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CORPORATE FINANCIAL STRUCTURES IN DEVELOPING ECONOMIES: EVIDENCE FROM A COMPARATIVE ANALYSIS OF THAI AND MALAY CORPORATIONS

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Corporate Financial Structures in Developing Economies: Evidence from a Comparative Analysis of Thai and Malay Corporations [?]

by

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Abstract

We analyse the financial structure of Malay and Thai non-financial companies using a unique new company accounts dataset - an unbalanced panel consisting of the published accounts of 174 listed Thai companies over an average period of about 5.5 years and 165 listed Malay companies over an average of just under 8 years. The companies not only adequately represent the full range of listed companies on the stock exchanges of Bangkok or Kuala Lumpur, respectively, but they are also broadly representative of the respective company sectors of the two economies. Taking the basic reduced form model (RFM) of capital structure as our point of departure from existing literature, we innovatively specify and estimate an Augmented Capital Structure Model (ACSM), which encompasses debt, equity and retained earnings and therefore provides a composite representation of the patterns of company financing in developing economies. We then estimate our model using three datasets: historic cost accounts; Last-in-First-out (LIFO) inflation-adjusted accounts, and First-in-First-out (FIFO) inflation-adjusted accounts. The main findings are fourfold. First, although the evidence generally supports the pecking order hypothesis, there is also evidence to suggest a "reversed pecking-order" of finance. Second, we find further evidence to suggest that the "brake" of equity valuation preventing over-gearing by unprofitable firms may not to be working for both Malaysia and Thailand. Third, we find that information asymmetries still persist. Fourth, risk is found to have a non-linear influence on leverage; thus the risks of bankruptcy are non-linear as postulated by the traditional capital structure school of thought. These findings have important implications for firms in considering their financing decisions.

JEL Classification: G3, G32, O16

Keywords: Corporate finance, capital structure, developing countries, Thailand, Malaysia

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1. Introduction

The inspiration for this paper is the simple observation of the reality in most developing countries that firms (indeed, the company sector) must be able to finance their activities and grow over time if they are ever to play an increasing and predominant role in: creating value-added; providing employment as well as income in terms of profits, dividends and wages to households; expand the size of the directly productive sector in the economy; generate tax revenue for the government; and, all in all, facilitate poverty reduction through fiscal transfers and income from employment and firm ownership.

But how do firms finance their existing activities and grow over time? What combination of market and institutional factors determines the corporate structure of firms, and how does this structure influence firms' performance? Although they are clearly important, these questions still remain puzzling and are not close to being fully answered in the major industrial countries, let alone in developing and emerging economies where they are of crucial concern. As Prasad, Green and Murinde (2001) have shown in a review of the theoretical and empirical literature on corporate financial structures, very little is known about the financing decisions of firms in developing economies. In particular, there is need for empirical work to identify the patterns of company financing in developing countries *i.e.* are firms building their financial structures along orthodox lines, and if so, are they are oriented towards bank finance or the emerging stock market? It may well be that firms in developing countries are creating completely new financial structures to suit their own particular environment. The path-breaking study of Singh and Hamid (1992) argued that firms in a sample of nine developing countries made significantly more use of external finance, particularly equities, to finance their growth than is typically the case in the industrial countries where, as Murinde, Agung and Mullineux (2001) have shown, retentions are the principal source of finance.

In this paper, we propose and implement a plausible framework for providing a better insight into the financing behaviour of firms in developing countries, with particular reference to Malay and Thai companies. The main contributions of the paper are twofold. First, we go beyond the existing literature by explaining the financing

behaviour of the firm using not only leverage but also equity and retained earnings.[1] We therefore specify and estimate an Augmented Capital Structure Model (ACSM), which encompasses debt, equity and retained earnings. We argue that the ACSM model should provide a composite representation of the patterns of company financing in developing economies. Second, a major innovation is that we inflation-adjust the reported accounts to correct for potential biases in our results due to inflation; we then estimate our model using all three datasets: historic cost accounts; Last-in-First-out (LIFO) inflation-adjusted accounts, and First-in-First-out (FIFO) adjusted accounts. Moreover, in its own right, this approach is a methodological contribution to the empirical corporate finance literature.

In what follows, the rest of the paper is structured into four parts. Section 2 discusses the characteristics of Thai and Malay companies, and thus sheds light on the sample and data. Section 3 outlines the reduced form model variants used in this study. The estimation and testing results are reported and discussed in Section 4. Section 5 summarises the main findings.

2. Data and Measurement Characteristics of Thai and Malay Companies

Singh and Hamid (1992) discuss some of the problems in identifying and using published company accounts data consistently over time and across a number of developing countries. As Prasad (2000) shows, Malay and Thai accounting standards adhere quite closely to international standards. However, there remains substantial variation in the standards of financial reporting as well as the availability of company reports for these countries. Company accounts data for Malaysia, Thailand, and other countries are collected and published by several commercial information services, including: the *Annual Companies Handbook* (Malaysia only); the *Emerging Markets Database* of the International Finance Corporation; *Extel*; *Moodys*; *Disclosure*; and *Datastream*. The general scope of each of these databases is summarised in Table 1. To try to ensure that the basic data were as reliable as possible, we only used companies whose accounts were published in at least three of these sources. We cross-checked these sources wherever possible and discarded companies whose data contained unreconcilable inconsistencies, such as balance sheets which did not balance, presumably because of data input errors.

[1] The existing literature explains corporate financing behaviour in terms of leverage only; see, for example, the work by Rajan and Zingales (1995) on G-7 economies and Cornelli *et al*. (1996) on Central and Eastern Europe, which do not consider equity and retained earnings

By this process we arrived at a sample of 165 Malaysian companies and 174 Thai companies, each of which reported at least once over the period 1987 through 1995. As shown in Table 2, this represents a substantial proportion of the total population of quoted companies in each of the two countries.

[Tables 1 and 2 about here]

Table 2 also gives the industrial composition of the sample, based on the *Extel* classification (1996). We excluded financial firms as their financial structure decisions are substantially different in nature from those of non-financial companies. Otherwise, we did not rule out any particular industrial sector. This is a departure from Singh and Hamid (1992), Singh (1995) and other recent studies of corporate financing decisions in developing countries, in which the emphasis has been almost exclusively on manufacturing firms. The risks inherent in such an approach are readily apparent from Table 2 where only 48% of our Malay sample and 64% of our Thai sample are manufacturing firms. Of course this does mean that any comparison between the two samples needs to be undertaken with care. Measured inter-country differences could simply reflect inter-industry differences rather than any true differences in corporate behaviour as between the two countries. However, given the size of each sample, it seems fair to conclude that the sample is likely to be quite representative of the quoted non-financial companies in each country, and this underlines the need to extend financial structure research from manufacturing to a broader range of companies.

Like the vast majority of companies world-wide, Malay and Thai companies report their accounts by valuing assets and liabilities at historic cost and using conventional accounting depreciation methods. Historic cost accounting poses well-known problems of interpretation, although there is little agreement on a preferred alternative method. A major innovation in this paper is that we use two different methods to inflation-adjust the reported accounts to correct for potential biases in our results due to inflation. We then estimate our model using all three datasets: historic cost accounts and the two sets of inflation-adjusted accounts. Finally, we compare the results for historic cost data with those for inflation-adjusted data. There is a substantial literature on historic cost accounting and the merits and demerits of inflation-adjusted accounting; see Whittington (1983) for a review, and Edwards, Kay and Mayer (1987) for an analysis of different proposals to implement inflation adjustments.

We adopt the "entity" approach to inflation adjustment, which seeks to identify that level of real capital at the end of the previous period, which will just sustain the firm's

operating capacity through to the end of the current period. Any increase (or decrease) in real capital thus defined, from the end of the previous period to the end of the current period, is identified as the firm's profit (or loss) during the current period. Sustainable capital is calculated by adjusting the published accounts for profits or losses associated with the following: the difference between historic and real depreciation; inventory appreciation; real holding gains or losses arising from changes in the price of the firm's fixed assets; and real holding gains or losses associated with monetary assets and liabilities. A minimum assumption needed to implement these adjustments in any realistic setting is that reported stocks of assets and liabilities are homogeneous within each reporting category, and this is an assumption we make. Even with this assumption, inflation adjustments can be done in several ways depending in particular on the method of inventory valuation in the accounts. The national accounting standards for Malay and Thai firms follow international standards and permit the use of either LIFO or FIFO inventory valuation. Information about inventory valuation is usually contained in the notes to the accounts and, as shown in Table 1, these were mostly unavailable. Accordingly, we were unable to identify the inventory valuation procedures on a firm-by-firm basis. Therefore we proceeded by assuming first that all inventories were valued on a LIFO basis and second that all inventories were valued on a FIFO basis. This gives three datasets: historic cost accounts; LIFO inflation-adjusted accounts, and FIFO adjusted accounts. We then estimated the model on all three versions of the data.

