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CAPITAL CONTROL REGIME AND CAPITAL STRUCTURE DETERMINANTS: A MALAYSIAN CASE*

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In light of 1997 Asian crisis, the adoption of capital control regime by Malaysian government on 1st September 1998 is very much controversial. Despite being highly criticised, it is argued that Malaysia has recovered nicely. On 21st July 2005, the government announced the scrapping of the seven-year-old ringgit's peg to the US dollar. As ringgit depegging marks a significant upliftment of one of the capital control policies, an early assessment of the policies' effectiveness is timely. This paper examines the impact of capital control on the leverage ratios of Malaysian companies during the period 1st September 1994 – 31st August 2002. Further, the paper investigates the issues of capital control and the capital structure determinants. Results indicate that (i) the capital control has significantly changed the overall leverage ratios between the pre and the post-capital control periods; (ii) the leverage level of Malaysian companies is mainly driven by three major factors, namely the company size, the profitability and the liquidity; and (iii) the capital control has a significant impact on the role of some capital structure determinants. With all these evidence, it is suggested that the capital control adoption is proven successful in stabilising the economy, at least in the medium-term.

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Introduction

In light of 1997 Asian financial crisis, Malaysia took a different path by not resorting to the International Monetary Fund (IMF) assistance to combat severe deterioration in its economy, in contrast to other affected countries such as Korea, Thailand, and Indonesia. From 1st September 1998, the Malaysian government adopted a capital control regime, which, *inter alia*, fixed the ringgit at an exchange rate of RM3.80 per one US dollar. A full list of Malaysian controls items is summarised in Appendix I. Since then, it is argued that Malaysia has

recovered nicely as well as Korea and Thailand that took the orthodox path (Kaplan and Rodrik, 2001).

On 21st July 2005, the Malaysian government announced the scrapping of the seven-year-old ringgit's peg to the US dollar and the ringgit will be allowed to operate in a managed float with reference to a basket of currencies. As ringgit depegging marks a significant upliftment of one of the Malaysian's capital control policies, an early assessment of the policies' effectiveness is timely. Hence, the paper is interested to examine the possible impact of adopting such a regime on the overall leverage ratios and on the capital structure determinants of Malaysian companies. These will provide some evidence on the corporate financing behaviour which serves as robustness checks of prior capital structure studies.

Most of the financial and currency crisis literature focus on explaining the causes and effects of the crisis. However, the works are largely concentrated on the macroeconomics variables of affected nations and very few studies have been identified related to the microeconomic aspects of corporate financing. Driffield and Pal (2001) studied corporate financing patterns in Indonesia, Korea, Malaysia and Thailand in the periods before the 1997 Asian financial crisis and found some financing variables that might have contributed to the overall occurrence of the crisis. However, they did not address the post-crisis period. A recent paper by Deesomsak, Paudyal and Pescetto (2004) investigated the capital structure determinants of companies operating in the Asia Pacific regions, namely Thailand, Malaysia, Singapore, and Australia. Although the 1997 crisis motivates the paper, however, it did not specifically address the capital control regime, which is unique to Malaysia. Further, as the paper used one measure of leverage only (i.e., market leverage), one could argue that their findings are questionable with regard to other measure of leverage such as book leverage. The use of book leverage is equally important to be considered as Welch (2004) found that the leverage ratios are largely explained by past stock returns, hence implying that companies do not readjust their debt levels to counteract the mechanistic effect of stock returns on leverage. Therefore, it is expected that the changes between the market and the book leverages are somewhat different with a simultaneous change for the former and a slower (delayed) change for the later. Built up upon these, the present paper incorporates two aggregate measures of leverage (i.e., market and book leverage) so that the different impact of capital control on corporate financing decisions could be highlighted and consequently provide a robustness check on the previous findings by Deesomsak et al. (2004).

Final motivation of this paper is to replicate prior studies of capital structure determinant so that fresh evidence in the Malaysian environment, especially with regard to the issue of capital control, can be provided. Such replication seems necessary as the issue is not well explored in Malaysia. A study by Mohamad (1995) covers the period of 1986-1990 but is limited to a sample of 108 large Malaysian companies. In contrast, the present paper examines the capital structure determinants in the period of 1995-2002 which incorporates larger sample of Malaysian non-financial companies.

This paper has two primary objectives. First, it investigates whether there is a significant change to the leverage ratios as a result of adopting the regime. Hence, the medium-term effectiveness of the capital control on companies' capital structure can be ascertained. Second, it examines the factors which influence corporate financing decisions and assesses to what extent the factors change when the regime was adopted. The results are compared to the previous findings of Mohamad (1995), Rajan and Zingales (1995),

Bevan and Danbolt (2002, 2004) and Deesomsak et al. (2004). These will highlight whether the usual capital structure determinants could hold in such an environment.

The paper covers an eight-year period that is from 1st September 1994 to 31st August 2002. This reflects the periods of before (i.e., from 1st September 1994 to 31st August 1998) and after (i.e., from 1st September 1998 to 31st August 2002) the capital control adoption. Selection of these dates is critical as it is intended to specifically examine the impact of capital control regime rather than the general issue of 1997 Asian financial crisis. This distinguishes the paper from Deesomsak et al. (2004).

It is found that there is a significant change on the overall leverage ratios between the pre and post-capital control periods. In the capital structure determinant analysis, the leverage level of Malaysian companies is found to be mainly driven by three major factors, namely the company size, profitability and liquidity. It is also documented that the capital control adoption has a significant impact on the role of some capital structure determinants. With all these evidences, it is suggested that the capital control is proven successful in stabilising the economy, at least in the medium-term, and subsequently promoting to the financial well being of Malaysian companies.

The remainder of the paper is organised as follows. In Section 2, a brief literature review on the financial and currency crisis, capital control mechanism, and capital structure theory is provided. Section 3 discusses the research methods. Section 4 presents the data analysis, results and interpretations. Section 5 concludes the paper.

Literature Review

Financial and Currency Crisis

As the works on financial and currency crisis are mainly on explaining the causes and effects of the crisis, studies by Salant and Henderson (1978), Krugman (1979) and Flood and Garber (1984) are regarded as among the earliest works addressing the issue (Saxena and Wong, 1999). Despite the several crises that have occurred in various part of the world at different points in time, it can be concluded that the causes of the crises are inconsistent. As such, several theoretical models have been proposed in an attempt to explain the causes of the crises. For instance, the earliest works posit that the persistent government budget deficits may lead to the capital flight and currency crisis. Considering crises in Chile and Argentina in the 1980s and Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) in 1992, Saxena and Wong (1999) argued that the crises are caused explicitly by foreign exchange markets' imbalance where multiple equilibriums exist in the markets. However, the 1997 Asian crisis is argued to be very different from the previous crises as it was a sudden event and the problems in the financial markets were unexpected.

Corsetti, Pesenti and Roubini (1999) presented a comprehensive review of the causes of the Asian crisis, which, *inter alia*, fundamental imbalances and policy distortions. Based on the asymmetric information framework, Mishkin (1999) posited that a breakdown of information in financial markets is the key factor that drives the crisis. In turn, from an agency perspective, Rajan and Zingales (1998) concluded that the Asian crisis has resulted in the relationship-based systems which are under attack for being inefficient and corrupt. They suggested that the pure relationship-based system will be successful in the long-

run if there is a greater disclosure, contract enforcement, and competition within an arm's length system.

Capital Control Mechanism

The adoption of capital control strategy in dealing with the financial and currency crisis has received mixed reactions. Despite few supporters (e.g., Krugman, 1998a, 1998b; Kaplan and Rodrik, 2001), many have also been made to argue for capital liberalisation (e.g., Mathieson and Rojas-Suarez, 1992; Johnston and Ryan, 1994; Grilli and Milesi-Ferretti, 1995). Krugman (1998a) suggested that the temporary capital controls could bring a respite for the suffering Asian countries. However, Friedman (1998) thought that this is the worst possible choice, as the emerging countries need external capital to make the best use of their capacities. Although capital flows did contribute to the Asian crisis, Mishkin (1999) argued that they are a symptom rather than the underlying cause of the crisis, hence suggested that the exchange controls are unlikely to be a useful strategy to avoid future crises. He further added that the pegged exchange-rate regimes are such a dangerous strategy for emerging market countries and make financial crisis more likely. Given such a mix of reactions, Cordella (2003) theorised that an effective capital control (i.e., for example, in reducing the volatility of financial markets) may increase the volume of capital inflows and subsequently promote to a better domestic economic condition.

Several other studies provided empirical evidence on the extent of the mechanism's success. Hernandez and Montiel (2003) studied the evidence of the post-crisis exchange rate policy in five Asian countries. They concluded that, except for Malaysia, the other crisis countries, namely Indonesia, Korea, the Philippines, and Thailand, have actually moved to intermediate regimes in which their exchange rates are floating more than before, though less than 'real' floaters do. A direct assessment on Malaysian context has been provided by Dornbusch (2001) and Kaplan and Rodrik (2001). Dornbusch (2001) reported that there is no evidence of a better performance of capital control effort because it has been overshadowed by the US interest rate cutting programmes which foster a more stable environment globally. In contrast, compared to the IMF programmes, Kaplan and Rodrik (2001) found that the Malaysian policies produced faster economic recovery, smaller declines in employment and real wages, and more rapid turnaround in the stock market. This finding is supported by Islam (2002) who examined the effectiveness of IMF assistance in Thailand. He documented that the IMF's billion-dollar rescue package in the aftermath of the crisis failed to improve the situation because of the inappropriate conditions imposed on Thailand in return for these loans. Another study by Johnson and Mitton (2003) suggested that the Malaysian capital control provides a screen behind which favoured companies could be supported. They found that the capital controls are to be associated with an increase in cronyism (i.e., the resources available to companies through political favouritism).

Capital Structure Theory and Evidence

Corporate financing research has taken many forms since the beginning of the infamous proposition of capital structure irrelevance by Modigliani and Miller (1958). By relaxing the irrelevance assumption, several theoretical frameworks have been developed to explain the existence of debt in the companies' capital structures. Debt is considered to have a

leverage effect on the company's value. Rather than waiting for sufficient accumulated profits for financing purposes, debt can be used instead. Through this mechanism, companies could undertake their investments and capital projects as early as possible and subsequently increases the overall company's value.

The tax incentive of debt also contributes to its presence in the capital structure, as the interest payment on debt is tax-deductible, hence reducing company's tax burden. However, Kraus and Litzenberger (1973) argued that the tax advantage of debt is offset by increased expected bankruptcy costs and this leads to the existence of the classical trade-off theory in achieving optimal capital structure. As such, the optimal capital structure is defined as a point that balances between the expected bankruptcy costs and the tax advantage, as a result of an increase in debt. In fact, the trade off theory has received much empirical evidence and dominated the capital structure research (Shyam-Sunder and Myers, 1999).

Jensen and Meckling (1976) initiated agency costs theory to justify the optimal capital structure choice. The agency costs arise from the inherent conflict of interest between shareholders and managers, and also shareholders and debtholders. They argued that an optimal capital structure could be obtained by trading off the agency cost of debt against the benefit of debt in mitigating the conflicts of interest among the above parties.

