have had an impact on the estimation results for the regression equations.

Table 6.12: Multicollinearity tests

Variable	Regr (1)	Regr (2)	Regr (3)	Regr (4)	Regr (5)	Regr (6)	Regr (7)
	VIF	VIF	VIF	VIF	VIF	VIF	VIF
CAR	4.31	4.30	4.62	4.49	4.73	4.69	4.77
CAR*DER	3.83	3.91	3.87	3.93	4.08	3.81	3.81
CAR*DER*AUDITQ			1.46				
CAR*DER*ACEPERT				2.10			
CAR*DER*ACINED					1.69		
CAR*DER*BODINED						3.83	
CAR*DER*BODSHARE							1.33
CAR*BETA	2.82	3.16	3.12	3.17	3.13	3.14	3.05
CAR*GROWTH	3.13	3.26	3.41	3.40	3.40	3.54	3.32
CAR*EPERS	2.81	2.16	2.59	2.25	2.23	2.45	2.24
CAR*SIZE	3.53	3.51	3.51	3.53	3.58	3.63	3.70

6.4.3 Heteroscedasticity test

Heteroscedasticity exists if the residuals of a regression model are unequal (Kennedy, 2006). In order to test for heteroscedasticity, the Breusch-Pagan test was performed (Baum, Schaffer and Stillman, 2003). Table 6.13 shows the results of the Breusch–Pagan test for all seven regressions. All of the regressions show small values of chi square (between 0.12 to 0.14) indicating the absence of serious heteroscedasticity³⁰.

Table 6.13: Heteroscedasticity (Breusch Pagan) test and Serial Correlation (Durbin Watson)

	Breusch Pagan Chi-square	Durbin Watson DW
Regression 1	0.11	2.031
Regression 2	.011	2.024
Regression 3	.013	2.016
Regression 4	.014	2.020
Regression 5	.014	1.999
Regression 6	.013	2.019
Regression 7	.012	2.014

³⁰ The results for VIF, Breusch–Pagan test, and Durbin-Watson test are based on pooled data. However, similar results were obtained for the year by year regressions.

6.4.4 Auto correlation

The Durbin-Watson test was used to detect the presence of autocorrelation in the residuals from all seven regression analyses. Table 6.13 shows that the Durbin-Watson (DW) autocorrelation coefficients were between 1.999 and 2.031 and thus at an acceptable level (Koksal and Kettaneh, 2011). Similarly, the DW statistics for each of the regression shows there is no serious auto correlation problem.

6.4.5 Sensitivity analysis

6.4.5.1 Alternative measures for default risk

Two alternative measures of default risk were used to re-estimate equation (2). The first one, following Gilson (1990) and Christie and Zimmerman (1994), was to use the change in financial leverage (FINLEV). It was measured as the ranked deciles of the change in the ratio of total long-term debt to total assets from the previous year to the current year. The value ranges from deciles 1 to 10 (from the lowest to the highest ranking).

Table 6.14 shows the results of the estimation of equation (2) using FINLEV as the measure of default risk. The overall results are the same as in Table 6.6 which uses DER as the measure of default risk. However, the level of significance for FINLEV is lower than that for DER and the adjusted R^2 is slightly lower.

TABLE 6.14: Results of the ERC determinants with alternative default risk measures (change in financial leverage)

$$UX_{it}/P_{it} = \alpha_0 + \alpha_1 CAR_{it} + \alpha_2 CAR * FINLEV_{it} + f(\text{control variables}) + \text{year fixed effect} + \varepsilon_{it}$$

Independent Variables	Pooled Estimate (t-stat)	2002 Estimate (t-stat)	2003 Estimate (t-stat)	2004 Estimate (t-stat)	2005 Estimate (t-stat)	2006 Estimate (t-stat)	2007 Estimate (t-stat)
CAR	.031 (7.57)**	.030 (7.33)**	.031 (7.52)**	.031 (7.49)**	.030 (7.32)**	.031 (7.53)**	.031 (7.50)**
CAR*FINLEV	.015 (2.87)**	.015 (2.84)**	.015 (2.82)**	.015 (2.79)**	.015 (2.77)**	.015 (2.74)**	.015 (2.84)**
CAR*BETA	.007 (3.18)**	.007 (3.12)**	.007 (3.15)**	.007 (3.17)**	.007 (3.14)**	.007 (3.13)**	.007 (3.16)**
CAR*GROWTH	-.009 (-3.74)**	-.009 (-3.67)**	-.010 (-4.15)**	-.009 (-3.72)**	-.010 (-4.18)**	-.010 (-4.12)**	-.010 (-4.17)**
CAR*EPERS	-.387 (-6.65)**	-.379 (-6.51)**	-.382 (-6.56)**	-.378 (-6.49)**	-.383 (-6.58)**	-.375 (-6.44)**	-.371 (-6.37)**
CAR*SIZE	-16.320 (-2.31)*	-16.210 (-2.29)*	-16.190 (-2.29)*	-16.320 (-2.31)*	-16.250 (-2.30)*	-16.220 (-2.30)*	-16.240 (-2.30)*
Constant	.006 (15.26)**	.006 (15.20)**	.006 (15.21)**	.006 (15.19)**	.006 (15.25)**	.006 (15.22)**	.006 (15.21)**
Observations	2,004	334	334	334	334	334	334
Year fixed effect	included	included	included	included	included	included	included
Adj. R ²	.154	.152	.155	.154	.153	.155	.155

Note: ** Significant at $p < 0.01$ (1-tailed) and * Significant at $p < 0.05$ (1-tailed).