Summary statistics for the sample companies are given in Table 3, together with some comparative data extracted from Singh (1995) who studied the 100 largest quoted companies in a sample of 10 developing economies. These statistics consist of simple performance indicators and financing and capital structure measures. In compiling these statistics for our sample, we have used the same methods as Singh (1995), not because we necessarily believe them to be ideal but to aid in making comparisons with his work.[2] In one important respect our statistics are not directly comparable with Singh (1995). For most statistics, Singh (1995) first time-averaged the raw profit and loss and balance sheet data separately for each company, and then calculated the financial ratios for each company. Finally, these ratios were averaged across companies to produce the mean ratios shown in the last 3 columns of Table 3.[3] We preferred to calculate each indicator

[2] See Green, Murinde and Suppakitjarak (2001) for a discussion of the issues underlying the interpretation of some of these statistics.
[3] See Singh (1995) for further details.

for each company year-by-year. We then calculated the unweighted mean and median across time and companies for each country in a single step. Calculating the unweighted mean of ratios can lead to occasional distortions. This happened for example in Thailand where some companies had relatively small pre-tax profits in the sample, and this produced mean retention ratios well in excess of unity. Likewise, the inflation adjustments sometimes generated negative denominators for net asset growth. Accordingly, we place more reliance on the medians as a more stable benchmark against which to compare the statistics by Singh (1995) with our own.

[Table 3 about here]

In general, the balance sheet ratios, which reflect the company's whole financial history, are reasonably comparable as between the data by Singh (1995) and our own. However, there are more substantial differences among the flow measures of financing. Our data for Malaysia are more in line with the conventional wisdom for industrial countries, that a relatively high proportion of asset growth is internally financed. Unlike Singh (1995), our data show that retentions finance a substantially higher proportion of asset growth than does equity. Retentions also finance a higher proportion of asset growth than equity in Thailand, where Singh (19950 has insufficient data. Inflation-adjusting the accounts has interesting effects for both Malaysia and Thailand. The median share of equity financing rises significantly. Since the main effect of the inflation adjustments in practise is to reduce the growth in nominal assets, these results suggest that in times of inflation, equity finance is used indirectly to shore up firms' cash and liquidity. This tentative conclusion goes some way towards restoring the original finding by Singh and Hamid (1992) that developing country firms do tend to use more equity finance than their industrial country counterparts. However, if our argument is correct, the underlying reason for the greater level of equity financing is to stave off liquidity problems and not because of the buoyancy of the domestic capital market.

3. The Empirical Model

3.1 The basic (reduced form) financial structure model (RFFSM)

In this paper, we estimate two separate models of financial structure for each of Thailand and Malaysia: a basic reduced form model, the RFFSM, and an augmented model. We compare the models using standard diagnostics; our comparison across countries is more informal.

Beginning with the RFFSM, for each country, we estimate a single linear regression model of the form:

$$y^{*}_{i,t} = \sum_{j} \beta_j X_{i,j} + \sum_{k} \beta_k Z_{i,k} + \varepsilon_{i,t} \qquad (1)$$

where: $y^{*}_{i,t}$ is a measure of the financial structure of the i'th firm ($i = 1,...,I$) at time t; $X_{j,t}$ are J ($j = 1,...,J$) general variables (including unity) that theory would suggest may help determine inter-temporal and cross-sectional differences in financial structure; $Z_{k,t}$ are K ($k = 1,...,K$) country-specific variables that we argue may also help determine inter-temporal and cross-sectional differences in financial structure; β_j and β_k are the respective regression coefficients; and $\varepsilon_{i,t}$ are the regression errors.

In principle, we could allow for firm-variation in the parameters, following Pesaran and Lee (1999). This would involve replacing β_j by $\beta_{i,j}$ and β_k by $\beta_{i,k}$, with i (= $i,...,I$) corresponding to each firm. There are several issues involved in this, one of which clearly is that estimating some 1000 or more separate parameters is not a compact and comprehensible way of presenting an analysis. Since our main purpose is to undertake a preliminary search for common features among Thai and Malay companies, to assume from the start that all companies are different would be to vitiate this purpose. Morever, we do examine systematic company differences in a variety of ways, including tests for pooling, fixed effects, and by the use of industry and group variables.

Financial structure ($y^{*}_{i,t}$) is not an unambiguous concept. The debt-equity or leverage ratio is the simplest summary statistic of the financial structure of a firm, and is the one that is most commonly used in empirical work. However, leverage is not the only measure of financial structure, and leverage itself can be measured in several ways. Therefore, following Rajan and Zingales (1995) and Cornelli et al. (1996), we experimented with different definitions of leverage and financial structure. We consider the main elements of financial structure as follows:

$$\sum_{h=1}^{4} y_{h,i,t} \equiv a_{i,t} = \text{the book value of the firm's assets} \qquad (2)$$

where, $y_{1,i,t}$ = the book value of long-term debt; $y_{2,i,t}$ = the book value of short-term debt; $y_{3,i,t}$ = the book value of equity, with a variation that $y^{m}_{3,i,t}$ = the market value of equity; and $y_{4,i,t}$ = retentions.

The definitions of leverage which we employ are: $(y_{1,i,t} + y_{2,i,t})/y_{3,i,t}$ = the ratio of total debt to book equity; $(y_{1,i,t} + y_{2,i,t})/y^{m}_{3,i,t}$ = the ratio of total debt to market equity; $(y_{1,i,t} + y_{2,i,t})/a_{i,t}$ = the ratio of total debt to book assets.

The explanatory variables in the regression ($X_{j,t}$) include tangibility, growth, profitability, and size. Tangibility is measured as the ratio of fixed assets to total assets (all at book value). Tangible assets are generally reckoned to be more collateralisable than intangibles. Therefore, the greater the level of tangible assets the firm has, the greater the level of assets that can be used as collateral. This implies a positive influence on leverage. However, it can also be argued that monitoring costs of shareholders will be proportionately higher for firms that have smaller levels of assets that can be used as collateral. This increases the likelihood of managers consuming more than the optimal level of perquisites thereby causing the agency costs of debt to rise. This leads to a negative influence of tangibility on leverage. In sum, we conclude that the overall impact of this variable is indeterminate.

Growth is measured as the ratio of the book value of assets less the book value of equity plus the market value of equity all divided by the book value of assets. A negative dependence between growth and leverage is hypothesised since faster growing firms have a greater opportunity to engage in asset substitution and transfer wealth away from the bondholder and towards the shareholder. In turn, this increases the agency costs of debt and therefore leads to the negative relationship between growth and leverage.

Profitability is defined as earnings before interest, tax and depreciation over the book value of assets. In general, the more profitable the firm, the greater the amount of debt it can service, *ceteris paribus*. On the other hand, due to transaction costs, firms will prefer to use retained earnings rather than debt and gives rise to the possible negative relationship between profitability and the demand for leverage. We conclude, as with tangibility, that the influence of profitability on firm leverage is indeterminate.

Size is measured as the logarithm of sales. Size is expected to have a positive impact on leverage. It is generally accepted that there are economies of scale in bankruptcy costs: larger firms face lower unit costs of bankruptcy than do smaller firms, as shown in Prasad, Green and Murinde (2001). Therefore, the bondholders of larger firms are more likely to get repaid than are those of smaller firms. This reduces the agency costs associated with debt, and suggests that larger firms will have higher leverage.

The *a priori* signs of these variables are summarised in Table 4.

[Table 4 about here]

3.2 The augmented financial structure model (AFSM)

To better explain the firm's capital structure behaviour, the RFFSM is extended in two ways. First, we decompose the balance sheet more systematically into 4 components: long-term and short-term debt, equity, and retentions. We therefore estimate a four-equation model giving the supplies by the firm of the 4 major liabilities.

For the endogenous variables of the AFSM, broad classifications are used due to the lack of sufficient detail for a number of individual firm accounts. Total liabilities are first split according to their legal claims. That is, into debt and equity. Each of these categories are then sub-divided: liabilities are divided according to maturity. That is, into short-term debt (maturity of less than one year) and long-term debt (maturity exceeding one year). Equity, on the other hand, is separated into that subscribed by the firm's shareholders, equity, with the remainder, effectively a balancing term, classified as retained earnings.[4] Definitions of these endogenous variables are contained within Table 5.

[Table 5 about here]

Secondly we add additional explanatory variables. These are risk, non-debt-tax-shields, and industrial classification. These exogenous variables of the AFSM are identified from the review of theoretical and empirical literature in Section 2, which has shown that the demand for a particular liability is dependent upon a number of factors. Specifically, however, this study limits itself to those factors that have shown up consistently within previous empirical research as being correlated with the demand for liabilities.[5] In turn, this will allow the results produced here for developing economy firms to be compared with those derived for developed economies. Below, we discuss the main factors, namely firm risk, non-debt-tax-shields, growth, size, profitability and industrial classification.

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[4] Hay and Louri (1997, p. 415; 1991, p. 429 and 1989, p. 148) apply a similar "consolidated" approach to both liabilities and assets. Four, six and five categories (endogenous variables) of balance sheet assets and liabilities are used within these demand equation systems respectively.

[5] The reduced form capital structure model employed tangibility, profitability, size and growth as its exogenous variables. The growth measure involved the use of the market-value of the firm. To minimise duplication, tangibility is not included within the vector of exogenous variables within this augmented capital structure model.