Myers (1984) and Myers and Majluf (1984) proposed a capital structure model based on the information asymmetry problem. They argued that the unequal information between the managers and the investors caused inefficiencies in the company's investment decision (due to equity mispricing by the ill-informed investors) and this may lead to a problem of under-investment. As such, it is suggested that the capital structure can be designed to mitigate these inefficiencies by having an order of financing securities. The order starts with a security that is not so severely under-priced by the investors such as internal funds or risk-less debt. Such a design led to the pecking order theory of capital structure. According to the theory, a financial hierarchy descends from internal funds, to debt, to external equity as the last resort.

Apart from theoretical propositions, research in capital structure also takes in the form of empirical research. Study by Schwartz and Aronson (1967) found evidence of optimal capital structure, as there is strong industry effect in debt ratios. Later study by Bradley, Jarrell and Kim (1984) suggested that their findings 'support the modern balancing [trade-off] theory of capital structure' (p. 877). Other empirical studies that support the trade-off theory and optimal capital structure can be found in Long and Malitz (1985b), MacKie-Mason (1990) and Smith and Watts (1992).

The pecking order theory has been tested directly by Shyam-Sunder and Myers (1999). They found that the theory has a good explanatory power in predicting capital structure choice of a company compared to its rival trade-off theory. However, several studies have argued unfavourably against the findings of Shyam-Sunder and Myers (see Chirinko and Singha, 2000; Frank and Goyal, 2003). For example, Chirinko and Singha (2000) showed that the 'elegantly simple' test in Shyam-Sunder and Myers generated misleading inferences when evaluating plausible patterns of external financing.

Marsh (1982) measured the probability of issuing debt based on company's characteristics. He found that a company with high level of fixed assets and of large size is highly likely to issue debt, while an increase in bankruptcy probability will reduce the probability of issuing debt. Bradley et al. (1984) incorporated other factors in their study and found that leverage is positively correlated with non-debt tax shields and negatively

correlated with volatility, and advertising and research and development (R&D) expenditures. A study by Long and Malitz (1985a) further added another factor that is positively correlated with leverage, namely profitability. However, this relationship is statistically insignificant. Other studies by Kester (1986), Friend and Hasbrouck (1988), Friend and Lang (1988), Gonedes, Lang and Chikaonda (1988) and Titman and Wessels (1988), however, did not support finding by Long and Malitz on profitability. They found a negative correlation between profitability and leverage.

There is also mixed evidence on growth opportunities and size factors. For growth opportunities factor, Kester (1986) found a positive relationship while Kim and Sorensen (1986), Titman and Wessels (1988) and Chaplinsky and Niehaus (1990) found a negative relationship. Findings by Titman and Wessels and Chaplinsky and Niehaus, however, are statistically insignificant. The effect of size on leverage is somewhat uncertain (Rajan and Zingales, 1995). Other than Marsh (1982), studies by Friend and Hasbrouck (1988) and Friend and Lang (1988) found a positive relationship on size while others did not (e.g., Kester, 1986; Kim and Sorensen, 1986; Titman and Wessels, 1988; Chaplinsky and Niehaus, 1990). Interestingly, all findings on this size factor by other than Marsh (1982) are statistically insignificant. Apart from specific company characteristics, a company's leverage ratio is also to be found positively related to the average leverage ratio in its industry. These are documented by Bowen, Daley and Huber (1982), Castanias (1983), Bradley et al. (1984), Long and Malitz (1985a) and Kester (1986).

Rajan and Zingales (1995) examined four of the factors identified by previous studies in an international context of the G-7 countries. Overall, they found that the tangibility of assets, the market-to-book ratio (a proxy for growth opportunities), the company size and the profitability are similarly correlated in those countries as well. A study on Spanish panel data by DeMiguel and Pindado (2001) provided further evidence on how institutional characteristics affect capital structure. For example, they found an inverse relationship between non-debt tax shields and debt, which is more significant for Spanish companies because they have more non-debt tax shields than US companies.

In the Malaysian context, using a sample of large Malaysian companies, Mohamad (1995) found that the size and the industry class significantly determined the companies' capital structures. He also claimed that there are significant inter-industry capital structure differences among the Malaysian companies. A more recent paper by Deesomsak et al. (2004) found that the size is positively related with the leverage level whilst the growth opportunities, non-debt tax shield, liquidity and share price performance have a negative association with the leverage. Moreover, the importance of the determinants is also found to vary across countries in the study. They also found that the 1997 financial crisis has altered the capital structure determinants between the pre and the post-crisis period, and such impact also varies across countries. These may lend support to Wald (1999) that the institutional settings may be significant determinants of capital structure.

Research Methodology

As argued by Kaplan and Rodrik (2001), the primary objective behind the Malaysian capital control is to end the speculation against ringgit as most of that speculation comes from the short-selling of ringgit in the off-shore markets. The growing speculation against the ringgit has undermined the government's action in reducing domestic interest rates to

promote economic recovery in the aftermath of the crisis. Despite some unfavourable comments on such control adoption, the empirical findings are rather mixed. The performance of Malaysia has been interpreted as demonstrating that capital control has a positive macroeconomic effect (Kaplan and Rodrik, 2001), although this claim is controversial (Dornbusch, 2001). Considering Kaplan and Rodrik (2001), the following hypothesis is proposed for Part 1 analysis:

H1: Over the two periods, there is a significant change in leverage ratio due to the capital control adoption.

Notice that the hypothesis is stated in a general form (i.e., significant change) rather than in a specific direction (e.g., significant increase or significant decrease) to allow a two-tail test to be applied so that an overall impact can be assessed. However, for each case, the one-tail test is further considered to test the change's direction, thus the general finding of the impact is being strengthened and supported.

In Part 2 analysis, the paper investigates the capital structure determinants of Malaysian companies while at the same examines to what extent the role of the determinants has changed with regard to capital control adoption. As argued by Titman and Wessels (1988) and Harris and Raviv (1991), the choice of the underlying factors is fraught with difficulty. The paper incorporates eight factors in which four factors follow Rajan and Zingales (1991) and Bevan and Danbolt (2002, 2004) (i.e., growth opportunities, size, profitability and tangibility) and another four are added, namely non-debt tax shield, liquidity, tax charge and industry classification. The reason for incorporating more factors is that some factors such as liquidity and industry classification have a significant impact during the pre and the post-control periods as explained in previous section. Precise definitions of the explanatory variables are presented in Appendix II. Notice that the majority of the factors are scaled by total assets as a precaution against heteroskedasticity. Following Rajan and Zingales (1995), two aggregate measures of leverage are adopted that are the market leverage (MLVG) and the book leverage (BLVG) which are precisely defined in Appendix III.

Despite the contrary evidence, the trade-off theory predicts a positive relationship between the company size and the leverage level as the size is argued to be an inverse proxy of bankruptcy (Rajan and Zingales, 1995). The notion of "too big to fail" leads to the second hypothesis:

H2: The level of leverage ratio is positively related to size.

Based on the asymmetric information argument in Myers (1984) and Myers and Majluf (1984), the pecking order theory postulates that companies with high level of profit prefer to finance projects with retained earnings rather than seeking extra debt financing; hence the restrictive covenants problem could be avoided. Supported by prior empirical evidence (e.g., Friend and Lang, 1988; Gonedes et al., 1988; Bevan and Danbolt, 2002), one hypothesises:

H3: The level of leverage ratio is negatively related to the level of profitability.

Considering the prediction of agency theory where the agency cost of debt could be reduced by having a larger asset structure, it is expected that companies with larger asset base will have more capacity to issue debt because the asset could be used as collateral.

For companies that are unable to provide collateral will either have to pay higher interest, or will be forced to issue equity instead of debt (Scott, 1977). Alternatively, Myers (1977) hypothesised that the capital intensive companies will employ relatively more debt. Hence, the following hypothesis is proposed:

H4: The level of leverage ratio is positively related to the level of tangibility.

In contrast to the tax incentive hypothesis, DeAngelo and Masulis (1980) hypothesised that the amount of non-debt tax shield (NDTS) should be negatively related to the leverage because the NDTS is an alternative source of tax saving. Therefore, companies with more NDTS are expected to have lower leverage level. This leads to the following hypothesis:

H5: The level of leverage ratio is negatively related to the level of NDTS.

The pecking order theory also predicts that companies with high liquidity will borrow less. The UK and European studies by Ozkan (2001) and Antoniou, Guney and Paudyal (2002) respectively support this prediction. Consequently, one hypothesises:

H6: The level of leverage ratio is negatively related to the level of liquidity.

Both theoretical predictions of agency costs and information asymmetries by Jensen and Meckling (1976) and Myers (1977) respectively, predict that companies with high level of leverage would have a tendency to pass up positive net present value (NPV) investment opportunities. Consequently, they further argued that companies with large amount of investment opportunities (i.e., high growth opportunities) would tend to have low leverage level. Therefore, the following hypothesis is proposed:

H7: The level of leverage ratio is negatively related to the level of growth opportunities.

Modigliani and Miller (1963) and DeAngelo and Masulis (1980) theorised that, *ceteris paribus*, the incentive to use debt financing increases with the company's marginal tax rate due to the tax deductibility of interest expense. Hence, one hypothesises:

H8: The level of leverage ratio is positively related to the level of tax charge.

As documented by Bowen et al. (1982) and Bradley et al. (1984), it is found that the capital structure of companies within an industry are more similar than those in different industries and this leads to the final hypothesis:

H9: The levels of leverage ratios are significantly different among the industry classifications.

To control for the company-specific industry effect, the industry dummies are included based on the industry classification as defined by *Bursa Malaysia Berhad*. Six industries, namely property, industrial product, construction, consumer product, trading and services, and plantation are represented individually while other industries that are technology, mining, infrastructure project companies (IPC) and hotel are classified as 'others'. Dummy variable is also used to differentiate the trading board in which a particular company's shares are traded. This is to ascertain whether there is a significant different between the Main Board and the Second Board companies[1].

The annual data on accounting information for all public listed non-financial Malaysian companies are obtained from Datastream to cover the period from 1st September

1994 to 31st August 2002. To simplify, the period from 1st September 1994 to 31st August 1995 is denoted as year 1995 and so on. 1st September is chosen as the starting point because the capital control regime was officially adopted on 1st September 1998; therefore, a very precise measure of each variable can be assured.

The sample selection process starts with all companies listed in Datastream. From 841 companies being listed in Datastream, 60 companies are excluded because the companies' types are not appropriate for the study. The companies being excluded are 57 finance companies, 2 trusts companies and 1 closed-end fund. Therefore, for each part of analysis, an initial sample of 781 non-financial companies is being used for further screening.

In Part 1 analysis, companies are included in the final sample if they have no gaps in MLVG and BLVG data. Such continuous data requirement is essential for a fair annual and two sub-periods[2] comparisons. While the assembled data for MLVG is relatively clean, outliers are identified in BLVG. To eliminate these, the sample data for BLVG is truncated at –1 and this is consistent with Rajan and Zingales (1995). The final samples in Part 1 analysis are 355 and 331 companies for MLVG and BLVG respectively and are summarised in Table 1.