The second measure uses Altman's (2002) revised Z score model used for bankruptcy prediction in emerging markets³¹. This model is used to measure the default risk of debt for the sample firms as in regression (2). The Z score values are assigned to a dummy as follows: 1: $Z > 2.6$ represents the "Safe" zone; 2: $1.1 < Z < 2.6$ represents the "Grey" zone or 3: $Z < 1.1$ which represents the "Distressed" zone.

Table 6.15 shows that the overall results are similar to the estimations with the other measures of default risk. All significant variables remain significant. However, the level of significance is higher than that for the FINLEV alternative. The results, showed in Table 6.14 and 6.15, support hypothesis 1: *Ceteris paribus*, default risk has a significant negative relationship with ERC.

³¹ Altman (2002) developed a Z score bankruptcy prediction model for emerging markets which was based on the Altman Z Score model (1968). This modified version analyses the characteristics and accuracy of default probabilities without the variable sales/total assets. This minimises the potential industry effect that is likely to impact when an industry-sensitive variable such as asset turnover is included.

TABLE 6.15: Results of the ERC determinants with alternative default risk measures (Altman Z Score bankruptcy prediction)

$$UX_{it}/P_{it} = \alpha_0 + a_1 CAR_{it} + a_2 CAR * ZSCORE_{it} + f(\text{control variables}) + \text{year fixed effect} + \varepsilon_{it}$$

Independent Variables	Pooled Estimate (t-stat)	2002 Estimate (t-stat)	2003 Estimate (t-stat)	2004 Estimate (t-stat)	2005 Estimate (t-stat)	2006 Estimate (t-stat)	2007 Estimate (t-stat)
CAR	.027 (6.51)**	.026 (6.26)**	.025 (6.02)**	.026 (6.23)**	.026 (6.21)**	.026 (6.28)**	.025 (6.05)**
CAR*ZSCORE	.013 (4.98)**	.015 (5.74)**	.013 (4.96)**	.013 (4.97)**	.013 (4.95)**	.015 (5.77)**	.013 (4.94)**
CAR*BETA	.007 (3.18)**	.007 (3.21)**	.007 (3.16)**	.007 (3.14)**	.007 (3.18)**	.007 (3.21)**	.007 (2.20)**
CAR*GROWTH	-.012 (-4.67)**	-.013 (-5.06)**	-.014 (-5.48)**	-.014 (-5.46)**	-.013 (-5.08)**	-.014 (-5.51)**	-.012 (-4.69)**
CAR*EPERS	-.430 (-7.36)**	-.421 (-7.20)**	-.447 (-7.65)**	-.423 (-7.24)**	-.441 (-7.54)**	-.429 (-7.34)**	-.431 (7.37)*
CAR*SIZE	-17.710 (-2.53)**	-17.850 (-2.55)**	-17.680 (-2.53)**	-17.810 (-2.54)**	-17.630 (-2.52)**	-17.440 (-2.49)**	-17.570 (-2.51)**
Constant	.006 (16.08)**	.006 (16.12)**	.006 (16.10)**	.006 (16.15)**	.006 (16.08)**	.006 (16.10)**	.006 (16.11)**
Observations	2,004	334	334	334	334	334	334
Year fixed effect	included	included	included	included	included	included	included
Adj.R ²	.163	.159	.166	.158	.167	.165	.163

Note: ** Significant at $p < 0.01$ (1-tailed) and * Significant at $p < 0.05$ (1-tailed).

6.4.5.2 Alternative measures of corporate governance

The mitigating impact of corporate governance on default risk was retested by using (i) alternative measures for AC independence and (ii) a corporate governance score based on all the individual corporate governance variables.

Two alternative measures of the AC independence were tested. The first measure was a dummy with a value of 1 whenever the proportion of independent non-executive directors in the AC was more than 50% (ACINED50). Table 6.16B shows the results of regressions with default risk and ACINED50. The overall results, as shown in Table 6.16A, are closely similar in almost all respects to the results obtained with ACINED. All significant variables remain significant.

The second measure was a dummy assigned the value of 1 whenever the proportion of independent non-executive directors in the AC reaches 100% (ACINED100). The results in Table 6.16C show the results of regressions with default risk and ACINED 100. The overall results, as shown in Table 6.16C are closely similar to the results obtained with ACINED. The results for the alternative measures of AC independence thus support the result that AC independence has a mitigating effect on default risk.