Firm risk invariably appears in all empirical studies on capital structure. A priori, there should be a negative dependence between leverage and business risk. If the argument by DeAngelo and Masulis (1980) is extended, an a priori positive relationship is expected to be observed between risk and the demand for equity as well as for retained earnings. That is, equity and retained earnings do not have any payments attached to them. Accordingly, risky firms will prefer to use these sources of funds over debt. Also, the option pricing model suggests that the higher the risk, the higher the value of equity. In turn, this makes this source of finance more attractive to firm. However, because risk cannot be observed, a number of proxies have been used to measure risk, according to the literature. Some researchers have focused on using the variability of firm income, which is measured by the first standard deviation of its earnings or operating income. This may not be optimal since the firm's income is influenced by a number of factors outside its control and operating environment, e.g. bankruptcy of a number of its customers. In addition, using an absolute value without referring it to some scale is, to a degree, meaningless; thus risk should be measured according to some benchmark. Given these objections, a better measure of firm risk would be its beta (?) since it is quantified in relation to other corporations contained within the market portfolio. However, Prasad, Green and Murinde (2001), amongst others, assert that assumptions underlying CAPM are not valid when dealing with capital markets found within developing economies. Despite these reservations, following previous studies,[6] risk is defined as the standard deviation of the firm's earnings, which is differenced so as to remove trend effects. To reduce heteroskedasticity, the risk variable is scaled by the firm's total assets. The overall definition of risk is identical to that employed by Bradley et al. (1982). Since inflation adjustments are treated as exogenous items, this study employs the profit after distributions adjusted for inflation bias. Moreover, Bradley et al. (1982), Thies and Klock (1992, p.40) and Kale, Noe and Ramirez (1991) indicate that the relationship between risk is not monotonous and that under certain conditions may indeed be positive. Accordingly, this relationship is modelled as:

$$Z_1 = a_1 + ?_1(RISK)^2 \qquad (3)$$

[6] See Bradley *et al.* (1982, p. 871), amongst others.

where, $a_1 > 0$ and *RISK* represents the firm's risk and is defined as *RISK = [? (Earnings after tax - Earnings after taxt-1)]/Total Assets.*

The non-debt-tax-shield is also an important explanatory variable in a capital structure model. A negative direction between non-debt-tax-shields and leverage supports DeAngelo and Masulis'(1980) postulate; a positive sign adds weight to the posit of Scott (1977) and Moore (1986) that firms with substantial non-debt-tax-shields have considerable collateral assets which can be used to secure debt which is less risky than that which is unsecured. That is, these firms will have higher leverage levels. A priori, the impact of non-debt-tax-shields on the demand for equity and retained earnings is not known. That is, for a given portfolio of liabilities, if the demand for debt falls, equity and/or retained earnings must rise, ceteris paribus. The non-debt-tax-shield measure is scaled by the total assets of the firm, NDTS.[7] Ideally, such a measure should encapsulate R&D and advertising expenditure as well as investment tax credits. Due to the lack of data, the following is applied:

$$Z_2 = ?_2 NDTS = depreciation_i / total\ of\ assets_i \qquad (4)$$

Given that the vector of exogenous variables, X_j, is the same for each endogenous variable, OLS estimation was applied; Syriopoulos and Sinclair (1993, p.1544) note that parameter estimates of each individual equation will be as efficient as those found for the system using SUR.

Growth per se cannot be measured. A proxy has to be applied to assess its impact on the firm. Both the theoretical and empirical literature has modelled the influence of growth in relation to either firm earnings or assets. This study employs the effect of growth with respect to earnings since it is the main motivation of firms under the traditional economic school of thought.[8] It can be argued that without an

[7] Here the majority of previous empirical work is followed, see Vogt (1994), amongst others, adopt the total assets scalar. This controls for firm size and reduce heteroscedasticity problems that may be present in the data set. The proxy used may not reflect DeAngelo and Masulis' (1980) posit that as a result of these constraints, the availability of pre-tax cash flows may be lowered which in turn causes the present value of depreciation to increase relative to *pre*-tax cash flows and reduce the likelihood of using interest tax deductions of debt. Downs' (1992) scalar of discounted cash flows corrects for this. The use of this denominator is left as a PRI. Accordingly, there will be some bias in inferences that are drawn. Nevertheless, these bias should be on par with those found in other studies which have used depreciation deductions over total assets as a measure of non-debt-tax-shields, e.g. Titman and Vessels (1988). Normally, the modelling of non-debt-tax-shields (NDTS) would follow that of Allen and Mizuno (1993, p. 573) as well as Chiarella, Pham, Sim and Tan (1992, p. 148).

[8] On the other hand, Titman and Vessels (p. 4) note that: "Growth opportunities are capital assets that add value to a firm but cannot be collateralised and do not generate current taxable income."

opportunity to increase potential earnings, it would be pointless for the firm to acquire and apply additional capital assets. Rational economic agents will not accumulate assets without there being a need for them.[9] A sustainable growth measure is employed over the "traditional" ones such as capital expenditures scaled by total assets, the growth of total assets, research and development over sales, and by the market-to-book ratio, etc. advocated by Titman and Vessels (1988, p. 4); Allen and Mizuno (1989, p. 573); Chiarella et al. (1992, p. 148); as well as by Rajan and Zingales (1995, p.1451). That is, if the firm's actual growth rate is above its sustainable level, such an excess must be financed by some means or another. In turn, this changes management's foreordained dividend and leverage policies. Apart from the research and development measure, the other traditional growth proxies will be contaminated by these sudden spurts of growth and have the affect of not representing its true underlying capital structure relationship, the central objective of this study. The former does not suffer from this since any increases in the firm's research and development signal underlying shifts in management policies towards growth rather than transient movements. That is, by its very nature, benefits of additional spending on research and development are not instant and are consequently shifts of management's attitude to growth. Unfortunately, such a measure cannot be employed due to the lack of data. A similar explanation holds for the sustainable growth measure. That is, from its construction, if the firm wants to increase the pace of its underlying, sustainable growth, it will have to alter either its ROE or the percentage of net income it retains and so alter management's financial structure polices. Thus, temporary anomalies are exorcised to a certain extent. This the reason why this proxy is employed. However, if firm growth is faster than that which is sustainable, there will be a move away from the set of financial policies required for sustained growth and towards those needed for this higher level of growth. A number of authors including Ellsworth (1983), Cleaver (1990) as well as Klein and Belt (1994) assert a positive relationship between growth and leverage. In sum, the direction of this relationship between growth and firm

[9] Burton, Lonie and Power (1996, p. 2) find no difference when using growth defined in terms of total assets or earnings. Titman and Vessels apply research and development expenditure scaled by sales. This would make a better proxy than earnings since a firm will only conduct research and development if it could be used in the future to generate future earnings. Due to the scarcity of data, such a proxy cannot be constructed. Note that earnings will be influenced by a number of non-growth factors such as foreign exchange income etc. Inferences should interpreted with this in mind.

leverage is uncertain. Hence, in this paper, growth is measured in terms of Higgin's (1977) sustainable growth variable, as modelled in Klein and Belt (1994, p. 142):

$$Z_3 = ?_3 GROWTH_i = (ROE_i \; ? \; RET_i) \; ? \; TA_i \qquad (5)$$

where, ROE_i is the return on equity, defined as (Earnings per share)/(book equity per share); and RET_i is the percentage of net income retained by the firm and is defined as (Retained earnings/Total earnings) ? 100%. Again, to reduce heteroskedasticity, the sustainable growth measure is scaled by the total of the firm's assets.

Profitability is also a key exogenous variable in the capital structure model. In terms of the impact of profitability on the demand for equity, the traditional theory will suggest an a priori positive dependence to be exhibited. However, it can be argued that a profitable firm has no recompense for equity, which for a given stream of dividends, will cause the proportion of retained earnings to increase, ceteris paribus. Consistent with previous studies, operating earnings scaled by total assets is used as a proxy:

$$Z_4 = ?_4 PROF_i = Earnings\ after\ tax_i / Total\ Assets_i \qquad (6)$$

In addition, size matters. The influence of this attribute is operationalised by measuring firm size using the ratio of firm sales to total assets:[10]

$$Z_5 = ?_5 SALES_i = SALES_i / Total\ Assets_i \qquad (7)$$

Finally, industrial classification is important. To capture this influence, a set of dummy variables applicable to the *j*th industry SIC code, IND*j*, is applied. Moreover, this prevents the need of the application of an additional dummy to capture the uniqueness of firms:[11]

$$Z_6 = ?_6 IND_j \qquad (8)$$

Hay and Louri (1996, p. 416) introduce a time trend to pick up any underlying shift in the firm's liabilities that arise from technical changes and improvements in financial

[10] In addition, Titman and Vessels (1988) apply a labour turnover variable to measure firm size. Due to the lack of data, this proxy cannot be replicated and compare results. Given that total assets is used as a scalar, it cannot be applied as a numerator for a variable *per se.*

[11] Note should be given to the modelling of industrial dummies. A "Hendry" approach is used. First of all, an F-test, Balestra (1996*a*, p. 47) is applied to see if all the industry dummies have a significant influence. If the null is not rejected, individual industrial dummies are investigated; insignificant ones are dropped.

management, which enable the firm to allocate its liabilities more effectively. Such a procedure is applicable if the number of data points per firm is large. Given the average small number of data points per firm, underlying shift's within the firm's portfolio of liabilities are assumed to be constant across the interval of study.