Table 1: Part 1 Analysis: Sample Selection Criteria

	Market leverage (MLVG)	Book leverage (BLVG)
Initial sample	781	781
Less: Non-continuous data	426	426
Less: Outliers removed	0	24
Final sample	355	331

In Part 2 analysis, 79 companies are further excluded from the initial sample of 781 companies due to non-availability of the data and of mainly being new companies. To arrive at the final sample, continuous data is required to compute the explanatory variables. The explanatory variables are the averages of 1995-2001, 1995-1997, and 1999-2001 for the full, pre-control and post-control periods respectively. Sample truncation as in Part 1 data selection is repeated as to remove the outliers found in BLVG. Table 2 summarises the sample selection process for Part 2 analysis.

Table 2: Part 2 Analysis: Sample Selection Criteria

	Market leverage (MLVG)	Book leverage (BLVG)
Initial sample	781	781
Less: Data not available	79	79
Less: Non-continuous data	343	343
Less: Some explanatory variables data not available	7	7
Less: Outliers removed	0	18
Final sample	352	334

Data testing is divided into two parts. The objective of the first part is to test hypothesis 1. While the second part is mainly testing hypotheses 2 to 9, hypothesis 1 is further tested by examining the structural changes in the explanatory factors. *Univariate* and *multivariate* statistical analysis are used to analyse the data.

In Part 1, there are two separate samples of mean annual leverage ratios for both leverage measures from 1995-2002. For each leverage measure, another two types of mean leverage ratios are computed (i.e., *Avg pre* and *Avg post*) to represent the averages of the two sub-periods. The means for the pre-control (*Avg pre*) and the post-control (*Avg post*) periods are the averages of 1995-1998 and 1999-2002 respectively. The sample is further decomposed into two major trading boards in which the particular company's shares are traded on *Bursa Malaysia Berhad*. Such a distinction would enable a direct trend comparison between the larger and the smaller size companies beside the general trend of the full sample. Relying on the central limit theorem, it is assumed that the mean annual leverage ratios and their mean annual differences for both leverage measures are approximately normally distributed. The parametric Paired-Sample *t*-test (using both the two-tail and one-tail tests) is carried out to test the mean difference of leverage ratios between the two sub-periods. As for robustness checks, the test is repeated for different pairs of means that reflect a comparison between the two sub-periods. In turn, the decision to accept or to reject hypothesis 1 is based on the *p* value of the two-tailed and one-tailed *t*-test, at least at the 5% significance level.

With regard to the capital control adoption, Part 2 data analysis deals with the investigation of capital structure determinants. To achieve this, a series of *multivariate* regression models are estimated over the two sub-periods together with the full period of study. The basic OLS regression model being estimated is represented as:

$$\begin{aligned} Leverage_{i,t} = {} & \alpha + \beta_1 SIZE_{i,t-a} + \beta_2 PROF_{i,t-a} + \beta_3 TANG_{i,t-a} + \beta_4 NDTS_{i,t-a} \\ & + \beta_5 LIQD_{i,t-a} + \beta_6 GROW_{i,t-a} + \beta_7 TAX_{i,t-a} + \beta_8 BDDUM \\ & + \beta_9 PROPDUM + \beta_{10} IPDUM + \beta_{11} CONSDUM \\ & + \beta_{12} CPDUM + \beta_{13} TSDUM + \beta_{14} PLANDUM + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where *Leverage* refers to each of the leverage measures, *i* refers to the individual companies, *t* to the time period of the leverage measure which is measured at the accounting year end, and *t-a* to the average for the previous *a* years. Note that the procedures of lagging[3] the dependent and explanatory variables, and averaging[4] the explanatory variables over a number of years are followed from the previous studies by Titman and Wessels (1988), Rajan and Zingales (1995), Bevan and Danbolt (2002, 2004) and Deesomsak et al. (2004). In the pre-capital control period, the dependent variable is the leverage ratio in 1998 and the explanatory variables are the averages over 1995-1997. In the post-capital control period, the dependent variable is the leverage ratio in 2002 and the explanatory variables are the averages over 1999-2001. For the full sample period, the dependent variable is the leverage ratio in 2002 and the explanatory variables are the averages over 1995-2001. A Chow test is performed to detect significant structural change in the explanatory variables due to the capital control adoption on 1st September 1998. The test is performed by estimating a pooled regression model consisting the whole observations for the two sub-periods' samples. Dummy variables of 1 and 0 are used to indicate the pre and the post period's explanatory variables respectively. The significance of Chow test is shown by the *p*-value of *t*-statistics at 1%, 5%, and 10% significance levels.

Results

Leverage Ratios

Summary statistics for the leverage ratios are presented in Table 3. As can be seen from this table, MLVG ratios are consistently below 100% level but few extreme values can be found in BLVG ratios with the lowest and highest ratios of -59.82% and 363.66% in 2002 and 1999 respectively. Notably, the maximum BLVG ratios are consistently exceeding 100% level every year.

Generally, if compared to the international data in Rajan and Zingales (1995)[5], the Malaysian companies can be regarded as relatively under levered in terms of BLVG (i.e., 36% versus 37% (United States); 39% (Canada and Germany); 46% (France and Italy); and 52% (Japan)). In term of MLVG (31%), it is slightly higher than Germany (28%), similar to Japan (31%), and lower than the rest of countries (i.e., United States (32%); Canada (36%); France (41%); and Italy (47%)). However, taking both leverage measures, the level of indebtedness of Malaysian companies is far higher than the UK companies (i.e., 29% and 23% for BLVG and MLVG respectively).

Figure 1 depicts the trend line of annual means MLVG from 1995-2002. It can be seen that there is a sudden drop after the capital control adoption. The mean has decreased significantly from 43.84% in 1998 to 40.44% in 1999, and to 33.92% in 2000. In contrast, there is a sharp increase of mean MLVG from 17.74% in 1997 to 43.84% in 1998. The paired sample *t*-tests on all these changes are highly significant at 0.1% level (Table 4: pairs 4, 5 and 3). These results can be explained by the role of 'market value of equity' as one of the MLVG denominator's components and its negative association with MLVG. During the 1997-1998 financial crisis, the Malaysian equity market has lost 80% of its value. Jomo (2001b) reported that '*the stock market [index] dropped dramatically from almost 1,300 points in February 1997 to a low of 262 points in early September 1998*' (p. 171). Consequently, *ceteris paribus*, this has resulted a sudden jump in the mean MLVG from 1997-1998. As the capital control is meant to prevent capital flight that caused the stock market turmoil, consequently, the stock market has recovered and this is evidenced by the reversal movements of MLVG in the post-capital control period. Although the stock market drops again during 2001 and causes MLVG to increase, the mean for 2001 is actually significantly lower than the 1998 mean by 2.09%. The paired sample *t*-test shows that this difference is significant at 5% level (Table 4: pair 9). Furthermore, the 2002 mean is also significantly lower than the 1998 mean by 4.50% at 0.1% significance level (Table 4: pair 10). However, the overall test on the averages between the two sub-periods shows that the *Avg post* mean is significantly higher than the *Avg pre* mean by 16.05% at 0.1% level (Table 4: pair 11). This could be contributed by the fact that the Malaysian equity market was at its 'golden age' during the early 1990s while reaching its peak at the end of 1993. The growing trend continues until the financial crisis outbreak in 1997-1998. Obviously, the MLVG ratios are very low during the pre-crisis period and explain the reason for *Avg post* mean is significantly higher than the *Avg pre* mean. However, this observation could not invalidate the previous findings as the capital control is adopted based on what was happening in the preceding year and is less likely related to the prior years before the financial crisis took place. After all, the evidences show that all annual means MLVG in the post-capital control period are significantly lower than the 1998 mean,

Table 3: Summary Statistics of Leverage Ratios (MLVG and BLVG)

Market leverage (MLVG) is the ratio of total debt to total debt plus market value of equity plus book value of preference shares. Book leverage (BLVG) is the ratio of total debt to total debt plus book value of equity plus book value of preference shares. *Avg pre* is the average of 1995-1998 and *Avg post* is the average of 1999-2002.

Year	Mean						Standard Deviation					
	Market leverage (MLVG)			Book leverage (BLVG)			Market leverage (MLVG)			Book leverage (BLVG)		
	Full sample	Main board	2nd board	Full sample	Main board	2nd board	Full sample	Main board	2nd board	Full sample	Main board	2nd board
1995	0.1348	0.1267	0.1734	0.2627	0.2435	0.3551	0.1391	0.1382	0.1376	0.2213	0.2167	0.2217
1996	0.1618	0.1552	0.1928	0.2913	0.2648	0.4183	0.1580	0.1570	0.1603	0.2331	0.2248	0.2324
1997	0.1774	0.1775	0.1765	0.3236	0.2952	0.4603	0.1646	0.1700	0.1373	0.2436	0.2304	0.2604
1998	0.4384	0.4165	0.5418	0.3777	0.3441	0.5391	0.2911	0.2937	0.2562	0.2762	0.2545	0.3192
Avg pre	0.2281	0.2190	0.2711	0.3138	0.2869	0.4432	0.1698	0.1726	0.1501	0.2178	0.2076	0.2210
1999	0.4044	0.3850	0.4959	0.4296	0.3921	0.6102	0.2828	0.2843	0.2588	0.4152	0.3833	0.5092
2000	0.3392	0.3246	0.4079	0.3969	0.3584	0.5817	0.2734	0.2717	0.2732	0.3700	0.3211	0.5118
2001	0.4175	0.3939	0.5291	0.4004	0.3637	0.5773	0.3058	0.3031	0.2961	0.3845	0.3363	0.5303
2002	0.3934	0.3735	0.4872	0.4065	0.3568	0.6454	0.3130	0.3090	0.3170	0.4676	0.3909	0.6880
Avg post	0.3886	0.3693	0.4800	0.4083	0.3677	0.6036	0.2765	0.2747	0.2685	0.3552	0.3041	0.4957
n	355	293	62	331	274	57	355	293	62	331	274	57

(Cont.) Table 3: Summary Statistics of Leverage Ratios (MLVG and BLVG)

Market leverage (MLVG) is the ratio of total debt to total debt plus market value of equity plus book value of preference shares. Book leverage (BLVG) is the ratio of total debt to total debt plus book value of equity plus book value of preference shares. *Avg pre* is the average of 1995-1998 and *Avg post* is the average of 1999-2002

Year	Minimum						Maximum					
	Market leverage (MLVG)			Book leverage (BLVG)			Market leverage (MLVG)			Book leverage (BLVG)		
	Full sample	Main board	2nd board	Full sample	Main board	2nd board	Full sample	Main board	2nd board	Full sample	Main board	2nd board
1995	0	0	0	0	0	0	0.6928	0.6928	0.5954	1.2086	1.2086	0.7977
1996	0	0	0	0	0	0	0.7250	0.7250	0.7017	1.0623	1.0623	0.9059
1997	0	0	0	0	0	0	0.7379	0.7379	0.6924	1.4278	0.9535	1.4278
1998	0	0	0	0	0	0	0.9454	0.9454	0.9297	1.8398	1.1216	1.8398
Avg pre	0	0	0	0	0	0	0.7241	0.7241	0.6933	1.2015	0.8919	1.2015
1999	0	0	0	-0.0040	-0.0040	0	0.9332	0.9332	0.8716	3.6366	3.6366	2.4570
2000	0	0	0	-0.002	-0.002	0	0.9346	0.9346	0.9215	2.8608	2.4869	2.8608
2001	0	0	0	0	0	0	0.9845	0.9788	0.9845	2.8679	1.9211	2.8679
2002	0	0	0	-0.598	-0.598	0	0.9862	0.9862	0.9853	3.5817	2.5957	3.5817
Avg post	0	0	0	0	0	0	0.9398	0.9398	0.9307	2.4036	1.5433	2.4036
n	355	293	62	331	274	57	355	293	62	331	274	57