Table 6.16: Results of the mitigating effect of AC independence on the relationship between ERC and default risk

	Table 6.16A	Table 6.16B	Table 6.16C
Independent Variable	Estimates (t-stat)	Estimates (t-stat)	Estimates (t-stat)
CAR	0.022 (5.33)**	0.021 (5.08)**	0.022 (5.42)**
CAR*DER	0.012 (7.72)**	0.011 (7.07)**	0.010 (6.47)**
CAR*DER*ACINED	-0.012 (-8.96)**		
CAR*DER*ACINED50		-0.011 (-8.21)**	
CAR*DER*ACINED100			-0.009 (-6.72)**
CAR*BETA	0.005 (2.48)**	0.005 (2.47)**	0.005 (2.50)**
CAR*GROWTH	-0.012 (-4.97)**	-0.013 (5.38)**	-0.013 (-5.41)**
CAR*EPERS	-0.410 (-7.05)**	-0.424 (-7.29)**	-0.413 (-7.10)**
CAR*SIZE	-14.240 (-2.07)*	-14.190 (-2.07*)	-14.220 (-2.06)*
Constant	0.006 (17.59)**	0.006 (17.53)**	0.006 (7.07)**
Year fixed effect	included	included	included
Adj. R ²	0.193	0.192	0.194

Note: ** Significant at $p < 0.01$ (1-tailed) and * Significant at $p < 0.05$ (1-tailed).

Principal component factor analysis was applied to the five individual measures of corporate governance — audit quality, AC expertise, AC independence, board independence and board shareholding to derive an overall factor score for the corporate governance variable. The five corporate governance measures were found to load on two factors with an eigenvalue greater than one. The first factor with eigenvalue of 1.96 accounted for 31.74% of the variance of the individual measures. The second factor with eigenvalue of 1.27 accounted for 21.53% of the variance of the individual measures. The first factor, with higher eigenvalue, was chosen to represent the corporate governance factor (CGfactor).

Table 6.17 shows the results of regressions with default risk and the CGfactor. The results obtained are overall similar to those obtained for the regressions with the individual corporate governance variables. The coefficient on CAR, DER and CGfactor interaction is positive and significant to ERC. This outcome further supports the premise that corporate governance has a mitigating effect on the relationship between default risk and ERC.

Table 6.17: Results of the mitigating effect of corporate governance factor variable on the relationship between ERC and default risk

$$UX_{it}/P_{it} = \alpha_0 + a_1CAR_{it} + a_2CAR*DER_{it} + a_3CAR*DER*CGfactor_{it} + f(\text{control variables}) + \text{year fixed effect} + \varepsilon_{it} \quad (11)$$

Independent Variables	Pooled Estimate (t-stat)	2002 Estimate (t-stat)	2003 Estimate (t-stat)	2004 Estimate (t-stat)	2005 Estimate (t-stat)	2006 Estimate (t-stat)	2007 Estimate (t-stat)
CAR	.020 (4.35)**	.020 (4.48)**	.021 (4.57)**	.020 (4.41)**	.021 (4.62)**	.020 (4.51)**	.020 (4.43)**
CAR*DER	.009 (5.67)**	.009 (5.64)**	.009 (5.72)**	.009 (5.65)**	.009 (5.74)**	.009 (5.69)**	.009 (5.72)**
CAR*DER*CGfactor	-.002 (-2.86)**	-.002 (-2.88)**	-.002 (-2.74)**	-.002 (-2.76)**	-.002 (-2.83)**	-.002 (-2.79)**	-.002 (-2.82)**
CAR*BETA	.007 (3.43)**	.007 (3.44)**	.007 (3.40)**	.007 (3.41)**	.007 (3.44)**	.007 (3.41)**	.007 (3.45)**
CAR*GROWTH	-.012 (-4.67)**	-.012 (-4.65)**	-.013 (-5.07)**	-.013 (-5.10)**	-.013 (5.06)**	-.012 (-4.63)**	-.012 (-4.71)**
CAR*EPERS	-.443 (-7.05)**	-.461 (-7.34)**	-.451 (-7.17)**	-.448 (-7.13)**	-.454 (-7.23)**	-.449 (-7.15)**	-.455 (-7.24)**
CAR*SIZE	-19.290 (-2.56)**	-18.970 (-2.52)**	-19.380 (-2.58)**	-19.760 (-2.62)**	-19.770 (-2.62)**	-19.680 (-2.61)**	-18.970 (-2.52)**
Constant	.006 (15.59)**	.006 (15.61)**	.005 (15.63)**	.005 (15.67)**	.005 (15.57)**	.005 (15.62)**	.005 (15.59)**
Observations	2,004	334	334	334	334	334	334
Year fixed effect	included	included	included	included	included	included	included
Adj.R ²	.186	.185	.188	.187	.187	.186	.186

Note: ** Significant at $p < 0.01$ (1-tailed) and * Significant at $p < 0.05$ (1-tailed).

6.5 DISCUSSION AND CONCLUSION

This study examines the effect of corporate governance on the effect of default risk on ERC while controlling for the established determinants of ERC — beta, growth, earnings persistence and size.

As noted in Chapter 2, Malaysian firms prefer bank loans as the main source of new financing. This may due to the supporting factors of stable BLR between 5.5 to 6.75 (2000-2010); CDRC roles in mediating conflicts between companies and lenders; MLA 2003 protection; and the Malaysian Central Bank's effective monitoring . However, this higher reliance on debt financing among Malaysian firms exposes them to greater default risk and thus, effective monitoring of the firm's debt repayment obligations is important.