4. Estimation and testing results

4.1 The RFCSM model

Diagnostic test results and initial OLS estimates of the RFCSM are presented in Table 6. First, examination of the diagnostic tests shows that the null of normality is rejected for all demand equations. Second, in the main, the null of no first order serial correlation is rejected by all of the Malay equations but is accepted by two-thirds of the Thai ones. Thus, the *a priori* expectation of past liability values impacting on future ones, surprisingly, does not seem to hold for Thai firms. Third, a number of equations for both Malaysia and Thailand have rejected the null of no misspecification. This suggests that residuals: (i) contain information that is not captured by the explanatory variables, and (ii) the linear specification of the debt demand equation is not appropriate.[12] An important characteristic of company account data sets is that there are several observations where leverage is zero. Here, the desired quantity of leverage was below its minimum price. Amemiya (1984, p. 5) notes that this is at odds to the linear assumption required and results in the least squares method being an inappropriate method of estimation. This results in misspecification. In these circumstances, Amemiya (1984, p. 5) recommends that the TOBIT[13] estimating procedure for fixed effects be employed. In turn, this procedure forces truncation at the origin and therefore ensures that fitted values are non-negative. Fourth, a number of equations for Malaysia rejected the null of homoskedasticity and were re-estimated with heteroskedastic-consistent standard errors, see White (1982). Equations which rejected the null of no misspecification were re-estimated using TOBIT. Here, estimation is carried out using maximum likelihood, see

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[12] The empirical evidence of Bradley *et al.* (1984) points to a non-linear relationship between leverage and dependent variables.

[13] A type I TOBIT model was applied since the impact of the allocation of liabilities within its portfolio on any other part of the firm's operation is not examined.

Amemiya (1984) as well as Greene (1990, p. 731). Thomas (1993, p. 99) notes that this estimation procedure will deliver heteroskedastic-consistent estimates.

[Tables 6 and 7 about here]

4.1.1 Historic prices

The estimation results for Malaysia and Thailand are reported in Table 7. These may be compared with the results by Rajan and Zingales (1995, p. 1453) and by Cornelli *et al.* (1996, p. 28 and 30), respectively. First, Malay and Thai firms report a negative statistical relationship between leverage and firm profitability. Thus, there is evidence to support the "pecking order" hypothesis. This holds regardless of the definition of debt employed. This study sides with Cornelli *et al.* and opposes Hamid and Singh's (1992), Hussain's (1995), and Singh's (1995) controversial conclusion of LDC firm's preferring to employ equity over debt and thus use a "reversed" pecking order of finance. Thus, the tentative finding from ratio analysis of there being no evidence to support a "reversed" pecking order of sources of finance is further substantiated. Indeed, for all three measures of leverage, the magnitude of the coefficient found for the profitability measure for Malaysia is greater than the corresponding one for Thailand. Thus, a one percent increase in the profitability of the Malay firm will lead to a greater fall in its leverage than a corresponding one for Thailand. In turn, this perhaps suggests that Malay firms adhere to the pecking-order hypothesis more strongly than their Thai counterparts.

Comparison of the magnitudes of the profitability variable found within previous studies indicates that apart from Japan, Malay and Thai firms adhere more strongly to the traditional pecking-order hypothesis than the firms found within the G-7 and CEE economies. However, this contradicts the preliminary findings derived under ratio analysis which was suggesting that the adherence to the pecking-order hypothesis will be weaker for Malay and Thai firms than for those found within developed economies.

From the above, the traditional theory of a positive relationship between leverage and profitability does not seem to apply. Thus, for Malaysia and Thailand, given their small corporate bond markets, banks may lend funds to firm's that are marginally profitable. Previous ratio analysis may have suggested, albeit tentatively, that equity values may not be closely priced according to their fundamentals. Thus, it could be argued that the "liquidity brake" of increased income gearing depressing equity valuation

perhaps does not seem to apply to prevent excess leverage of lower return firms found within these two developing economies. In turn, this perhaps may explain the negative relationship between leverage and profitability.

We noted from ratio analysis that this "brake" was found to be perhaps less effective for Thailand, where gearing levels have increased for the "representative" firm, than for Malaysia, where they have fallen over the period of study. Paradoxically, this could possibly suggest that the investment inflows to both the Thai and Malay capital markets may have led to increased economic instability. That is, firms with poor profitability may have no external check to prevent them over gearing themselves. In turn, together with Thai and Malay firm's using lower levels of retained earnings as a source of finance, and the relatively small corporate bond market, contagion affects between the financial and real sectors could possibly be greater for Malaysia and Thailand than those found for developed economies, *ceteris paribus*.

Second, a statistically significant positive relationship between leverage and firm size is observed for both Malaysia and Thailand. Again, this observation is independent of the definition of leverage applied. Apart from Germany and France, this observation is also consistent with those observed for both the remaining G-7 economies as well as those of the former CEE states, respectively.

If size is taken as proxy for the inverse likelihood of default, then its positive relationship with debt may suggest: (i) that the costs of financial distress are low for both Malaysia and Thailand (Rajan and Zingales, 1995, p. 1456) in comparison to all the G-7 and CEE states apart from Germany and France; (ii) agency costs of debt are inversely related to firm size; and (iii) indicate that there may still be significant informational asymmetries between firm insiders and outsiders for the largest firms.

The positive relationship between size and gearing is perhaps not that surprising. Examination of the secondary two digit British SIC codes for the firms contained within both the Malay and Thai country data sets shows that the bulk of the firms manufacture products across a number of industries. That is, they are diversified and are therefore less prone to collapse, Titman and Vessels (1988, p. 6). In some ways, this supports the assertion made by (ii). Assertion (iii) is substantiated by the ratio analysis' findings of the previous paperagainst Singh's conclusion of LDC corporates using a significant greater level of equity than their developed country counterparts. That is, for Singh's (1995) conclusion to be observed, information asymmetries between firm insiders and outsiders must be lower for large firms. The cost of these firms issuing informationally sensitive

liabilities, such as equity, should be lower and will result in reduced leverage, *ceteris paribus*. Clearly, this is not the case.[14]

In addition, the asymmetry of information between firm insiders and outsiders may suggest, very tentatively, that endogenous banks do not have the necessary experience/ability to monitor those firms whose risk "quality" has not yet been determined. In turn, under these circumstances Stiglitz and Weiss (1981) suggest that firms may face credit rationing. That is, banks charge an interest rate that is too high since they cannot distinguish between firms. Under such a scenario, the high cost of external sources of finance will force firms to prefer to use internal sources over external sources. In part, this may explain the negative relationship between leverage and profitability.

For Malaysia and Thailand, the posit of credit rationing could perhaps be supported by the statistically significant positive relationship between leverage and tangibility. That is, the agency costs of debt are reduced since tangible assets are easy to collateralise. Consequently, the greater the proportion of total assets that are tangible, the lower the agency costs of debt, *ceteris paribus*. For banks to reduce their bad debts, the proportion of tangible assets held may be used as a signal of firm "quality". Grossman and Hart's (1982) argument of the inverse relationship between monitoring costs and the level of assets used as collateral also suggests a positive relationship with the supply of credit. Thus, despite the firm employing tangibility as a signal of firm quality, its use is not sufficient to bridge the gap of asymmetric information between the firm's management and bank and results in credit rationing being persistent. In turn, this negative effect on the demand for credit by firms is outweighed by the positive effect on the supply of credit. This causes profitable firms to employ internal over external sources of finance. However, our suggestion of firms facing credit rationing needs to be further investigated if it is to be robustly proved. This is beyond the scope of this study. Thus, this conclusion should therefore be treated as being tentative at best.

In sum, the positive statistical relationship between tangibility and leverage is consistent to that found for the G-7 economies. This is contrary to that noted for Hungary and Poland by Cornelli *et al.* (1996, p.12). The latter is thought to be as a result of the downward bias created by fixed assets recorded at historic prices under inflation. This issue will be investigated later within this chapter.

[14] Due to the lack of information, verification of posit (i) is left as a PRI.

Turning to the final attribute, growth, it is clear that capital structure behaviour of Thai firms is cognate to those of its G-7 counterparts: a statistically significant negative relationship between leverage and market-to-book ratio is observed. This is found to be independent of the leverage definition employed. The same cannot be said for Malaysia. Here, apart from leverage scaled by total assets, a statistically significant positive relationship is noted.

Prima facie, the negative relationship between growth and leverage for the G-7 group of countries perhaps adds support to Higgins' (1977) hypothesis that better managed firms rely less on outside financing. In addition, this result may also be consistent with the earlier ratio analysis preliminary finding of Thai firms being more efficient than their Malay counterparts. Indirectly, this negative relationship adds to weight of evidence that supports a pecking-order hypothesis, see Copeland and Weston (1988, p. 507).

The positive relationship which we observe between growth and leverage under book and market values of equity for Malaysia needs explanation. Due to the negative relationship between leverage and profitability, the positive relationship between leverage and growth does not rule out Malay firms following the pecking order hypothesis.