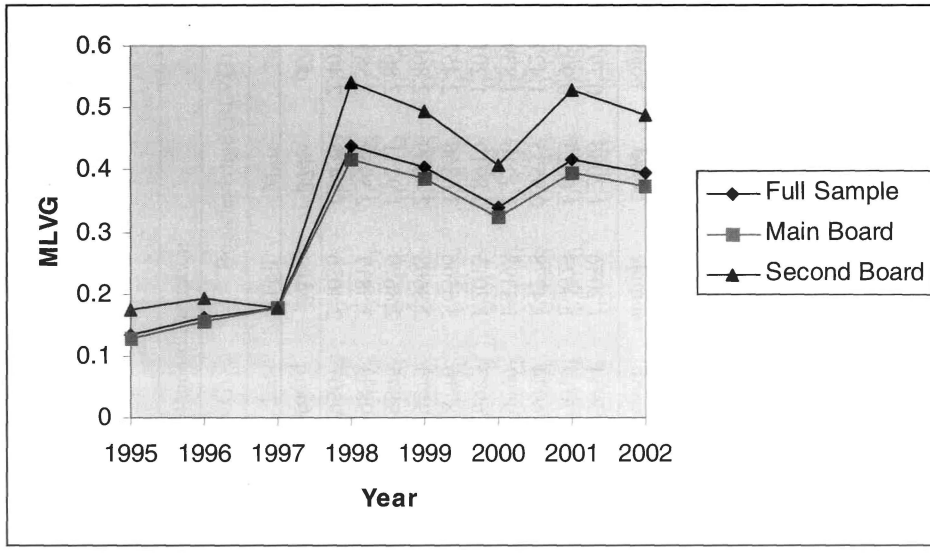

Figure 1: Annual Mean Market Leverage Ratio (MLVG) 1995-2002

Table 4: Paired-sample *t*-test Results

A paired-sample *t*-test is conducted on two different means for each set of sample and for each leverage measure. Two-tail test is testing on the overall significant change between two means. One-tail test is testing on the significant increase or decrease between two means, with positive *t* indicates testing of mean increase (upper tail) and negative *t* indicates testing of mean decrease (lower tail). Market leverage (MLVG) is the ratio of total debt to total debt plus market value of equity plus book value of preference shares. Book leverage (BLVG) is the ratio of total debt to total debt plus book value of equity plus book value of preference shares. *Avg pre* is the average of 1995-1998 and *Avg post* is the average of 1999-2002.

Pair no.	Tested pair of means	n	Mean difference	t (two-tail)	t (one-tail)
	Full sample				
	MLVG				
1	1996 – 1995	355	0.0269	5.4665***	5.4665***
2	1997 – 1996	355	0.0156	3.1857***	3.1857***
3	1998 – 1997	355	0.2610	26.3844***	26.3844***
4	1999 – 1998	355	-0.0340	-3.9450***	-3.9450***
5	2000 – 1999	355	-0.0652	-8.6500***	-8.6500***
6	2001 – 2000	355	0.0783	9.8749***	9.8749***
7	2002 – 2001	355	-0.0241	-4.3368***	-4.3368***
8	2000 – 1998	355	-0.0992	-10.4147***	-10.4147***
9	2001 – 1998	355	-0.0209	-1.8468*	-1.8468**
10	2002 – 1998	355	-0.0450	-3.6025***	-3.6025***
11	*Avg post – Avg pre*	355	0.1605	16.6791***	16.6791***

(Cont.) Table 4: Paired-sample *t*-test Results

	BLVG				
12	1996 – 1995	331	0.0285	3.3445***	3.3445***
13	1997 – 1996	331	0.0323	4.0072***	4.0072***
14	1998 – 1997	331	0.0541	7.0621***	7.0621***
15	1999 – 1998	331	0.0520	3.9398***	3.9398***
16	2000 – 1999	331	-0.0327	-1.7282*	-1.7282**
17	2001 – 2000	331	0.0036	0.2909	0.2909
18	2002 – 2001	331	0.0060	0.4514	0.4514
19	2000 – 1998	331	0.0192	1.4190	1.4190*
20	2001 – 1998	331	0.0228	1.4547	1.4547*
21	2002 – 1998	331	0.0288	1.3720	1.3720*
22	*Avg post – Avg pre*	331	0.0945	7.0039***	7.0039***
	Main board				
	MLVG				
23	1996 – 1995	293	0.0285	5.3156***	5.3156***
24	1997 – 1996	293	0.0223	4.4459***	4.4459***
25	1998 – 1997	293	0.2390	22.5606***	22.5606***
26	1999 – 1998	293	-0.0314	-3.3422***	-3.3422***
27	2000 – 1999	293	-0.0604	-7.3791***	-7.3791***
28	2001 – 2000	293	0.0692	7.9096***	7.9096***
29	2002 – 2001	293	-0.0203	-3.6255***	-3.6255***
30	2000 – 1998	293	-0.0919	-8.7438***	-8.7438***
31	2001 – 1998	293	-0.0226	-1.7716*	-1.7716**
32	2002 – 1998	293	-0.0430	-3.1365***	-3.1365***
33	*Avg post – Avg pre*	293	0.1503	14.2989***	14.2989***

***, ** and * represent significance at the 1%, 5% and 10% levels respectively.

Paired-sample *t*-test Results

Pair no.	*Tested pair of means*	*n*	*Mean difference*	*t (two-tail)*	*t (one-tail)*
	BLVG				
34	1996 – 1995	274	0.0213	2.3162**	2.3162***
35	1997 – 1996	274	0.0303	3.6918***	3.6918***
36	1998 – 1997	274	0.0489	6.4592***	6.4592***
37	1999 – 1998	274	0.0480	3.4401***	3.4401***
38	2000 – 1999	274	-0.0336	-1.6942*	-1.6942**
39	2001 – 2000	274	0.0052	0.3890	0.3890
40	2002 – 2001	274	-0.0069	-0.5334	-0.5334
41	2000 – 1998	274	0.0144	1.0865	1.0865
42	2001 – 1998	274	0.0196	1.2386	1.2386
43	2002 – 1998	274	0.0127	0.6581	0.6581
44	*Avg post – Avg pre*	274	0.0808	6.3919***	6.3919***

(Cont.) Table 4: Paired-sample *t*-test Results

	Second board				
	MLVG				
45	1996 – 1995	62	0.0194	1.5640	1.5640*
46	1997 – 1996	62	-0.0163	-1.1372	-1.1372
47	1998 – 1997	62	0.3652	16.3623***	16.3623***
48	1999 – 1998	62	-0.0459	-2.1435**	-2.1435**
49	2000 – 1999	62	-0.0880	-4.6186***	-4.6186***
50	2001 – 2000	62	0.1212	6.7769***	6.7769***
51	2002 – 2001	62	-0.0419	-2.3864**	-2.3864**
52	2000 – 1998	62	-0.1339	-6.0241***	-6.0241***
53	2001 – 1998	62	-0.0127	-0.5360	-0.5360
54	2002 – 1998	62	-0.0545	-1.7838*	-1.7838**
55	*Avg post – Avg pre*	62	0.2089	9.0541***	9.0541***
	BLVG				
56	1996 – 1995	57	0.0632	2.8907***	2.8907***
57	1997 – 1996	57	0.0420	1.6538*	1.6538**
58	1998 – 1997	57	0.0787	3.0943***	3.0943***
59	1999 – 1998	57	0.0711	1.9098*	1.9098**
60	2000 – 1999	57	-0.0285	-0.5161	-0.5161
61	2001 – 2000	57	-0.0044	-0.1462	-0.1462
62	2002 – 2001	57	0.0681	1.5081	1.5081*
63	2000 – 1998	57	0.0426	0.9135	0.9135
64	2001 – 1998	57	0.0382	0.7586	0.7586
65	2002 – 1998	57	0.1063	1.3440	1.3440*
66	*Avg post – Avg pre*	57	0.1604	3.2790***	3.2790***

***, ** and * represent significance at the 1%, 5% and 10% levels respectively.

which is the year before capital control is adopted. This would suggest that the capital control regime is of a remedy to financial crisis, at least for a medium-term period.

By contrast, the impact of the capital control adoption on BLVG is slightly different from the impact on MLVG. Figure 2 illustrates the trend line of annual means BLVG from 1995-2002. From this graph, surprisingly, it shows that the mean BLVG has increased significantly by 5.20% after capital control adoption, that is from 37.77% in 1998 to 42.96% in 1999. This increase is significant at 0.1% level (Table 4: pair 15).

This is contradictory to the prevalent impact of capital flight that has reduced the amount of capital available in the country[6], where *a priori* expectation is, the total debt (i.e., one of the BLVG numerators) will reduce and consequently lowering BLVG since they are positively related. Another interesting observation, BLVG, however, declines significantly from 1999-2000 (Table 4: pair 16) and increases again from 2000-2002. However, the increases from 2000-2002 are statistically insignificant (Table 4: pairs 17 and 18). Further inspection on the paired relationships between 1998 and the rest of the years in the post-capital control period (i.e., 2000, 2001 and 2002) reveals that the significance of each increase is very weak (Table 4: pairs 19, 20 and 21). Therefore, it can be suggested

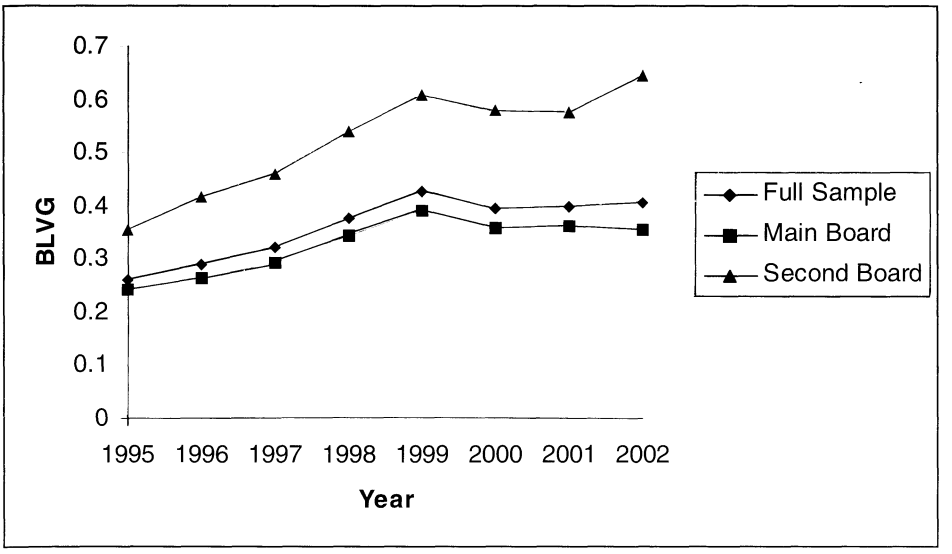

Figure 2: Annual Mean Book Leverage Ratio (BLVG) 1995-2002

that the capital control has been successful in stabilising the level of indebtedness of Malaysian companies with regard to the financial crisis outbreak.