The results of the study confirm the expected significant negative relationship between beta and ERC and a significant positive relationship between each of earnings persistence, growth and size with ERC. These results are similar to those found in prior studies (Kormendi and Lipe, 1987; Collins and Kothari, 1989; Dhaliwal and Reynolds, 1994; Billings, 1999; Kim, 2005; and Shangguan, 2007).

The results also provide evidence that default risk in emerging markets has a significant negative impact on ERC. Thus, the results support Hypothesis 1. These findings are

consistent with those of previous studies in developed markets (see Dhaliwal et al. 1991; Dhaliwal and Reynolds, 1994; Shangguan, 2007) and emerging markets (see Kai, 2002; and Cheng and Nasir, 2010).

The results from this study show that corporate governance mechanism mitigates the negative effect of default risk on ERC; the effect on ERC decreases in magnitude with higher audit quality, greater number of experts in AC, higher levels of AC independence, higher proportions of independent members in corporate boards, and board shareholding. In general, these findings are consistent with those of prior studies that recognise the influence of corporate governance on default risk (for example, Gilson 1990; Ashbaugh-Skaife et al., 2006; and Chan and Li, 2008). Consistent with Liu and Thomas (2000) the results from regressions (1) to (7) indicate a consistent pattern from pooled to year by year analyses.

To test the robustness of the results, two alternative measures of default risk— change in financial leverage and Altman's Z score were tested. Both measures show the same results as when the debt to equity ratio is used to proxy default risk. Default risk has a negative effect on ERC.

Two additional measures of AC independence were also tested. The results in both cases remained the same as that for AC independence. A measure of corporate governance based on a factor analysis of the corporate governance variables was also tested. The result was the same as for the individual variables. The results indicate that corporate governance has a mitigating effect on the relationship between default risk and ERC.

Appendix C summarises the findings of the regression analyses and shows a comparison between the findings of this study and those of prior studies. The findings support the expectations of the study in terms of (i) the effect of default risk on ERC after controlling for beta, growth, earnings persistence, and size; and (ii) the mitigating effect of corporate governance on the relationship between default risk and ERC.

CHAPTER SEVEN: SUMMARY

7 INTRODUCTION

The purpose of this study is to provide evidence from an emerging economy, Malaysia, on the effect of default risk on ERC and whether this effect is mitigated by the quality of corporate governance. The examination of this issue controls for beta, growth, earnings persistence and size — factors that have been established in the empirical literature on developed economies as determining ERC. In order to achieve the stated purpose, three specific objectives were set:

1. Examine whether beta, growth, earnings persistence, and size are also determinants of ERC in an emerging economy;
2. Examine the effect of default risk on ERC while controlling for beta, growth, earnings persistence, and size; and
3. Examine whether corporate governance mechanisms mitigate the effect of default risk on ERC. In particular, whether audit quality, audit committee expertise, audit committee independence, board independence, and board shareholding, mitigate the effect of default risk on ERC.

Section 7.1 reviews the research procedures applied to achieve these objectives and Section 7.2 presents a summary of the findings. Section 7.3 discusses the limitations of the study. Finally, Section 7.4 offers suggestions for future research.

7.1 RESEARCH PROCEDURES

The hypotheses developed in the study were as follows:

H1: *Ceteris paribus, default risk has a significant negative relationship with ERC;*

H2: *Ceteris paribus, the negative effects of default risk on ERC decrease in magnitude as audit quality increases;*

H3: *Ceteris paribus, the negative effects of default risk on ERC decrease in magnitude as audit committee expertise increases;*

H4: *Ceteris paribus, the negative marginal effects of default risk on ERC decrease in magnitude as audit committee independence increases;*

H5: *Ceteris paribus, the negative effects of default risk on ERC decrease in magnitude as board independence increases; and finally,*

H6: *Ceteris paribus, the negative effects of default risk on ERC decrease in magnitude as board shareholding increases.*

ERC is the multiplier from unexpected earnings (scaled by price) to unexpected returns. Therefore, it would be expected that in regression based tests of the factors determining ERC, the dependent variable would be unexpected return. However, because unexpected earnings are likely to be subject to severe measurement error, instead reverse regression is used in which unexpected earnings is the dependent variable. Specifically, tests of the hypotheses were based on the following regression equation:

$$UX/P = a_0 + a_1 UR + a_2 UR * X_1 + a_3 UR * X_2 + ... + a_{n+1} UR * X_n + \varepsilon \quad (7.1)$$

In this equation, the coefficients actually relate to the inverse of the ERC, the Return Response Coefficient. Therefore, if the estimate of the coefficient on $UR * X_i$ is significant and negative, that should indicate that X_i is positively related to ERC.

To test the role of beta, growth, earnings persistence and size, the regression is run with just those variables as the $\{X_i\}$. These variables then become the controls in the tests of the hypotheses. Hypothesis 1, the impact of default risk, is carried out by adding a measure of default risk to the set $\{X_i\}$ and Hypotheses 2 to 6 are tested by additionally including, in turn, the interaction of $UR * DER$ with the measure of the relevant corporate governance mechanism.