Another explanation is in relation to the costs associated with financial distress. That is, the higher the market-to-book ratio, the higher costs of financial distress and the lower the gearing of the firm, *ceteris paribus*. This suggests to be the case for Thailand and for the firms found within the G-7 economies. Thus, one possible reason for the positive relationship between leverage and the firm's market-to-book ratio could lie with the financial distress costs of bankruptcy for Malay firms being lower than those of its competitors. However, this is at odds to the behaviour observed under ratio analysis. Here, the representative Malay firm has reduced its gearing over the sample period whilst that for its Thai counterpart has increased. If the financial distress costs of Malay corporates were lower than those of its Thai competitors, Malay firms should have been increased their gearing over the period rather than reduce it. Similarly, Thai firm's should have reduced theirs. As with Rajan and Zingales (1995, p. 1456), the evidence is somewhat puzzling. However, the impact of risk, and thus the costs of financial distress, is investigated later within this empirical chapter. This should be able to shed some light on to whether the financial costs argument can be applied.

4.1.2 The impact of the bias caused by inflation.

Table 7 presents the reduced form equation estimates under EKM, FIFO and LIFO inflation adjustments for Malaysia and Thailand. First, examination of columns (5), (7) and (9) of Table 7 show that the signs of the attributes for Thailand remain as before. Thus, the conclusions derived under historic prices are robust under current prices for this country.

A different story unfolds for Malaysia. Panels (A) and (B) only, leverage scaled by the book and market value of equity respectively, profitability is still found to be negatively related to leverage; the adherence to the pecking order hypothesis by firms is maintained under current prices. In turn, the contagion effects between the financial and real sectors remains persistent under inflation.

From its definition, it is clear that under rising asset prices, the three inflation adjustments would reduce the sensitivity of profitability on firm leverage, *ceteris paribus*. For Thailand for all three leverage definitions, see panels (A), (B) and (C) of Table (7), this is observed. Similarly, for panels (A) and (B) this is again noted for Malaysia but not under the leverage definition of panel (C) where an increase is noted. Here the sign of the profitability attribute changes from negative to positive. This will be discussed in depth later. The following discussion will concentrate on the results presented in panels (A) and (B) of Table 7 for Malaysia.

The positive relationship between tangibility and size with gearing may suggest that credit rationing still persists under inflationary conditions. Again, by itself this conclusion is tentative at best and must be investigated further if it is more comprehensively validated. Both the numerator and denominator of the tangibility measure, for a given increase in the price of the firm's assets, rise under inflation adjustments. Recall that if the total of fixed assets is less than the value of the firm's total assets, then from the definition of the tangibility variable, the three inflation adjustments should result in a net fall in this measure. This is clearly seen for Malaysia for the three definitions of leverage. The converse is found for Thailand where the magnitude of the tangibility attribute increases. This suggests that the replacement value of Thai firm's stocks have fallen, all other things being equal. In sum, it is clear that Malaysia's data under inflation adjustments adheres more strongly to *a priori* expectations while Thailand's does not for the tangibility measure.

By its definition, the inflation adjustments are not expected to have an *a priori* impact on the size measure. Examination of Table (7) shows that the magnitude of this attribute remains the same size as before for both countries.

On a positive note, and converse to that found under historic prices, a statistically negative relationship between growth and the firm's leverage is observed under all three current prices. This may add weight not only to Higgins' posit that better managed firms rely less heavily on outside financing, but perhaps shows that firm's further adhere to the pecking-order hypothesis, Copeland and Weston (1988, p.507). More importantly, under current prices, was tentatively suggested by earlier ratio analysis that firms may issue more equity when their shares are over-priced by the market. In turn, this may result in the observed negative relationship between leverage and the firm's market-to-book ratio.

Moreover, by revaluating assets and liabilities under current prices, the financial costs of distress increase as the value of the firm's assets rise. The negative relationship between leverage and the market-to-book ratio suggests that the management of Malay firm's acknowledge this. This result adheres to that observed under ratio analysis when the representative Malay's firm's gearing has fallen under inflationary conditions. However, and under inflationary conditions, as the value of the firm's assets rise, the agency costs of debt fall, *ceteris paribus*. This should increase the supply of credit to the firm. Since an overall negative relationship is found between leverage and the market-to-book ratio, we suggest that the costs associated with financial distress outweigh the benefits of increased supply and lower real costs of using credit.

Recall that this growth measure is defined as the book value of assets less the book value of equity plus the market value of equity all over the book value of assets. Under the inflation adjustments, the book and market value of equity remain the same. Since the numerator and denominator both contain the book value of assets, *a priori*, the three inflation adjustments should not influence this measure. Ignoring the direction of the growth coefficients for Malaysia [Thailand], it is clear that the impact of the inflation adjustments have reduced [increased] the sensitivity of this measure on firm leverage and is regardless of the definition of leverage employed.

If attention now turns to leverage scaled by total assets, panel (C), first, and converse to that experienced under historic prices and independent of the inflation adjustment applied, a positive relationship is observed between this definition of leverage and the growth measure. From Copeland and Weston (1988, p. 507), this supports evidence against the pecking-order hypothesis and may also suggest that Malay firm's

may not be optimally managed since it is argued that the more efficient a firm is, the less likely it is require to use external funds. That is, if efficient the firm should be able to organise itself so as to provide any funds that are required from internal rather than external sources. The latter assertion is consistent with the preliminary findings found under ratio analysis. The posit of the firm being more concerned with the costs of financial distress over the benefits of lowered real costs of credit may have reversed.

From panel (C), in the main, firm profitability now has a positive and significant influence on the firm's level of gearing. Similarly, the impact of tangibility is overall negative in direction and is again statistically different from zero. This is opposite of that observed under historic prices. The former lends support (a) against Malay corporates adhering to a pecking order of sources of finance; (b) perhaps shows, contrary to the paradox of high share prices in the presence of poor fundamentals drawn previously under ratio analysis, that the "liquidity brake" of increased income gearing depressing equity prices may be working; (c) that the "traditional" or static school of the supply of funds is adhered to; and (d) that because of tax shield and bankruptcy cost issues, the debt-to-total-assets ratio should be positively related with firm profitability which is found to be consistent to that observed under ratio analysis.

Ordinarily, a positive relationship between profitability and tangibility with leverage may suggest that the problems associated with credit rationing could have diminished under current prices. That is, banks use profitability and the level of tangible assets as reliable signals of firm quality. This results in the interest rates charged being lower for higher quality firms. Thus, the supply of credit should be positively related to these two variables with the more profitable and collateral rich firms borrowing more funds, *ceteris paribus*. This posit would normally be supported by a positive relationship between size and leverage. From panel (C), since a negative relationship is noted between these two variables, *prima facie*, this may suggest that the information asymmetry between firm insiders and outsiders has increased under current prices.

The assertion forwarded by Grossman and Hart (1982) of monitoring costs being inversely related to the levels of collateral assets resulting in the increase of agency costs and the consumption of perquisites by management can be examined. If the tangibility variable is used to capture this information, under the inflation adjustments the tangibility variable will fall and will result in the monitoring costs rising, *ceteris paribus*. This increases the agency costs of management consuming their prerequisites. The positive dependence between leverage and tangibility is clearly at odds with this.

In sum, the conclusions drawn for Thailand under historic prices remain under current prices. It is clear that the ones under Malaysia change for the better: the anomalous positive relationship between the market-to-book ratio and leverage now becomes negative and is consistent to the findings of the ratio analysis. In addition, the signs of the other variables remain as before. More importantly, and taken together, this shows that Malay corporates exhibit behaviour identical to their Thai and developed economy counterparts. The only disparity relates to when the dependent variable is leverage-to-total assets (panel C): the direction of influence of all measures reverse.

From the evidence provided by the inflation adjustments utilised by this study, the negative relationship between leverage and tangibility found for Hungary and Poland by Cornelli *et al*. (1996) and attributed to bias caused by assets being recorded at historic prices under inflation, cannot be substantiated. Indeed, under current prices, a positive relationship between these two variables is still evident.

Where it has been possible to accurately predict influences of the three inflation adjustments, it has been found for both Malaysia and Thailand that their profitability attribute has adhered to *a priori* expectations. With the tangibility measure, Malaysia has adhered to expectations whilst Thailand has not. Overall, both country's data under the three inflation adjustments have remained the same. The theoretical coherence of the data has not improved under the three inflation adjustments.

Though the application of a reduced form model represents a significant advance over ratio analysis, it still has a major problem associated with it. That is, the problem of this study and of the empirical literature in this area *per se* is that they attempt to explain the capital structure, and thus the financial behaviour of the firm, by examining only leverage. They fail to directly to take into account other sources of finance such as retained earnings and equity as well as how the firm chooses between them. It is with this reason that the empirical investigation of Malay and Thai corporates does not rest here but expands to take into account how the firm allocates its liabilities amongst retained earnings, equity, and debt (both short- and long-term).

4.2 The ACSM model

Tables 8 and 9 report the parameter estimates for the augmented capital structure model, ACSM under historic and inflation adjusted asset and liabilities respectively. The results

produced using historic costs together with the bias caused by inflation will both be commented upon as well as those produced using the RFCSM.