Interpretation for such BLVG findings is not as straightforward as the MLVG's. However, several explanations are presented as an attempt to solve the puzzle. Firstly, besides adopting the capital control regime, the Malaysian government is also pursuing a reflationary policy as part of the economic rescue package (Kaplan and Rodrik, 2001). Contrary to IMF suggested action plans, the government encourages more spending instead, increases the money supply and lowers the interest rate level. Therefore, it could be suggested that such a policy provides a new funding source to the companies, thus explains why the total debt is still increasing after the capital control was imposed.

However, Jomo (2001a) argued that 'despite low interest rates *(the three-month Kuala Lumpur interbank rate fell to 3.2% at the end of December 1999 from the pre-controls post-crisis high of 11.05% in April 1998)*, loan growth remains very low (barely above 1% in 1999) despite considerable central bank pressure on the banks to increase lending' (p. 212). This brings to the second explanation where it is stated that *'much more of Malaysian debt in the late nineties was long-term – rather than short-term – in nature'* (Jomo, 2001b, p. 170). If the argument is true, it is sensible to suggest that the long-term nature of debt will not quickly change BLVG as compared to the sudden mechanistic effects of stock market on MLVG. This is consistent with Welch (2004) and could possibly explain why BLVG did not decrease after the capital control was adopted.

After all, considering all of the above explanations, it can be suggested that the evidence of BLVG movements supports the success of capital control policy as the leverage ratios did not significantly decline in the post-adoption period. This point could not be gauged directly from MLVG perspective as the impact on MLVG is merely a reflection of stock market movement, rather than by the effectiveness of the policy itself.

In general, further inspection on Figures 1 and 2 suggests a parallel trend between the trading boards and the full sample of companies. The paired sample *t*-tests on each trading board are also reported in Table 4. Overall, the significance of paired variables' changes follows the full sample's results. However, it is found that the annual means MLVG and BLVG for Second Board (i.e., smaller companies) are significantly higher than the Main Board (i.e., larger companies) which contradict a great deal of the literature (e.g., Marsh, 1982; Rajan and Zingales, 1995; Bevan and Danbolt, 2002). The issue is further discussed in the robustness checks sub-section.

To conclude on the impact of capital control regime on the leverage ratios, there is enough evidence to suggest that, in general, over the two sub-periods, there is a significant change in the leverage ratio due to the capital control adoption. Therefore, hypothesis 1 is accepted.

Capital Structure Determinants

Summary statistics of the regression variables for each leverage measure are presented in Tables 5 and 6 respectively. It appears that the means of dependent variables (i.e., MLVG and BLVG) are slightly different from the previous Part 1 analysis'. This is mainly due to the different data requirements that resulted in different number of samples being used in both analyses. However, such differences are negligible and the results from this part can be used to confirm previous part's findings.

Table 7 presents the results of the OLS regression analysis of MLVG and BLVG on the explanatory variables for each sample period. At the aggregate level, it is found that the regressions are highly significant, and one is able to reject the null hypothesis of joint insignificance of the coefficients at less than the 1% level. Although the adjusted R^2 measures vary across the samples, from a low of 20.17% for Model 4, to a high of 35.14% for Model 1, it is found that the measures are consistent with prior Malaysian studies (e.g., 20.6% and 33% in Mohamad, 1995; 23.21% to 43.93% in Deesomsak et al., 2004) but are higher than reported in the UK studies (e.g., 0% to 28.8% in Bennett and Donnelly, 1993; 2.4% to 19.57% in Bevan and Danbolt, 2004).

Company Size

Despite the ambiguity of company size effect on leverage as found in prior studies, one is unable to reject hypothesis 2 as the results show a positive relationship between size and both leverage measures in all periods. The coefficients are very significant (at 1% and 5% level) except for Model 5. This finding is consistent with Marsh (1982) and Deesomsak et al. (2004), and with the trade-off theory. As size is argued to be a possible inverse proxy for the probability of bankruptcy (Rajan and Zingales, 1995), the larger companies appear to have lower default risk and therefore, have better borrowing capacity relative to smaller companies. For both leverage measures, it appears that the capital control has no impact at all on the role of size in the capital structure decision.

Profitability

Consistent with Bevan and Danbolt (2002) and Deesomsak et al. (2004), the results confirm that profitability is the major capital structure determinant, with the highest significant *t*-

Table 5: Summary Statistics of Regression Variables (MLVG)

MLVG (market leverage) is the ratio of total debt to total debt plus market value of equity plus book value of preference shares. SIZE is the natural logarithm of total assets. PROF (profitability) is the ratio of earnings before interest, tax, depreciation and amortisation to total assets. TANG (tangibility) is the ratio of total fixed assets to total assets. NDTS (non-debt tax shield) is a ratio of depreciation to total assets. LIQD (liquidity) is a ratio of currents assets to current liabilities. GROW (growth opportunity) is the ratio of total assets less book value of equity plus market value of equity to total assets. TAX (tax charge) is measured by pre-tax profit less published after tax profit divided by pre-tax profit. BDDUM is a trading board dummy variable taking the value of 1 for Main Board and 0 for Second Board. PROPDUM is the property industry dummy variable. IPDUM is the industrial product industry dummy variable. CONSDUM is the construction industry dummy variable. CPDUM is the consumer product industry dummy variable. TSDUM is the trading and services industry dummy variable. PLANDUM is the plantation industry dummy variable.

	MLVG	SIZE	PROF	TANG	NDTS	LIQD	GROW	TAX
n = 352								
Full period (1995-2002)								
Mean	0.3893	13.0291	0.0598	0.3445	0.0239	1.5662	1.9777	0.1865
Standard deviation	0.3113	1.3756	0.0893	0.2007	0.0188	1.5239	2.4088	0.7496
Min	0	8.3827	-0.3702	0.0084	0	0.1715	0.6652	-6.2312
Max	0.9862	17.5356	0.4570	0.9054	0.1358	18.7333	33.5224	10.4835
Skewness	0.2512	0.1370	-0.5678	0.3650	1.5647	5.8415	8.9950	5.4069
Kurtosis	1.7296	3.2621	6.0644	2.3201	7.5282	55.4007	102.4918	120.5867
Correlation with MLVG	1.0000	0.1473***	-0.4551***	-0.0705	-0.1552***	-0.4003***	-0.1107**	-0.0089
Pre-control period (1995-1998)								
Mean	0.4395	12.7908	0.1067	0.3462	0.0227	1.7407	2.7012	0.2397
Standard deviation	0.2921	1.3777	0.0733	0.2120	0.0189	1.6921	3.7709	0.3224
Min	0.0000	8.3109	-0.1066	0.0009	0	0.1139	0.9661	-3.3248
Max	0.9454	17.2409	0.5191	0.9262	0.1791	21.4063	56.3918	2.7706
Skewness	-0.0856	0.1833	0.8965	0.4035	2.2383	6.3375	10.5401	-2.5477
Kurtosis	1.7234	3.1901	7.5759	2.3550	15.6443	61.8214	136.4368	57.6506
Correlation with MLVG	1.0000	0.1606***	-0.4103***	-0.1088**	-0.1341***	-0.3052***	-0.2370***	0.0236

(Cont.) Table 5: Summary Statistics of Regression Variables (MLVG)

Post-control period (1999-2002)								
Mean	0.3893	13.1017	0.0472	0.3507	0.0269	1.7641	1.5165	0.0829
Standard deviation	0.3113	1.4517	0.1414	0.2189	0.0257	2.4265	2.5098	1.6387
Min	0	8.4460	-1.1796	0.0019	0	0.0179	0.4320	-15.6994
Max	0.9862	17.7594	0.6876	0.8845	0.3122	24.1867	39.4945	23.9783
Skewness	0.2512	0.0481	-2.9943	0.3195	4.4965	5.1439	11.3053	5.7910
Kurtosis	1.7296	3.1693	25.4142	2.1798	45.4565	37.7202	158.1410	156.5320
Correlation with MLVG	1.0000	0.1146**	-0.4159***	-0.0315	-0.1084**	-0.4045***	0.0222	-0.0353

***, ** and * represent significance at the 1%, 5% and 10% levels respectively, using a two-tailed t-test.

	BDDUM	PROPDUM	IPDUM	CONSDUM	CPDUM	TSDUM	PLANDUM
n = 352							
Full period (1995-2002)							
Mean	0.8182	0.1563	0.2784	0.0795	0.1449	0.2188	0.0852
Standard deviation	0.3862	0.3636	0.4489	0.2710	0.3525	0.4140	0.2796
Min	0	0	0	0	0	0	0
Max	1	1	1	1	1	1	1
Skewness							
Kurtosis							
Correlation with MLVG	-0.1428***	0.0776	0.0728	0.0996*	-0.0741	-0.0170	-0.1765***
Pre-control period (1995-1998)							
Mean	0.8182	0.1563	0.2784	0.0795	0.1449	0.2188	0.0852
Standard deviation	0.3862	0.3636	0.4489	0.2710	0.3525	0.4140	0.2796
Min	0	0	0	0	0	0	0
Max	1	1	1	1	1	1	1

(Cont.) Table 5: Summary Statistics of Regression Variables (MLVG)

Skewness							
Kurtosis							
Correlation with MLVG	-0.1746***	0.0869*	0.0453	0.1373***	-0.0560	0.0085	-0.2315***
Post-control period (1999-2002)							
Mean	0.8182	0.1563	0.2784	0.0795	0.1449	0.2188	0.0852
Standard deviation	0.3862	0.3636	0.4489	0.2710	0.3525	0.4140	0.2796
Min	0	0	0	0	0	0	0
Max	1	1	1	1	1	1	1
Skewness							
Kurtosis							
Correlation with MLVG	-0.1428***	0.0776	0.0728	0.0996*	-0.0741	-0.0170	-0.1765***

***, ** and * represent significance at the 1%, 5% and 10% levels respectively, using a two-tailed t-test.

Table 6: Summary Statistics of Regression Variables (BLVG)

BLVG (book leverage) is the ratio of total debt to total debt plus book value of equity plus book value of preference shares. SIZE is the natural logarithm of total assets. PROF (profitability) is the ratio of earnings before interest, tax, depreciation and amortisation to total assets. TANG (tangibility) is the ratio of total fixed assets to total assets. NDTS (non-debt tax shield) is a ratio of depreciation to total assets. LIQD (liquidity) is a ratio of currents assets to current liabilities. GROW (growth opportunity) is the ratio of total assets less book value of equity plus market value of equity to total assets. TAX (tax charge) is measured by pre-tax profit less published after tax profit divided by pre-tax profit. BDDUM is a trading board dummy variable taking the value of 1 for Main Board and 0 for Second Board. PROPDUM is the property industry dummy variable. IPDUM is the industrial product industry dummy variable. CONSDUM is the construction industry dummy variable. CPDUM is the consumer product industry dummy variable. TSDUM is the trading and services industry dummy variable. PLANDUM is the plantation industry dummy variable.