This study is based on firm-specific accounting and market data for firms listed on Bursa Malaysia during the 6 year period 2002 to 2007. The sample selection process resulted in data on 334 firms and thus provided a total of 2,004 firm year observations. The data was obtained from Thomson Datastream, the Bursa Malaysia website, and by hand collection from individual company annual reports.

Earnings were assumed to follow a random walk and thus unexpected earnings was measured as the change in annual EPS. Unexpected return was estimated by annual CAR, that is, cumulated monthly abnormal returns, the difference between actual return and expected return. Beta and expected return were estimated by use of the market model using 60 monthly observations and earnings persistence was estimated by assuming an ARIMA (0,1,1) process with estimation based on 20 quarterly observations.

The regressions were run on both a pooled basis for the six year period and on a year by year basis.

7.2 SUMMARY OF THE FINDINGS

Beta was found to have a significant negative effect on ERC while growth, earnings persistence and size had a positive effect. The results of the tests of the hypotheses were as follows:

1. Default risk was found to have a significant negative effect on ERC, thus supporting the finding for developed countries that beta is an incomplete measure of risk relevant to ERC.
2. The corporate governance mechanisms were in each case found to mitigate the negative effect of default risk on ERC.

The results of the pooled regressions were in all cases consistent with the results of the year by year regressions. The results were robust to econometric tests and to use of alternative measures of key variables. The results of the study were thus strong and consistent with the findings from similar research based on developed countries. The study thus makes a significant contribution to the empirical literature on ERC.

7.3 LIMITATIONS OF THE STUDY

The study is subject to a number of limitations. First, the results relate to just one emerging economy, Malaysia, and therefore while the results are consistent with the findings from research on developed countries it does not provide a solid base for generalisation to all emerging economies. This limitation is accentuated by the relatively short time period from which the sample for the study was drawn.

Second, the operational concepts used as measures for the pure constructs, the variables of interest in the study, may actually have a poor correspondence with the variables. This applies particularly to constructs such as audit quality for which the adequacy of operational concepts such as audit firm size must be uncertain.

Thirdly there must be concern over the veracity of the data on of the variables, in particular corporate governance variables such as board and audit committee independence. The measures for these variables were obtained from annual reports but the fact that a director is described in the reports as independent may not reflect true independence as there may

actually be a close relationship with management based on social or family ties.

Fourth, the results may suffer from omitted variable problem. Although the econometric test for this problem provides comfort the problem may, nevertheless, exist. In addition to the corporate governance mechanisms included in the study, other factors such as government and/or institutional ownership, political connections, and anti-takeover strategies may also be highly relevant.

Finally, the results obtained may suffer from the assumption that the inverse of the function relating $\{X_i\}$ to ERC is linear. In fact the inverse function may depart significantly from linearity.

7.4 SUGGESTIONS FOR FUTURE RESEARCH

The principal suggestions relate to extension of the present study, as follows:

1. Similar comprehensive studies should be carried out for other emerging economies;
2. Where feasible the studies on other countries should cover a longer period of time and a larger number of companies;
3. Future studies should consider a wider range of measures for the key variables to provide additional comfort on the robustness of the results obtained.

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LIST OF APPENDIX

APPENDIX A: BURSA MALYSIA LISTING REQUIREMENTS (BMLR) FOR DIRECTORS AND AUDIT COMMITTEE

PART A – GENERAL

15.01 Introduction

This Chapter sets out the requirements that must be complied with by a listed issuer and its Directors with regard to corporate governance.

PART B – DIRECTORS

15.02 Composition of the board of directors

- (1) A listed issuer must ensure that at least 2 directors or 1/3rd of the board of directors of a listed issuer, whichever is the higher, are independent directors.
- (2) If the number of directors of the listed issuer is not 3 or a multiple of 3, then the number nearest 1/3rd shall be used.
- (3) In the event of any vacancy in the board of directors, resulting in non- compliance with subparagraph (1) above, a listed issuer must fill the vacancy within 3 months.

15.03 Undertaking and letter by directors

- (1) A person who is a director of a listed issuer at the time this paragraph comes into force or is appointed as a director of a listed issuer thereafter, must give to the Exchange immediately after this paragraph comes into force or his appointment, whichever is the later, and in any event not later than 14 days thereafter, an undertaking in the form of Appendix 3C in respect of that listed issuer.
- (2) A person who is appointed as an independent director must give to the Exchange immediately after this paragraph comes into force or his appointment, whichever is the later, and in any event not later than 14 days thereafter.

15.04 Rights of directors

Unless otherwise provided by or subject to any applicable laws or these Requirements, a listed issuer must ensure that every director has the right to the resources, whenever necessary and reasonable for the performance of his duties, at the cost of the listed issuer and in accordance with a procedure to be determined by the board of directors, including but not limited to:-

- (a) obtaining full and unrestricted access to any information pertaining to the listed issuer;
- (b) obtaining full and unrestricted access to the advice and services of the company secretary;
- and
- (c) obtaining independent professional or other advice.