[Tables 8 and 9 about here]

In the main, the diagnostic test results are similar to those found under the RFCSM. That is, we find for the RFCSM that the null of normality is rejected for all 32 equations whilst the null of no first-order serial correlation is rejected by all 16 Malay equations but not for some equations for Thailand. Thus, again the *a priori* expectation of liabilities reported in one period impacting on those in subsequent periods holds more strongly for Malaysia than for Thailand. A number of equations for both countries again reject the null of homoskedasticity. Here White's heteroskedastic-consistent standard errors were applied. A number if equations were found to be mis-specified. TOBIT estimation was applied to remedy this.

It appears that that all the industry dummies do not have a statistical influence on the demand for long- and, short-term debt, equity, and for retained earnings. This last result is contrary to that found by Kester (1986), Titman and Vessels (1988), Allen and Mizuno (1993), Singh and Hamid (1992), Hussain (1995) and Singh (1995).

More importantly, examination of Table (8) shows that for a number of independent variables, the two components of debt (long- and short-term debt) and the two of equity (equity and retained earnings) have opposite signs. This shows the importance of disaggregating these two types of liabilities. Recall that a similar conclusion was reached from the review of previous empirical research.

4.2.1 Historic prices

Table 8 reports estimates corrected for misspecification and heteroskedasticity for the ACSM for both Malaysia and Thailand. The impact of each of the five exogenous variables is now discussed individually.

Profitability

The adherence of Malay firms to the pecking order hypothesis is further substantiated by the significant negative parameters found on the profitability variable in the long- and short-term debt equations for both countries. Myer and Majluf's (1984) posit of firms preferring to finance using internal before external funds is supported. Accordingly, this study sides against the *prima facie* empirical evidence of developing economy corporates provided by Singh and Hamid (1992), Ang and Jung (1993),

Hussain (1995) as well as of Singh (1995) who find a "reversed pecking order". However, the result is consistent with the finding for Australia by Chiarella *et al.* (1992, p. 153).

The conclusions for both countries substantiate the earlier findings found using the RFCSM under similar conditions of (i) Malay and Thai firms adhering to the pecking order hypothesis; and (ii) there is no evidence to support a positive relationship between firm profitability and leverage.

In addition, the negative relationship between long-term debt and profitability for both countries provides additional evidence for Donaldson's (1961) transactions cost argument of firms preferring to raise capital from retained earnings, then from debt and finally from issuing new equity. This seems to be re-enforced by the positive dependence between profitability and retained earnings. That is, the more profitable the firm is, the more retained earnings that are employed. Moreover, said relationship may tentatively also suggest that both Malay and Thai firms engage in a form of "dividend smoothing". If this behaviour was not observed, and the firm does not divorce its dividend payments from its profit levels, in good times when profit levels are high, the firm is expected to issue more dividends resulting in retained earnings falling, *ceteris paribus*. Clearly, the observed positive relationship between retained earnings and profitability is at odds with this.

Support of the conventional pecking order hypothesis does not simultaneously rule out the traditional theories of capital dependence of the market being reluctant to offer funds to those firms that are unprofitable and hence a *positive* relationship between equity with profitability. This last observation is noted for both Malaysia and Thailand. In turn, this can also explain the "reversed pecking order" conclusion reached by previous research. That is, in the presence of a significant level of profits, under a given level of dividend payments, the firm has three options: first, employ retained earnings than debt etc. - the pecking order hypothesis; two, since its is profitable, the market will offer it external funds, *ceteris paribus* - the reversed pecking order hypothesis; or three, a mixture of one and two.

Size

Size is <u>not</u> found to have a statistical influence on the proportion of long- and short-term debt held within the Thai firm's portfolio of liabilities. This is converse to the significant positive dependence noted between leverage and this variable for this

country when using the RFCSM. However, for Malaysia, a significant positive relationship is exhibited between this variable and short-term debt whilst an insignificant influence is noted for long-term debt. This is, though to a limited degree, consistent with the result found for this country using the RFCSM.

The last observation for the ACSM may be consistent with the posit advanced by Warner (1977), Ang *et al.* (1982) as well as by Bradbury and Lloyd (1994), amongst others, that the firm's bankruptcy costs are quadratically related to firm value and results in them being lower for larger firms than for smaller ones. Accordingly, larger firms will have lower bankruptcy costs per unit of debt than their smaller peers, *ceteris paribus*. Moreover, the last observation for Malaysia also provides further support for Titman and Vessel's (1988, p.6) argument of larger firms tending to be more diversified than smaller ones; the former being less likely to collapse in relation to the latter.

If size is taken as a proxy for the asymmetry of information between the firm and the market, with smaller firms having being more widely known than their larger counterparts *ceteris paribus*, for Malaysia, it is clear that larger firms have proportionately lower costs of using debt than their smaller counterparts. Also, there is sufficient evidence for Malaysia to support the opinion that liquidation values of smaller firms would be proportionately higher than their larger counterparts with bondholders being more likely to get a partial payments. This indicates that agency costs associated with managers transferring wealth away from a lender of funds towards the shareholder will be lower for larger firms.

If the transactions costs argument is valid, larger firms will have lower costs of issuing equity. They will therefore employ a lower amount of retained earnings for a given size of their portfolio of liabilities, *ceteris paribus*. This suggests a positive [negative] relationship between equity [retained earnings] and firm size. The latter dependence is statistically substantiated whilst the former is not for Malaysia. Taken together with the respective negative and positive parameter estimates between long- and short-term debt with size, it is clear that the *a priori* influence of firm size on the allocation of liabilities within the firm's portfolio of liabilities is not adhered to for Malaysia.

Non-Debt-Tax-Shields

In relation to the influence of non-debt-tax shields, this variable is found to have an insignificant influence on the demand for long-term debt for Thailand. A positive relationship between this attribute and long-term debt is only reported for Malaysia.[15] Thus, for Malaysia, the argument that the firm will exploit the tax deductibility (shield) of interest payments to reduce its overall tax liability is clearly not supported. This is against the posit of DeAngelo and Masulis (1980). What is observed is that as the level of other tax shields (depreciation) rise, the firm will employ a greater proportion of long-term debt. This behaviour can be explained by high non-debt-tax-shields of depreciation being associated with high levels of tangible assets that are used as collateral to secure debt against, *ceteris paribus*. In turn, this produces the observed positive relationship between debt and non-debt-tax-shields.

Despite this, a significant negative dependence between this attribute and short-term debt is found for both countries. Thus, firms use non-debt-tax-shields to reduce their short-term gearing- its influence is only short-term in nature and suggests that firms use debt as a measure to reduce their tax liabilities in the short-term. In turn, this may suggest that non-debt-tax shields influence the firm's cash flows. That is, as the level of non-debt-tax shields increase, the firm's short-term debt falls which, for a given interest rate, will cause the firm's cash flow to increase, *ceteris paribus*. This may provide further support for the earlier preliminary finding derived under ratio analysis where depreciation was noted as being an important source for the firm's cash flow and debt repayments.

The last conclusion is further supported by the magnitude of the non-debt-tax shields parameter for Malaysia being ten-times larger than the corresponding one for Thailand; a unit increase of depreciation will result in a 0.6 percent increase in the firm's cash flow for Malaysia but only a 0.06 percent increase for Thailand. Such a conclusion was first asserted under ratio analysis.

For Malaysia, non-debt-tax shields do not statistically influence the proportion of equity and retained earnings held. This is opposite to that observed for Thailand where a significant positive dependence is noted. This may suggest that as the level of

[15] This observation is consistent with the results found by Bradley, *et al.* (1984), Boquist and Moore (1984), Auerbach (1985), Allen and Mizanu (1989), Gardner and Trzinka (1992) and Downs (1993) but against those reported by Bowen, Daly and Huber (1982), Kester (1986), Titman and Vessels (1988), Long and Malitz (1988), Givoly *et al.* (1989) and Pilotte (1990).

depreciation written-off against profits increases, the proportion of equity and retained earnings that are held increase. It could be possible to apply Scott's earlier argument here. That is, high levels of depreciation are associated with considerable levels of tangible assets. It is theorised that for the firm to finance these levels of tangible assets, equity or retained earnings would have to be used, *ceteris paribus*.

Firm Risk

The intuitive negative relationship between long-term debt and risk is observed for Malaysia but is found to be insignificant for Thailand. The former observation is consistent with the findings of Kale, Noe and Ramirez (1991). The argument of an additional unit of debt increasing the likelihood of firm bankruptcy is statistically supported. That is, there is evidence to support the posit of firms having earnings variability will cause investors to inaccurately forecast future earnings based on publicly available information; the market will see the firm as a 'lemon' and drive up the cost of using debt.

Surprisingly, as with Thies and Klock (1992, p. 48), a positive dependence is observed between short-term debt and risk for both countries. Thies and Klock (1992, p. 48) suggest that this behaviour is consistent with firms being restricted in borrowing long-term, which is partially offset by borrowing short-term. By itself, such a conclusion is tentative at best and will need to further investigated if it is to be substantiated for Malaysia and Thailand. We leave this as a PRI for further research.