	BLVG	SIZE	PROF	TANG	NDTS	LIQD	GROW	TAX
n = 334								
Full period (1995-2002)								
Mean	0.3997	13.0569	0.0690	0.3483	0.0241	1.6127	1.7964	0.1916
Standard deviation	0.4726	1.3777	0.0803	0.2027	0.0190	1.5485	1.4290	0.7688
Min	-0.7784	8.3827	-0.3702	0.0084	0	0.1907	0.6652	-6.2312
Max	3.5817	17.5356	0.4570	0.9054	0.1358	18.7333	20.5920	10.4835
Skewness	2.3677	0.1779	-0.3547	0.3306	1.5682	5.7925	7.7805	5.2637
Kurtosis	12.1121	3.1396	7.4403	2.2827	7.4931	54.0730	93.4355	114.7492
Correlation with BLVG	1.0000	0.0487	-0.3103***	-0.0228	-0.0480	-0.3115***	-0.0696	0.0210
Pre-control period (1995-1998)								
Mean	0.3965	12.7952	0.1097	0.3507	0.0231	1.7728	2.5625	0.2428
Standard deviation	0.3413	1.3774	0.0726	0.2138	0.0191	1.7290	2.4978	0.3260
Min	0.0000	8.3109	-0.1066	0.0009	0	0.1139	0.9661	-3.3248
Max	3.3760	17.2409	0.5191	0.9262	0.1791	21.4063	36.4123	2.7706
Skewness	2.8752	0.2368	1.0058	0.3717	2.2421	6.2114	8.5250	-2.5985
Kurtosis	22.8144	3.1527	7.7790	2.3258	15.6394	59.3153	106.0237	58.1683
Correlation with BLVG	1.0000	-0.0514	-0.4138***	0.0079	-0.0014	-0.2935***	-0.0526	-0.0240

(Cont.) Table 6: Summary Statistics of Regression Variables (BLVG)

Post-control period (1999-2002)								
Mean	0.3997	13.1664	0.0643	0.3519	0.0266	1.8358	1.2632	0.0865
Standard deviation	0.4726	1.4360	0.1000	0.2187	0.0259	2.4693	0.8851	1.6823
Min	-0.7784	8.4460	-0.5508	0.0019	0	0.0323	0.4320	-15.6994
Max	3.5817	17.7594	0.6876	0.8845	0.3122	24.1867	9.6766	23.9783
Skewness	2.3677	0.0711	-0.2898	0.2977	4.6329	5.0685	4.8187	5.6358
Kurtosis	12.1121	3.0854	14.2533	2.1684	46.7579	36.4800	35.2414	148.5235
Correlation with BLVG	1.0000	0.0395	-0.3768***	0.0102	-0.0321	-0.3085***	-0.0422	-0.0148

***, ** and * represent significance at the 1%, 5% and 10% levels respectively, using a two-tailed t-test.

	BDDUM	PROPDUM	IPDUM	CONSDUM	CPDUM	TSDUM	PLANDUM
n = 334							
Full period (1995-2002)							
Mean	0.8204	0.1557	0.2754	0.0778	0.1467	0.2216	0.0868
Standard deviation	0.3845	0.3631	0.4474	0.2683	0.3543	0.4159	0.2820
Min	0	0	0	0	0	0	0
Max	1	1	1	1	1	1	1
Skewness							
Kurtosis							
Correlation with BLVG	-0.2084***	-0.0332	0.0843	-0.0408	-0.0198	0.0699	-0.1483***
Pre-control period (1995-1998)							
Mean	0.8204	0.1557	0.2754	0.0778	0.1467	0.2216	0.0868
Standard deviation	0.3845	0.3631	0.4474	0.2683	0.3543	0.4159	0.2820
Min	0	0	0	0	0	0	0

(Cont.) Table 6: Summary Statistics of Regression Variables (BLVG)

Max	1	1	1	1	1	1	1
Skewness							
Kurtosis							
Correlation with BLVG	-0.2309***	-0.0658	0.0081	0.1153**	-0.0368	0.0241	-0.0505
Post-control period (1999-2002)							
Mean	0.8204	0.1557	0.2754	0.0778	0.1467	0.2216	0.0868
Standard deviation	0.3845	0.3631	0.4474	0.2683	0.3543	0.4159	0.2820
Min	0	0	0	0	0	0	0
Max	1	1	1	1	1	1	1
Skewness							
Kurtosis							
Correlation with BLVG	-0.2084***	-0.0332	0.0843	-0.0408	-0.0198	0.0699	-0.1483***

***, ** and * represent significance at the 1%, 5% and 10% levels respectively, using a two-tailed t-test.

Table 7: OLS Multivariate Regressions on Full Sample (MLVG and BLVG)

The regressions are estimated using Ordinary Least Squares (OLS). For Models 1, 2 and 3, the dependent variable is market leverage (MLVG). The estimated model is: $MLVG_{i,t} = \alpha + \beta_1 SIZE_{i,t-a} + \beta_2 PROF_{i,t-a} + \beta_3 TANG_{i,t-a} + \beta_4 NDTS_{i,t-a} + \beta_5 LIQD_{i,t-a} + \beta_6 GROW_{i,t-a} + \beta_7 TAX_{i,t-a} + \beta_8 BDDUM + \beta_9 PROPDUM + \beta_{10} IPDUM + \beta_{11} CONSDUM + \beta_{12} IPDUM + \beta_{13} TSDUM + \beta_{14} PLANDUM + \varepsilon_{i,t}$. For Models 4, 5 and 6, the dependent variable is book leverage (BLVG). The estimated model is: $BLVG_{i,t} = \beta + b\partial_1 SIZE_{i,t-a} + \beta_2 PROF_{i,t-a} + \beta_3 TANG_{i,t-a} + \beta_4 NDTS_{i,t-a} + \beta_5 LIQD_{i,t-a} + \beta_6 GROW_{i,t-a} + \beta_7 TAX_{i,t-a} + \beta_8 BDDUM + \beta_9 PROPDUM + \beta_{10} IPDUM + \beta_{11} CONSDUM + \beta_{12} IPDUM + \beta_{13} TSDUM + \beta_{14} PLANDUM + \varepsilon_{i,t}$. White's (1980) heteroskedastic-consistent covariance matrix estimation is used to adjust for heteroskedasticity when this is evident (i.e., in Models 1, 2, 4, 5 and 6).

		Panel A : Market leverage (MLVG)			*Panel B : Book leverage (BLVG)*		
Variable	*Exp sign*	*Full period (Model 1)*	*Pre-control (Model 2)*	*Post-control (Model 3)*	*Full period (Model 4)*	*Pre-control (Model 5)*	*Post-control (Model 6)*
Constant	+ or -	0.0846	0.3692**	0.1663	0.1958	0.6584***	0.3594
t-statistics		(0.51)	(2.30)	(0.97)	(0.78)	(3.16)	(1.37)
Chow test *t*-statistics				(0.91)			(0.89)
SIZE	+	0.0467***	0.0346***	0.0346***	0.0551***	0.0173	0.0399**
t-statistics		(3.74)	(2.71)	(2.83)	(3.00)	(1.10)	(2.17)
Chow test *t*-statistics				(0.00)			(-0.93)
PROF	-	-1.3578***	-1.5519***	-0.8226***	-1.4901***	-2.2014***	-1.5827***
t-statistics		(-6.80)	(-7.48)	(-7.47)	(-3.40)	(-5.17)	(-4.33)
Chow test *t*-statistics				(-2.76)***			(-1.10)
TANG	+	0.1238	-0.0333	0.0268	0.0334	-0.1108	-0.0113
t-statistics		(1.28)	(-0.43)	(0.37)	(0.23)	(-1.19)	(-0.09)
Chow test *t*-statistics				(-0.55)			(-0.64)
NDTS	-	-2.0052**	-0.5324	-1.1998**	-1.9556	2.0803*	-1.2395
t-statistics		(-2.12)	(-0.66)	(-1.90)	(-1.29)	(1.89)	(-1.41)
Chow test *t*-statistics				(0.70)			(2.36)**
LIQD	-	-0.0497***	-0.0429***	-0.0376***	-0.0807***	-0.0764***	-0.0434***
t-statistics		(-3.08)	(-4.06)	(-5.89)	(-4.44)	(-6.20)	(-3.52)
Chow test *t*-statistics				(-0.37)			(-1.89)*

***, ** and * represent significance at the 1%, 5% and 10% levels respectively, using a two-tailed t-test.

(Cont) Table 7: OLS Multivariate Regressions on Full Sample (MLVG and BLVG)

		Panel A : Market leverage (MLVG)			*Panel B : Book leverage (BLVG)*		
Variable	*Exp sign*	*Full period (Model 1)*	*Pre-control (Model 2)*	*Post-control (Model 3)*	*Full period (Model 4)*	*Pre-control (Model 5)*	*Post-control (Model 6)*
GROW	-	-0.0044	-0.0050	-0.0066	0.0366*	0.0252***	0.0348
t-statistics		(-0.73)	(-1.58)	(-1.04)	(1.90)	(3.66)	(0.93)
Chow test *t*-statistics				(0.26)			(-0.25)
TAX	+	0.0037	0.0180	-0.0067	0.0287	0.0122	0.0020
t-statistics		(0.22)	(0.52)	(-0.79)	(1.16)	(0.31)	(0.36)
Chow test *t*-statistics				(0.69)			(0.25)
BDDUM	+	-0.1486***	-0.1554***	-0.1418***	-0.2717***	-0.1627***	-0.2594***
t-statistics		(-3.43)	(-4.13)	(-3.34)	(-2.86)	(-2.80)	(-2.65)
Chow test *t*-statistics				(-0.24)			(0.85)
PROPDUM	+ or -	-0.0144	0.0525	0.0354	-0.1817	-0.1061	-0.1859
t-statistics		(-0.19)	(0.83)	(0.44)	(-1.51)	(-1.09)	(-1.50)
Chow test *t*-statistics				(0.17)			(0.51)
IPDUM	+ or -	0.0398	0.0717	0.0686	-0.0150	-0.0371	-0.0283
t-statistics		(0.57)	(1.22)	(0.90)	(-0.12)	(-0.38)	(-0.22)
Chow test *t*-statistics				(0.03)			(-0.06)
CONSDUM	+ or -	0.0554	0.1298**	0.1034	-0.2253	0.0579	-0.2452*
t-statistics		(0.70)	(2.12)	(1.19)	(-1.53)	(0.52)	(-1.63)
Chow test *t*-statistics				(0.26)			(1.62)
CPDUM	+ or -	0.0048	0.0282	0.0043	-0.0520	-0.0449	-0.0759
t-statistics		(0.07)	(0.47)	(0.05)	(-0.42)	(-0.46)	(-0.59)
Chow test *t*-statistics				(0.25)			(0.19)

***, ** and * represent significance at the 1%, 5% and 10% levels respectively, using a two-tailed t-test.

(Cont) Table 7: OLS Multivariate Regressions on Full Sample (MLVG and BLVG)