15.05 Qualification, vacation of office and removal of directors

(1) A listed issuer must ensure that no person is appointed or allowed to act as a director of the issuer or be involved whether directly or indirectly in the management of the issuer, including acting in an advisory capacity in relation to the issuer, if he:-

- (a) has been convicted by a court of law, whether within Malaysia or elsewhere, of an offence in connection with the promotion, formation or management of a company;
- (b) has been convicted by a court of law, whether within Malaysia or elsewhere, of an offence, involving fraud or dishonesty or where the conviction involved a finding that he acted fraudulently or dishonestly; or
- (c) has been convicted by a court of law of an offence under the securities laws or the Companies Act 1965, within a period of 5 years from the date of conviction or if sentenced to imprisonment, from the date of release from prison, as the case may be.

(2) For the purpose of subparagraph (1) above, “securities laws” means the CMSA, the Securities Industry (Central Depositories) Act 1991 and the Securities Commission Act 1993.

(3) The office of a director shall become vacant if the director:-

- (a) becomes of unsound mind;
- (b) becomes bankrupt;
- (c) is absent from more than 50% of the total board of directors’ meetings held during a financial year; or

(d) is convicted by a court of law, whether within Malaysia or elsewhere, in relation to the offences set out in subparagraphs (1)(a), (b) or (c) above.

(4) For the purposes of subparagraph (3)(c) above, if a director is appointed after the commencement of a financial year, then only the board of directors' meetings held after his appointment will be taken into account.

(5) Where a director is removed from office, the listed issuer must forward to the Exchange a copy of any written representations made by the director in question at the same time as copies of such representations are sent to members of the listed issuer under section 128(3)(b) of the Companies Act 1965, unless copies of such representations need not be sent out by reason of the circumstances specified in section 128(4) of the Companies Act 1965.

15.06 Restriction on directorships

(1) A director of an applicant or a listed issuer must not hold more than 25 directorships in companies, of which:-

(a) the number of directorships in listed issuers shall not be more than 10; and

(b) the number of directorships in companies other than listed issuers shall not be more than 15.

(2) For the purpose of this paragraph, "companies" means companies incorporated under or corporations registered as foreign companies under the Companies Act 1965, regardless of whether such companies are public or private companies or whether they are listed companies or not.

15.07 Method of computation

For the purposes of paragraph 15.06 above, a director of an applicant or a listed issuer must comply with the method of calculation of number of directorships prescribed by the Exchange.

15.08 (Deleted)

15.09 Directors' training

(1) A director of a listed issuer must ensure that he attends such training programmes as may be prescribed by the Exchange from time to time.

(2) The Exchange considers continuous training for directors of listed issuers as important to enable the directors to effectively discharge their duties. In this respect, the board of directors of a listed issuer must on a continuous basis, evaluate and determine the training needs of its directors. The subject matter of training must be one that aids the director in the discharge of his duties as a director. The board of directors must disclose in the annual report of the listed issuer whether its directors have attended training for the financial year. Where any of its directors have not attended any training during the financial year, the board of directors must state the reasons thereof in the annual report for each director.

PART C - AUDIT COMMITTEE

15.10 Composition of the audit committee

(1) A listed issuer must appoint an audit committee from amongst its directors which fulfils the following requirements:-

- (a) the audit committee must be composed of no fewer than 3 members;
 - (b) all the audit committee members must be non-executive directors, with a majority of them being independent directors; and
 - (c) at least one member of the audit committee:-
 - (i) must be a member of the Malaysian Institute of Accountants; or
 - (ii) if he is not a member of the Malaysian Institute of Accountants, he must have at least 3 years' working experience and:-
 - (aa) he must have passed the examinations specified in Part I of the 1st Schedule of the Accountants Act 1967; or
 - (bb) he must be a member of one of the associations of accountants specified in Part II of the 1st Schedule of the Accountants Act 1967; or
 - (iii) fulfils such other requirements as prescribed or approved by the Exchange.
- (2) A listed issuer must ensure that no alternate director is appointed as a member of the audit committee.

15.11 Chairman of the audit committee

The members of an audit committee shall elect a chairman from among their number who shall be an independent director.

15.12 Written terms of reference

An audit committee must have written terms of reference which deal with its authority and duties.

15.13 Functions of the audit committee

Without limiting the generality of paragraph 15.12 above, a listed issuer must ensure an audit committee shall, amongst others, discharge the following functions:-

(1) review the following and report the same to the board of directors of the listed issuer:-

- (a) with the external auditor, the audit plan;
- (b) with the external auditor, his evaluation of the system of internal controls;
- (c) with the external auditor, his audit report;
- (d) the assistance given by the employees of the listed issuer to the external auditor;
- (e) the adequacy of the scope, functions, competency and resources of the internal audit functions and that it has the necessary authority to carry out its work;
- (f) the internal audit programme, processes, the results of the internal audit programme, processes or investigation undertaken and whether or not appropriate action is taken on the recommendations of the internal audit function;
- (g) the quarterly results and year end financial statements, prior to the approval by the board of directors, focusing particularly on:-
 - (i) changes in or implementation of major accounting policy changes;
 - (ii) significant and unusual events; and
 - (iii) compliance with accounting standards and other legal requirements;
- (h) any related party transaction and conflict of interest situation that may arise within the listed issuer or group including any transaction, procedure or course of conduct that raises questions of management integrity;

- (i) any letter of resignation from the external auditors of the listed issuer; and
 - (j) whether there is reason (supported by grounds) to believe that the listed issuer's external auditor is not suitable for re- appointment; and
- (2) recommend the nomination of a person or persons as external auditors.