If the DeAngelo and Masulis' (1980) assertion is extended, a positive relationship must be observed between equity and retained earnings with risk. Under earnings volatility, if the firm does not employ debt due to its use increasingly the likelihood of firm bankruptcy, for a given portfolio liability size, it must use the alternate sources of equity and/or retained earnings instead. The former security is advantageous since the firm does not necessarily have to pay dividends to shareholders. The negative insignificant and significant influence of risk on the demand for equity and retained earnings respectively found for both Malaysia and Thailand clearly shows there is no evidence to support the extension of DeAngelo and Masulis' (1980) posit.

Growth

Prima facie, it is difficult to say whether or not Malay firms are operating efficiently. If this was the case, from Higgins' posit of better managed firms rely less on external

sources of finance, a negative relationship between long- and short-term debt and equity with the growth attribute should be observed. Since a positive statistical relationship is noted between growth and long-term debt, a negative dependence for equity and an insignificant one for short-term debt, there is no clear evidence to either support nor reject Higgin's (1977) posit.

Despite a negative [positive] statistical dependence on short-term debt [retained earnings] being noted, an identical conclusion is also reached for Thailand. This is still true since growth is found to have an insignificant influence on the proportion of long-term debt and equity held.

It should be pointed out that the positive dependency observed between long-term debt and growth for Malaysia together with the statistically negative relationship found between short-term debt and growth for Thailand, do, to a degree, support cognate observations found for both countries when using the RFCSM under historic prices. More importantly, these positive relationships may suggest that firms use their fixed assets to secure debt against. That is, if the additions of plant etc. are used to produce goods to furnish sales growth, the higher the growth rate, the greater the amount of fixed assets employed. Since a positive dependence is noted for Malaysia between growth and leverage, this may suggest that the firm secures its long-term debt against its assets. In turn, this reduces the firm's stockholder-debtholder agency costs of conflict as well as the information asymmetry between the firm and the market. Moreover, such a posit is supported by the positive dependence between non-debt-tax shields and long-term debt for Malaysia.

4.2.2 Impact of the bias caused by inflation

Table 9 reports estimates corrected for mis-specification and heteroskedasticity for the ACSM for both Malaysia and Thailand under the three inflation adjustment procedures. To save space, the impact of each of the five exogenous variables are not discussed individually. Instead, general comparisons are made and will relate the sign and significance of parameters under the three inflation adjustments to their corresponding historic price ones.

It is clear that the sign and significance of parameter estimates for the size and risk remain the same under both historic and inflation adjusted prices for Malaysia. Thus, the conclusions reached under the historic cost prices can still be applied here for this country. The only exception for the latter is that there is now a positive relationship between risk

and equity. In turn this supports the extension of DeAngelo and Masulis' (1980) theory as well as the option pricing model of risky firms using equity as a source of finance; however, this is opposite to that noted under historic prices.

It should be noted that the positive statistical dependency between size and short-term debt for Malaysia is converse to that noted using the RFCSM when leverage is scaled by total assets, panel (C) of Table (7). However, the positive significant impact of profitability on long-term debt under ACSM is identical to that observed for the RFCSM under identical asset and liability prices for this country. Thus, both models provide support for the earlier conclusion of there being information asymmetries between the firm and the market.

Perhaps the greatest influence of the inflation adjusted prices on Malaysia has been the impact of profitability. The previous positive significant relationship between profitability and retained earnings is still maintained. Thus, and under current prices, there seems to be some continued support for Malay firms adhering to "dividend smoothing" behaviour.

Overall, the level of firm profitability is found to have no statistical influence on the proportion of short- and long-term debt held for Malaysia. However, a negative dependence is also noted for short-term debt. Thus, it is clear that the earlier conclusion of Malay firm's adhering to the pecking order hypothesis is still substantiated, though weakly.

Under current prices, the adherence of Thai firms to the pecking order hypothesis has weakened. Here, profitability is found to have a negative impact on both long- and short-term debt. In the main, its influence on the former is now insignificant. Despite this, the general result is identical to that observed for this country when using the RFCSM under identical conditions except the influence of profitability was always significant for the RFCSM.

Profitability is found to influence the level of equity that is employed by the Thai firm under the EKM adjustment. There seems to be some, though weak, evidence to support the posit that the market will lend funds to profitable firms under current prices. This is opposite to the earlier finding under identical asset and liability price conditions for the RFCSM for this country.

As with Malaysia, the overall positive dependence between profitability and retained earnings may suggest that Thai firms still adhere to behaviour consistent with

"dividend smoothing" under current prices. This result is consistent to that observed for this country under historic prices.

The influence of non-debt-tax shields for Malaysia is positive and significant on long-term debt. This further supports the posit of firms using their assets as collateral for long-term debt under current asset and liability prices. Also, it is interesting to note that the magnitude of the non-debt-tax shields parameter has reduced under the current prices in comparison with its historic price one. It cannot be determined whether this observation adheres to *a priori* expectations since from the definition of non-debt-tax shields, the impact of the inflation adjustments is indeterminate.

In the main, the insignificant influence of non-debt-tax shields on equity remains as before for Malaysia whilst its previous significant negative influence on short-term is now found to be insignificant but positive and is against *a priori* expectations. That is, under rising asset prices, the firm's depreciation charge is expected to increase as well. In turn, this provides this positive sign and perhaps provides further support for the early posit of Malay firms using depreciation as an important source for cash flow.

[Table 9 about here]

For Malaysia, non-debt-tax-shields are now found to have a negative statistical influence on retained earnings. This is against its earlier insignificant impact under historic prices. It could be argued that this agrees *a priori* expectations. That is, if Scott, and Moores' argument of the depreciation charge being a signal of the size of the firm's tangible assets is used, under increasing asset prices, the firm's depreciation charge must also increase. As already noted, if firm's adhere to "dividend smoothing", for a given level of profits, the increase in the depreciation charge under current prices will reduce the proportion of retained earnings, *ceteris paribus*.

In the main, for Thailand, and contrary to that noted under historic prices, non-debt-tax-shields are found to have a positive and statistical influence on the proportion of equity and retained earnings. Thus, there is statistical evidence to support the proposal of firms financing higher levels of tangible assets by issuing equity, or by using retained earnings under current asset and liability prices, *ceteris paribus*.

More importantly, and identical to that observed under historic prices, a negative statistical relationship between non-debt-tax-shields and long-term debt for Thai firms under current prices is found. In turn, this finds in support of the earlier hypothesis of high non-debt-tax-shields, depreciation in this case, reducing the demand for debt on interest payments as a tax shield. Moreover, this behaviour is consistent

with (i) that noted for Malaysia under both current and historic asset and liability prices, and (ii) with *a priori* expectations.

Furthermore, for Malaysia but inconsistent with *a priori* expectations, the magnitude of the non-debt-tax-shields parameter for long-term debt rises under current prices for Thailand. In addition, non-debt-tax-shields under current prices do not statistically influence the level of short-term debt carried by the Thai firm. Unlike Malaysia, its direction is negative and thus provides no further support for the tentative posit derived under historic prices of firms using depreciation as a source for cash flow.

The continued positive significant dependence of growth on long-term debt under current prices is against Higgin's (1977) posit for Malaysia. However, it is again difficult to determine if firms are operating efficiently due to the insignificant dependence between short-term debt, equity and retained earnings with growth for this country. Moreover, this observation found using the ACSM is also consistent with that noted by the RFCSM for Malaysia under identical conditions where a negative dependence between debt and growth is found thus indicating that firms do not use debt, an external source of finance, and are therefore operating efficiently.

As with Malaysia, for Thailand under current prices, there is evidence to support Higgin's (1977) posit that efficiently run firms will have less need to use outside sources of finance. This is supported by the continued significant positive relationship between growth and short-term debt; by the now significant positive influence of growth on equity; as well as with the insignificant negative impact of growth on retained earnings all under current prices. However, under EKM for this country, the direction of the parameter estimates for growth adheres to Higgin's (1977) posit. It should be pointed out that the negative dependence between long-term debt with growth for Thailand is consistent with the negative relationship using the RFCSM under identical current prices for this country. Moreover, the positive dependence between short-term debt and growth provides support for Myer's (1977) theory of firms using short-term debt to reduce stockholder-debtholder conflicts of interest. A similar conclusion was noted for Malaysia from Table 9.

The overall significant positive impact of the size attribute with equity may seem to suggest that the asymmetric costs of information between the firm and the market are lower for larger firms. In turn, this agrees with *a priori* expectations; however, the negative though insignificant influence of size on long-term debt is

against this. Thus, no overall conclusion can be made as to whether information asymmetries have reduced under these three inflation adjustments.

Converse to Malaysia, and apart for EKM, examination of Table 9 shows that there is a negative dependence between size and short-term debt. In turn, this suggests that small firms borrow more short-term debt than long-term debt. Titman and Vessels (1988) suggests that this could be due to the transaction costs of long-term debt being proportionately greater for smaller firms than for their larger counterparts. In turn, this may perhaps increase smaller firm's sensitivity to downturns within the economic cycle than their larger peers who employ more long-term debt, *ceteris paribus.* However, the negative dependence between long-term debt and size suggests that small Thai firms use long-term debt as a source of finance. This is clearly at odds to that suggested by Titman and Vessels (1988). That is, the negative relationship between long-term debt and size provides evidence for the costs of long-term debt are small for small firms. However, smaller firms would be more sensitive to economic downturns due to their increased gearing.