Variable	*Exp sign*	*Panel A : Market leverage (MLVG)*			*Panel B : Book leverage (BLVG)*		
		Full period (Model 1)	*Pre-control (Model 2)*	*Post-control (Model 3)*	*Full period (Model 4)*	*Pre-control (Model 5)*	*Post-control (Model 6)*
TSDUM	+ or -	-0.0554	-0.0121	-0.0140	-0.0853	-0.0793	-0.0710
t-statistics		(-0.75)	(-0.19)	(-0.18)	(-0.66)	(-0.80)	(-0.54)
Chow test *t*-statistics				(0.02)			(-0.05)
PLANDUM	+ or -	-0.1290	-0.1347*	-0.0651	-0.2217*	-0.0337	-0.1723
t-statistics		(-1.46)	(-1.81)	(-0.74)	(-2.19)	(-0.24)	(-1.37)
Chow test *t*-statistics				(-0.61)			(0.74)
Adj R^2		0.3514	0.3497	0.3308	0.2017	0.3198	0.2320
F		15.37***	13.52***	13.39***	5.07***	8.62***	4.49***
F (Chow test)				26.28***			11.94***
Breusch-Pagan / Cook-Weisberg		21.87*	22.04*	17.14	212.30***	367.83***	173.03***
N		352	352	352	334	334	334

***, ** and * represent significance at the 1%, 5% and 10% levels respectively, using a two-tailed t-test.

ratios in all periods for MLVG and the second highest for BLVG. The significant negative coefficient, as expected, is consistent with many previous studies such as Kester (1986), Titman and Wessels (1988) and with other countries' findings that are the United States, Japan and Canada as documented by Rajan and Zingales (1995). This lends a support to the prediction of pecking order theory where the availability of internally generated funds determines the amount of external financing, but contradicts the tax shield hypothesis. Hence, hypothesis 3 is accepted.

Of the capital control impact, it shows that the coefficients' size has increased during the post-control period for both leverage measures. This can be interpreted as companies that are more profitable tend to borrow more during the post-control period. No doubt, this interpretation does make sense because the profitability level has seriously deteriorated during the 1997 financial crisis (summary statistics in Tables 5 and 6 show the profitability means have decreased by 55.76% and 41.39% respectively). Consequently, the companies have to resort to external financing, mainly in the form of debt, to fund investment expenditures. In addition, as there was a sharp decline in the equity market, issuing equity is costly to the existing shareholders because of potential dilution of ownership with the prospective investors who are able to buy shares at a very low price. As such, it is obvious that debt becomes the preferred choice of funding. However, the change on the profitability factor is only significant for MLVG.

Tangibility

The role of tangibility is found to be not significant for both leverage measures. This is consistent with Deesomsak et al. (2004) and their argument of the lesser need for collateral in order to borrow is supported. The coefficient signs are rather mixed and one is unable to accept or to reject hypothesis 4. However, the problem of conflicting evidence on the relationship between leverage and tangibility is also found in Bevan and Danbolt (2002). They concluded that the nature of debt will determine the sign of the coefficients. In another paper, they found that tangibility is positively correlated with all long-term debt elements in which long-term debt functions as a collateral, whilst negatively correlated with all types of short-term debt in which short-term debt is used for maturity matching purposes (Bevan and Danbolt, 2004). Therefore, it is suggested that maturity matching is the key issue to be related with the leverage level in the pre-control period while no conclusion can be made in the post-control period. Similar to the company size factor, the impact of capital control on tangibility is not significant.

Non-debt Tax Shield

It appears that NDTS is generally negatively correlated with the leverage level although one of the coefficients is positive in Model 5 but weakly significant, hence one fails to reject hypothesis 5. This result is consistent with Bennett and Donnelly (1993) and DeMiguel and Pindado (2001), therefore supports DeAngelo and Masulis (1980) who argued that the substitute tax shields such as depreciation could reduce the corporate tax advantage of debt. Notably, the significant impact of capital control on this factor, as found in BLVG, suggests that companies are considering utilising alternative tax shield likes depreciation to minimise their tax exposures.

Liquidity

As hypothesised, liquidity is found to be highly significantly negatively correlated with leverage level in all periods, therefore we have a straightforward evidence supporting hypothesis 6. This is consistent with the contention of pecking order theory that companies with high liquidity will borrow less. The highly significance of the coefficients (at 1% level) in all periods also supports Bevan and Danbolt (2004) who suggest that liquidity may be an important determinant of capital structure. As a result of capital control adoption, it is found that the higher liquid companies tend to borrow more but the impact is only significant (weak) in BLVG. This perhaps is due to the reflationary policy where the government encourages domestic spending and expands the credit market; hence, there is no doubt that even a liquid company will increase their short-term financing to take advantage on such a policy.

Growth opportunities

A very much contradictory result is found in the growth opportunities' relationship with the leverage level. For MLVG, the relationship is negative as predicted; hence, hypothesis 7 cannot be rejected. On the other hand, the relationship is positive for BLVG, therefore hypothesis 7 is rejected. The result on the negative relationship is mainly consistent with a great deal of the literature and can be explained by the agency theory where Myers (1977) argued that companies with high growth opportunities have high agency costs of debt and will be able to borrow less. Nevertheless, the result of the positive relationship is not surprising as it is also can be found in many prior studies (e.g., Bennett and Donnelly, 1993; Michaelas, Chittenden and Poutziouris, 1999; Bevan and Danbolt, 2002, 2004).

A detail inspection on the coefficients' size reveals that the negative coefficients tend to be small and insignificant while the positive coefficients are larger and significant in two sample periods. This could suggest that the 'correct' relationship between the growth opportunities and leverage level shall be a positive one. This is supported by the fact that there is an easy access to credit market in Malaysia especially on short-term financing; therefore, even a company with higher growth opportunity will be able to borrow more. This suggestion is consistent with Barclay and Smith (2001) who argued that, when seeking debt financing, companies with high levels of growth opportunities will prefer short-term to long-term debt, as well as debt with few restrictive covenants, in order to maintain financial flexibility. In turn, it is justifiable to reject hypothesis 7. The result also shows that there is no significant impact of capital control adoption on this capital structure determinant.

Tax charge

Consistent with the earlier prediction, tax charge is generally found to be positively correlated with the leverage level, hence one could not reject hypothesis 8. However, the evidence is not very strong and it appears that this factor has little influence on the capital structure decision due to the smaller size of coefficients and insignificance. This could be due to the weaknesses of tax proxy being used in this paper as Graham, Lemmon and

Schallheim (1998) argued that there is an endogeneity problem in the corporate tax status that could bias an experiment in favour of finding a positive relation between debt and taxes. Further, it appears that the impact of capital control adoption on the role of tax is not significant.

Industry Difference

At a glance, it appears that the construction and the plantation industries have some sort of correlation with the leverage level. MLVG is significantly positively correlated with the construction companies in the pre-capital control period. This makes sense, as the industry is capital intensive in nature; therefore, the expected level of debt should be higher. In contrast, there is a weak negative correlation with BLVG in the post-control period. This perhaps can be explained as the construction activities become slower in the post-control period, less long-term debt is acquired. In turn, these companies concentrate on reducing their debt level in order to minimise bankruptcy risk.

For the plantation industry, the relationship is consistently negative in all periods but not universally significant. This is possibly due to the market structure of plantation industry which is currently stagnant and not expanding. Therefore, as the agency theory predicts, companies in this industry will be subject to higher agency costs and will not be able to borrow more. After all, in light of these findings on industry effect, one could not reject hypothesis 9. It is also shown that there is no significant impact of capital control adoption on the role of industry difference in the capital structure decision.

These findings enhance prior work by Mohamad (1995) who argued that there are significant inter industry difference in Malaysian capital structure but he did not directly test the industry difference as such. The findings, however, contradict to Deesomsak et al. (2004) who find no statistically significant effect on the industry's dummy variables.

Trading Board Difference

It is found that the trading board is significantly negatively related with both leverage measures in all periods. One could argue that this finding is contradictory to the company size effect whereby the Second Board companies are of smaller companies and should have lower debt level. However, such an interpretation is somewhat misleading because the purpose of including the trading board dummy variable is to assess the generalisability of the findings. By decomposing the sample into two separate trading boards, a more robust result is generated and this is discussed in the robustness checks sub-section.

Overall Impact of Capital Control Adoption on the Capital Structure Determinants

The overall impact is assessed by the F statistics of Chow test. From Table 7, the F statistics are highly significant at 0.1% level; thus it can be concluded that the two sub-periods samples (i.e., Models 2 and 3; 5 and 6) are significantly different and therefore, suggesting an evidence of capital control's impact on the Malaysian capital structures.

Consequently, the previous findings in Part 1 analysis on the leverage ratios are supported; hence hypothesis 1 cannot be rejected.

Specifically, using the dummy variable approach (Dougherty, 2002), profitability is significantly different at 1% level (two-tail) for MLVG while NDTS and liquidity are significantly different at 5% and 10% levels respectively for BLVG. Therefore, it can be suggested that the impact of capital control adoption on the capital structure determinants is highly definitional-dependent (i.e., based on which leverage measure being used). Nevertheless, it is found that company size, profitability and liquidity are the major factors that significantly influence the capital structure decision of Malaysian companies over time.

Robustness Checks

The paper also presents two contending issues and a discussion of the robustness of the main findings. Two alternative specifications are described but the results are not included in the paper. The results are available upon request.

Conflict between the company size effect and the trading boards difference

With regard to the previous discussions, one could argue that there is contradictory evidence on the effect of company size on the leverage level. From Part 1 analysis, Figures 1 and 2 clearly show that the annual means MLVG and BLVG for the Second Board companies are significantly higher than the Main Board's. Further, it is found that the size factor is significantly positively correlated with the leverage level while another variable that is trading board, which is possible to proxy for size effect[7], appears to be significantly negatively correlated with the leverage level.

To examine this issue in more detail, the main OLS models in Table 7 are re-estimated by separating the Main Board and the Second Board companies into two different samples with the trading board dummy being excluded in both new samples. Hence, for each leverage measure and for each sample period, there are two new models being estimated where the original full samples (i.e., Models 1, 2, 3, 4, 5 and 6) becomes the base-case. The new samples are denoted as the subsidiaries of the original full samples (i.e., Models 1a, 1b, 2a, 2b and so on). The results show that the company-size effect in the Second Board models is consistently statistically insignificant while it is generally positively significant for the Main Board models. Hence, this implies that the estimates on a full sample of all companies disregard their trading boards should be interpreted with some caution.

Survivorship Bias

Another source of concern is the continuous data requirement, for calculating the averages of the explanatory variables, may lead one to argues that the main sample is subject to the survivorship bias. It is possible that a number of companies have been excluded simply due to lack of information. Hence, the main findings on the capital structure determinants can be argued as spurious and misleading.

To deal with this issue, the continuous data requirement is being relaxed and a bigger sample is re-estimated accordingly. Hence, the new sample includes any company that

has the explanatory variables data in at least one year during both two sub-periods. After all, the final sample for MLVG and BLVG is 514 (365 of Main Board companies and 149 Second Board companies) and 488 (350 of Main Board companies and 138 Second Board companies) companies respectively. The results show that the main findings do not change significantly as the major factors of capital structure decision that are the company size, the profitability and the liquidity continue to display their significant influences. Therefore, it can be concluded that the main results are robust to different specifications and sample sizes.