15.14 Attendance of other directors and employees

A listed issuer must ensure that other directors and employees attend any particular audit committee meeting only at the audit committee's invitation, specific to the relevant meeting.

15.15 Procedure of audit committee

An audit committee may regulate its own procedure, in particular:-

- (a) the calling of meetings;
- (b) the notice to be given of such meetings;
- (c) the voting and proceedings of such meetings;
- (d) the keeping of minutes; and
- (e) the custody, production and inspection of such minutes.

15.16 Audit committee report

(1) A listed issuer must ensure that its board of directors prepares an audit committee report at the end of each financial year that complies with subparagraphs (2) and (3) below.

(2) The audit committee report must be clearly set out in the annual report of the listed issuer.

(3) The audit committee report shall include the following:-

- (a) the composition of the audit committee, including the name, designation (indicating the chairman) and directorship of the members (indicating whether the directors are independent or otherwise);
- (b) the terms of reference of the audit committee;
- (c) the number of audit committee meetings held during the financial year and details of attendance of each audit committee member;
- (d) a summary of the activities of the audit committee in the discharge of its functions and duties for that financial year of the listed issuer; and

(e) a summary of the activities of the internal audit function or activity.

15.17 Reporting of breaches to the Exchange

Where an audit committee is of the view that a matter reported by it to the board of directors of a listed issuer has not been satisfactorily resolved resulting in a breach of these Requirements, the audit committee must promptly report such matter to the Exchange.

15.18 Rights of the audit committee

A listed issuer must ensure that wherever necessary and reasonable for the performance of its duties, an audit committee shall, in accordance with a procedure to be determined by the board of directors and at the cost of the listed issuer:-

- (a) have authority to investigate any matter within its terms of reference;
- (b) have the resources which are required to perform its duties;
- (c) have full and unrestricted access to any information pertaining to the listed issuer;
- (d) have direct communication channels with the external auditors and person(s) carrying out the internal audit function or activity;
- (e) be able to obtain independent professional or other advice; and
- (f) be able to convene meetings with the external auditors, the internal auditors or both, excluding the attendance of other directors and employees of the listed issuer, whenever deemed necessary.

15.19 Quorum of an audit committee

In order to form a quorum in respect of a meeting of an audit committee, the majority of members present must be independent directors.

15.20 Retirement and resignation

In the event of any vacancy in an audit committee resulting in the non-compliance of subparagraphs 15.10(1) above, a listed issuer must fill the vacancy within 3 months.

15.21 Review of the audit committee

The board of directors of a listed issuer must review the term of office and performance of an audit committee and each of its members at least once every 3 years to determine whether such audit committee and members have carried out their duties in accordance with their terms of reference.

APPENDIX B: Scale assigned for bond rating

AAA	22
AA1	21
AA2	20
AA3	19
A1	18
A2	17
A3	16
BBB1	15
BBB2	14
BBB3	13
BB1	12
BB2	11
BB3	10
B1	9
B2	8
B3	7
C1	6
C2	4
C3	3
	2
D	1

For long-term ratings, RAM Rating applies subscripts 1, 2 or 3 in each rating category from AA to C. The subscript 1 indicates that the entity ranks at the higher end of its generic rating category; the subscript 2 indicates a mid-ranking; and the subscript 3 indicates that the entity ranks at the lower end of its generic rating category.

APPENDIX C: A SUMMARY OF MAJOR FINDINGS AND A COMPARISON WITH THE FINDINGS OF PRIOR STUDIES

Variables	Current Study	Reviewed Prior Studies
Regression (1)		
Independent Variables: BETA	Beta is negative and significant to ERC	Beta is negative and significant to ERC: Collins and Kothari (1989), Dhaliwal et al., (1991), Dhaliwal and Reynolds (1994), Kim (2005), and Shangguan (2007).
Independent Variables: GROWTH	Growth is positive and significant to ERC	Growth is positive and significant to ERC: Collins and Kothari (1989), Martikainen, (1997), Billings (1999), Park and Pincus, (2000), Kim (2005), Ghosh et al. (2005), and Shangguan (2007). Other result: Hackenbrack and Horgan (2002) do not confirm the positive relation between growth and ERC.

EPERS	Earnings persistence is positive and significant to ERC.	Earnings persistence is positive and significant to ERC: Kormendi and Lipe (1987), Collins and Kothari (1989), Dhaliwal and Reynolds (1994), and Park and Pincus (2000)
SIZE	Size is positive and significant to ERC	Size is positive and significant to ERC: Billings (1999) and Vafeas (2000) Size is positive but not significant to ERC: Donelly and Walker (1995) and Martikainen (1997)
Regression (2)		
Default risk	Default risk is negative and significant to ERC	Default risk is negative and significant to ERC: Dhaliwal et al., (1991), Dhaliwal and Reynolds (1994), Kai (2002), Kim (2005), Shangguan (2007), and Cheng and Nasir (2010). Other result: Billings (1999) finds that with the inclusion of growth, the effect of debt/equity weakens while the bond rating effect disappears.

Regression (3)		
Independent Variable: DER Mitigating Variable: AUDITQ	Audit quality significantly mitigates the relationship between default risk and ERC	Pittman and Fortin (2004) find that Big 6 auditors reduce debt-monitoring costs. Chang et al. (2009) find that debt to equity ratios of Big 6 clients decrease in response to favourable market conditions
Regression (4)		
Independent Variable: DER Mitigating Variable: ACEXPRT	AC expert significantly mitigates the negative effect of default risk to ERC	Anderson et al. (2004) find no relation between AC expertise and cost of debt

Regression (5)		
Independent Variable: DER Mitigating Variable: ACINED	AC independence significantly mitigates the relationship between default risk and ERC	Piot (2005) finds that AC independence has positive impact on leverage if the firm has a high Investment Opportunity Set. Anderson et al. (2004) find that fully independent AC members are associated with a significant lower cost of debt.
Regression (6)		
Independent Variable: DER Mitigating Variable: BODINED	Board independence significantly mitigates the negative effect of default to ERC	Bhojraj and Sengupta (2003) find that institutional ownership and outside directors reduce the impact of default risk. Ashbaugh-Skaife et al. (2006) provide evidence that high credit ratings are positively related to board independence.

Regression (7)		
Independent Variable: Default Risk Mitigating Variable: BODSHARE	Board shareholding significantly mitigates the relationship between default and ERC	Ashbaugh-Skaife et al. (2006) find that credit ratings are positively related to board ownership

APPENDIX D: PART I AND II OF THE FIRST SCHEDULE OF THE ACCOUNTANTS ACT, 1967

PART I OF THE FIRST SCHEDULE OF THE ACCOUNTANTS ACT, 1967

- (a) the final examination of the University of Malaya for the Diploma Perakaunan (Diploma in Accounting); (up to examination session 1981/82);
- (b) the final examination of the University of Malaya for the Ijazah Sarjana Muda Perakaunan (Degree of Bachelor of Accounting);
- (c) the final examination of the Universiti Kebangsaan Malaysia for the Ijazah Sarjana Muda Perakaunan (Kepujian) (Degree of Bachelor of Accounting (Honours));
- (d) the final examination of the MARA Institute of Technology for the Diploma Lanjutan Perakaunan (Advanced Diploma in Accountancy);
- (e) the final examination of the Universiti Teknologi MARA for the Ijazah Sarjana Muda Perakaunan (Degree of Bachelor of Accounting);
- (f) the final examination of the Universiti Utara Malaysia for the Ijazah Sarjana Muda Perakaunan (Kepujian) (Degree of Bachelor of Accounting (Honours));
- (g) the final examination of the Universiti Pertanian Malaysia for the Ijazah Bachelo Perakaunan (Kepujian) (Degree of Bachelor of Accounting (Honours));
- (h) the final examination of the Universiti Putra Malaysia for the Ijazah Bachelo Perakaunan (Kepujian) (Degree of Bachelor of Accounting (Honours));
- (i) the final examination of the Universiti Islam Antarabangsa for the Ijazah Sarjana Muda Perakaunan (Kepujian) (Degree of Bachelor of Accounting (Honours));
- (j) the final examination of the Universiti Sains Malaysia for the Ijazah Sarjana Muda Perakaunan (Kepujian) (Degree of Bachelor of Accounting (Honours));
- (k) the final examination of the Universiti Utara Malaysia for the Degree of Bachelor of Accounting (Honours),(Information System),
- (l) the final examination of the Universiti Tenaga Nasional for the Degree of Bachelor of Accounting (Honours), the academic programme for which first commenced from the academic year 2002/2003 onwards;
- (m) the final examination of the Universiti Multimedia for the Degree of Bachelor of Accounting (Honours), the academic programme for which first commenced from the academic year 2002/2003 onwards;

- (n) the final examination of the Kolej Universiti Sains dan Teknologi Malaysia for the Degree of Bachelor of Accounting (Honours);
- (o) the final examination of the Universiti Malaysia Sabah for the Degree of Bachelor of Accounting (Honours).
- (p) the final examination of the Universiti Industri Selangor for the Degree of Bachelor Accounting (Honours).

PART II OF THE FIRST SCHEDULE OF THE ACCOUNTANTS ACT, 1967

- Malaysian Institute of Certified Public Accountants (Certified Public Accountant)
- Institute of Chartered Accountants of Scotland (Chartered Accountant)
- Institute of Chartered Accountants In England & Wales (Chartered Accountant)
- Institute of Chartered Accountants in Ireland (Chartered Accountant)
- Association of Chartered Certified Accountants (United Kingdom) (Associate Member)
- Institute of Chartered Accountants in Australia (Chartered Accountant)
- Australian Society of Certified Practising Accountants (Certified Practising Accountant), (Now known as CPA Australia)
- New Zealand Institute of Chartered Accountants (Chartered Accountant)
- Canadian Institute of Chartered Accountants (Chartered Accountant)
- Institute of Chartered Accountants of India (Chartered Accountant)
- Chartered Institute of Management Accountants (United Kingdom) (Associate Member)