Regression diagnostics

Detecting for multicollinearity is carried out using the variance inflation factor (VIF) approach. The VIF values are presented in Appendix IV. The VIF is interpreted according to the rule of thumb; the larger the value of VIF, the more 'troublesome' or collinear the variable. The cut-off point is suggested at 10 (Gujarati, 2003, Chapter 10). Generally, it is found that the VIF values for each variable are below the cut-off point (i.e., ranging from to 1.04 to 6.70) and therefore the multicollinearity is confirmed as not an issue.

The heteroskedasticity problem is detected using the Breusch-Pagan/Cook-Weisberg test and is reported in the penultimate row of Table 7. When the problem is evident, the significance levels for the regression coefficients in the affected model are reported using White's (1980) heteroskedastic-consistent covariance matrix estimation. In some models, although the heteroskedasticity problem is evident, the OLS result using White's reports missing F statistics and its p-value. Stata programme has done this so as not to be misleading, not because there is something necessarily wrong with the model (StataCorp, 2003). In turn, Stata programme suggests reporting the significance levels for the regression coefficients in the affected models without using White's. Hence, as a caution, the reported t and F statistics for that particular models are not adjusted for heteroskedasticity.

Finally, the normality assumption of the regression's residuals is checked using a graphical device that is the normal probability plot (NPP) of the residuals (not included in the paper, but available upon request). One can conclude that the residual of interest is normally distributed if the fitted line in the NPP is approximately a straight line (Gujarati, 2003, Chapter 5). Generally, it is found that the plots derived from most of the regression models' residuals are fairly straight line (i.e., Models 1, 2, 3 and 5) and it can be suggested that the normality assumption does hold in this paper. However, the violation of the normality assumption in Models 4 and 6 does not appear to be sufficient to invalidate the use of the t-distribution in significance testing.

Conclusions

The paper attempts to provide evidence on the microeconomic impact of capital control regime which was adopted by Malaysian government, as an effort to promote economic recovery as a result of 1997 financial crisis. Specifically, the impact is being assessed on the corporate financing matters of Malaysian public listed companies in terms of the general movement of annual mean leverage ratios and on the capital structure determinants. The results show that such a regime has a significant change on the overall leverage

ratios between the pre and the post-capital control period. However, the direction of the change depends on the leverage measures. While the change in MLVG is parallel to the share market movement, the change in BLVG is rather surprising in which there is a significant increase in the first year of adoption and later, the changes in the subsequent years are found to be weakly significant.

In the capital structure determinant analysis, it is found that the leverage level of Malaysian companies is driven by three major factors, namely the company size, the profitability and the liquidity. These factors are consistently significant over the whole period of study that is from 1995-2002. Except for the size factor, the impact of capital control on profitability is highly significant suggesting a fierce damaging impact of the crisis on the profitability level of most Malaysian companies. This impact is very significant using MLVG measure and this is easily supported by the fact that the share market has lost 80% of its value in 20 months period during the height of the crisis (Jomo, 2001b). For the liquidity factor, the capital control impact is evidenced in BLVG but is weakly significant. For other factors, the coefficients' signs are generally consistent with the theoretical predictions but lack of being universally significant in each period of study. Hence, the impact of capital control adoption on these factors is found to be generally insignificant.

In relation to the previous study by Deesomsak et al. (2004), it can be concluded that their findings are sensitive to the leverage measure. Although the MLVG results are almost similar with slightly mixed differences in the significance level (e.g., this paper finds the company size and the liquidity are significant in the pre-control period while they did not), the BLVG results warrant a different interpretation to be considered. This paper also supports Wald (1999) that the institutional settings could affect the capital structure determinants. For example, as tangibility is regarded as one of the major factors in many UK and European studies (e.g., Rajan and Zingales, 1995; Bevan and Danbolt, 2002, 2004), however, the factor is found to be not significant at all in the Malaysian environment. This could suggest that the role of collateral in securing debt in Malaysia is less important compared to other countries.

Finally, the paper's findings that the company size, the profitability and the liquidity are the major capital structure determinants in Malaysia can be concluded as consistent with both the theoretical propositions (i.e., trade-off and pecking order theories) and the empirical results of prior studies (e.g., Rajan and Zingales, 1995; Ozkan, 2001; Bevan and Danbolt, 2002, 2004; Deesomsak et al., 2004).

Notes

1. Main Board companies are larger companies in terms of market capitalisation as defined by *Bursa Malaysia Berhad* while the smaller ones are traded on the Second Board. Note that the significant difference between the trading boards is not part of the research hypotheses.
2. Periods of pre-capital control (1995-1998) and post-capital control (1999-2002).
3. Lagging will isolate the analysis from the potential reverse causality between dependent and explanatory variables and provides a more robust estimate.
4. Averaging will reduce the possibility of measurement error and the effects of random fluctuations in the explanatory variables.

5 Table III, Panel A, column Debt to Capital (Means), p. 1430.

6 Jomo (2001b) provides a detailed account of the impact of capital flight. 'A net sum of over RM 30 billion of portfolio investments flowed out in the last three quarters of 1997, much more than the total net inflows from 1995, and equivalent to almost a fifth of annual Gross National Product (GNP). This exodus included RM 21.6 billion of shares and corporate securities, and RM 8.8 billion of money market instruments. In just one quarter, from July to September 1997, a net RM 16 billion of portfolio investments left the country' (p. 171).

7 This is possible to proxy for size effect at the aggregate level. Since the trading board is represented by a binary variable taking the value of 1 for Main Board companies and 0 for Second Board companies, by definition, Main Board companies are the larger companies while the Second Board companies are the smaller ones.

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APPENDIX I

Malaysian Controls on Capital and Exchange Controls

A. 1st September 1998

1. Malaysia fixed the exchange rate at RM 3.80 per $US.
2. Prior approval was required for non-residents to be able to buy or sell ringgit forward.
3. All sales of ringgit assets were required to be transacted through approved domestic intermediaries. This effectively shut down the operation of offshore ringgit market.
4. Non-residents were required to obtain Bank Negara Malaysia (Malaysian central bank) approval to convert ringgit held in external accounts into foreign currency, except for the purchase of ringgit assets in Malaysia or for the purpose of conversion and repatriation of sale proceeds of investment made by foreign direct investors.
5. Settlements of imports and exports became required to be settled in foreign currency. However, free exchange was maintained for all current account transactions in addition to supply of trade credit to non-resident exporters of Malaysian goods.
6. Credits to External Accounts were limited to sale of foreign currency, ringgit instruments, securities or other assets in Malaysia; salaries, wages, rentals commissions, interest, profits or dividends.
7. Debits to External Accounts were restricted to settlement for purchase of ringgit assets and placement of deposits; payment of administrative and statutory expenses in Malaysia; payment of goods and services for use in Malaysia; and granting of loans and advances to staff in Malaysia.
8. Domestic nationals were forbidden to export more than RM10,000.00 during any travels abroad. Foreign nationals were forbidden to export more than RM1,000.00 upon leaving Malaysia.
9. After 1st September 1998, non-resident sellers of Malaysian securities were required to hold on to their ringgit proceeds for at least 12 months before repatriation was to be allowed.
10. Ban on the provision of domestic credit to non-resident correspondent banks and stock broking companies.

B. 1999 Changes in Controls

1. As of 15th February 1999, the year-long moratorium on repatriation of investments was replaced with a graduated tax. All capital having entered Malaysia before 15th February 1999 were subject to the following levies on the capital being removed: (a) 30% if repatriated within the first 7 months after entering Malaysia, (b) 20% if repatriated between 7 and 9 months after entry, (c) 10% if repatriated between 9 and 12 months of entering, and (d) no levy if repatriated after one year of entry
2. For funds entering Malaysia after 15th February 1999, capital was free to enter and leave without taxation; however, profits were taxed at the rate of 30% if repatriated within one year of entry and 10% if repatriated after one year of entry.

Source: Adopted from Kaplan and Rodrik (2001, p. 36).

APPENDIX II

Explanatory Variable Definitions

The explanatory variables are defined as the following formulas:

$$\text{Size (SIZE)} = ln \text{ (Total Assets)} \tag{A1}$$

$$\text{Profitability (PROF)} = \frac{\text{EBITDA}}{\text{Total Assests}} \tag{A2}$$

$$\text{Tangibility (TANG)} = \frac{\text{Fixed Assets}}{\text{Total Assets}} \tag{A3}$$

$$\text{Non-debt tax shield (NDTS)} = \frac{\text{Depreciation}}{\text{Total Assets}} \tag{A4}$$

$$\text{Liquidity (LIQD)} = \frac{\text{Current Assets}}{\text{Current Liabilities}} \tag{A5}$$

$$\text{Growth opportunities (GROW)} = \frac{\text{Total Assets - Book Value of Equity + Market Value of Equity}}{\text{Total Assets}} \tag{A6}$$

$$\text{Tax charge (TAX)} = \frac{\text{Pretax Profit - Published After Tax Profit}}{\text{Pretax Profit}} \tag{A7}$$

APPENDIX III

Leverage Measure Definitions

The leverage measures are defined as the following formulas:

$$\text{Market leverage (MLVG)} = \frac{\text{Total Debt}}{\text{Total Debt + Book Value of Equity + Book Value of Preference Shares}} \tag{A8}$$

$$\text{Market leverage (BLVG)} = \frac{\text{Total Debt}}{\text{Total Debt + Book Value of Equity + Book Value of Preference Shares}} \tag{A9}$$

APPENDIX IV

Variance Inflation Factor (VIF) of Regression Variables

The VIF is used to detect multicollinearity in the variable. Following a rule of thumb, a VIF value exceeding 10 reveals that the variable is subject to multicollinearity, hence distorts the regression estimates. Therefore, it is suggested to drop the affected variable from the regression model.

	Panel A : Market leverage (MLVG)			Panel B : Book leverage (BLVG)		
Variable	Full period (Model 1)	Pre-control (Model 2)	Post-control (Model 3)	Full period (Model 4)	Pre-control (Model 5)	Post-control (Model 6)
SIZE	1.78	1.83	1.70	1.84	1.87	1.77
PROF	1.45	1.21	1.31	1.44	1.23	1.14
TANG	1.74	1.70	1.37	1.73	1.70	1.37
NDTS	1.95	1.97	1.42	2.03	1.99	1.48
LIQD	1.41	1.29	1.30	1.64	1.68	1.31
GROW	1.28	1.43	1.36	1.55	1.84	1.30
TAX	1.05	1.06	1.04	1.05	1.06	1.04
BDDUM	1.44	1.41	1.45	1.45	1.41	1.48
PROPDUM	4.80	4.80	4.61	4.66	4.65	4.65
IPDUM	6.70	6.65	6.40	6.50	6.46	6.46
CONSDUM	3.12	3.06	3.00	3.01	2.95	3.01
CPDUM	4.36	4.45	4.26	4.39	4.40	4.38
TSDUM	5.81	5.81	5.62	5.74	5.76	5.71
PLANDUM	3.43	3.40	3.29	3.45	3.44	3.36