Finally, in relation to the impact of the impact of firm risk on the allocation on the four types of liabilities for Thailand, the intuitive negative relationship between risk and long-term debt is now observed. Recall that this is converse to that noted under historic prices for this country.

As with historic costs, an overall significant positive relationship is found between short-term debt and risk for Thailand under current prices. This is independent of the inflation adjustment that has been applied. Thus, this could possibly support Thies and Klock's (1992, p. 48) posit of firms using short-term debt to circumvent restrictions on them borrowing long-term under current prices for this country.

Like Malaysia, there seems to be some evidence to support the extension of DeAngelo and Masulis' (1980) theory of risk having a positive impact on the amount of equity and retained earnings held by Thai firms. This is shown by the significant positive influence of risk on equity under the FIFO and LIFO inflation adjustments, quite the opposite to that noted under EKM. However, the significant negative influence of risk on retained earnings found under historic prices now undermines, to a degree, this extension of DeAngelo and Masulis' (1980) theory.

For Malaysia, it is clear that the ability of the size attribute to adhere to *a priori* predications is identical to that found for this country under historic prices. This is due

to the overall sign and negative of appropriate coefficients being the same under historic and inflation adjusted prices. Accordingly, the earlier conclusion of size not adhering to *a priori* expectations is not improved upon under inflation adjusted prices. On the other hand for Thailand, a slight improvement between size and its adherence to *a priori* expectations has occurred: a positive, though insignificant, dependence between equity and this variable now occurs.

A similar story is told for risk and non-debt-tax-shields for this country as well. The adherence of the data to theoretical predictions under inflation adjustments is the same as that noted under historic prices. This is due to the overall sign and significance of the parameters remaining the same to those under historic prices.

A significant improvement is noted for the adherence of the inflation adjusted prices to theoretical predictions is noted for Thailand with risk since there is further evidence to support the extension of DeAngelo and Masulis' (1980) argument of a positive dependence between risk and equity.

As with risk and size, again a significant improvement of the inflation adjusted data to theoretical predictions for Thailand is observed for non-debt-tax-shields. This is due to a negative statistical dependence now being noted under the inflation adjustments whilst being insignificant under historic prices for long-term debt.

Turning to profitability, a number of previously significant parameters under historic prices for both countries have now become insignificant. However, the direction of parameter estimates have, in the main, remained the same. Thus, it is concluded that the adherence of the inflation adjusted prices to *a priori* predictions remains as before, but the statistical adherence of any findings has been lost.

Finally, in relation to growth, for both countries an improvement has been observed. This has been due to the impact of this variable on short-term debt now being positive, though insignificant, and may add weight to Myer's posit of there being a reduction in the agency costs between debt- and stockholders.

More significantly, and again another important finding, we can conclude that the inflation adjustments employed have been important since they have increased the adherence of the data to adhere to theoretical predications. This has especially been more marked for Malaysia than for Thailand for the ACSM.

5. Summary and Concluding Remarks

This paper has tested a number of hypotheses on the determinants of Malay and Thai corporate capital structures. The RFCSM benchmark model and the extensions to ACSM were estimated and tested on Malay and Thai company data, each time accounting fro adjustments to inflation.

The main findings for the ACSM and the RFCSM are as follows. First, there is evidence to support the pecking order hypothesis. There is also evidence against the controversial findings of previous studies relating to a "reversed pecking-order" of finance. Second, information asymmetries still persist. Other studies have suggested that this might create credit rationing. Rather than being a macro-economic problem, we suggest that this is perhaps more a microeconomic one: perhaps endogenous banks may not have the right know-how to distinguish between high and low risk companies. Again such a conclusion, given the evidence we have presented, is tentative. Further empirical investigation is again needed for this to be substantiated. However, there is sufficient empirical evidence that shows that the firms in both countries face reduced agency costs between debtholders and owner-managers. Moreover, risk is found to have a non-linear influence on leverage. This confers with the findings of Bradley *et al.* (1982), and may support the assertion that the risks of bankruptcy are non-linear, as held by the traditional capital structure school of thought.

For the RFCSM the above conclusions are robust when current prices of assets and liabilities are employed. That is, if all the inflation adjustment results are viewed jointly, there is no change for Thailand. For Malaysia the positive results outweigh the negative ones *i.e.* the positive relationship between the market-to-book ratio and leverage found under historic prices reverses when assets and liability are restated in current prices. For the ACSM, it is clear that the inflation adjustments have, overall, improved the ability of the data to adhere to *a priori* predictions. This is especially the case for Thailand.

As expected, the ACSM not only captures information contained within the RFCSM but also further explains the firm's financing behaviour. We also found that the disaggregation of debt into its short- and long-term components was beneficial. Here the short- and long-term debt effects were not always the same. A similar conclusion was noted when equity was split into its retained earnings and that subscribed by the firm's shareholders (equity). This is a major finding and shows that all the components that

make up one particular type of liability do not necessary behaviour the same way. Thus, disaggregation yields additional insights into corporate capital structure behaviour that the majority of previous empirical studies have not found. In turn, the ACSM estimated within this paperhas successfully addressed one of the main weaknesses of previous research (first noted within 2.4) and has produced a more informed picture of the financial behaviour of the firm.

The conclusions of the RFCSM and the ACSM were found to digress from each other under current asset and liability prices. In turn, this may suggest that inflation bias does have an important role in explaining how liabilities are simultaneously allocated. Clearly the latter would not be normally captured using single liability models *per se* and represents the advantage of the ACSM over the RFCSM under these conditions.

Where suitable, both the RFCSM and ACSM produce conclusions that are first noted under ratio analysis. Though crude, ratio analysis should not be discarded. To a certain degree, it can be used to (a) gain insight into the rudimental financing behaviour of firms; and (b) provide preliminary hypotheses that can be tested using specific models.

The ACSM represents an advance over the RFCSM. More importantly, the ACSM fails to directly incorporate the price or cost of using a particular source of finance *per se*. For example, it could be argued that the costs of debt are indirectly incorporated into the exogenous variables of the RFCSM and ACSM. That is, if the underlying cost of using debt was very expensive, its responsiveness to changes in the level of the firm's non-debt-tax-shields, profitability etc. would not be that great. From the firm's point of view, the actual cost of using debt has often been ignored by the majority of the empirical literature at the microeconomic level.

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Table 1: Secondary Sources of Company Data for Malaysia and Thailand

Source	Advantages	Limitations
Annual Companies Handbook (*Malaysia only*)	Large number of companies. Large number of years per firm. Gives shares held by directors. Gives the percentage of shares held by 10 largest shareholders.	Listed companies only. Securities not distinguished by instrument. No break down of operating costs. Non SIC industrial classifications. No notes to accounts. No sources-uses statement.
Emerging Markets Database (IFC)	Large number of companies. Large number of years per firm. Two digit SIC industrial classification.	Manufacturing firms only No notes to accounts. No break down of operating costs. No sources-uses statement. Securities not distinguished by instrument. Directors' shares not given. Percentage of shares held by 10 largest shareholders not given.
Extel	Large number of companies. Gives shares held by directors. Gives the percentage of shares held by largest shareholders. Four digit SIC industrial classification. Some securities distinguished by instrument.	Small number of years per firm. No notes to accounts. No break down of operating costs. No sources-uses statement.
Moodys	Large number of companies. Four digit SIC industrial classification. Some securities distinguished by instrument. Break down of operating costs.	Small number of years per firm. No notes to accounts. No sources-uses statement. Directors' shares not given. Percentage of shares held by 10 largest shareholders not given.
Disclosure	Large number of companies. Four digit SIC industrial classification. Break down of operating costs.	Small number of years per firm. No notes to accounts. No sources-uses statement. Directors' shares not given. Percentage of shares held by 10 largest shareholders not given. Securities not distinguished by instrument.
Datastream	Large number of companies.	Small number of years per firm. No notes to accounts. No sources-uses statement. Directors' shares not given. Percentage of shares held by 10 largest shareholders not given. Securities not distinguished by instrument. No SIC industrial classifications.

Table 2: Sample Characteristics

	Malaysia	Thailand
Total companies quoted on local stock exchange (1990)	282	214
Prasad, Green, Murinde Sample (1987-1995)		
Sample companies	165	174
Average no. of years data per company	7.8	5.4
Total no. of observations	1296	932
Industrial composition: no. of companies (% of total)		
Agriculture	20.61	3.45
Oil, gas and nuclear fuels	1.21	0.57
Mines	1.21	2.30
Food manufacturing	9.09	9.77
Brewers and distillers	1.82	0.00
Tobacco	0.61	0.00
Textiles	0.61	10.92
Building materials and services	10.91	5.17
Packaging	3.64	2.30
Chemicals	1.82	4.60
Health and household	2.42	9.77
Metal and metal forming	4.85	7.47
Engineering general	3.64	2.30
Electricals	1.82	5.17
Other industrial materials and products	6.67	6.32
Contracting and construction	3.03	0.00
Food wholesaling and retailing	1.21	0.57
Stores	0.61	0.57
Hotels and leisure	1.82	5.75
Transport, manufacture and distribution	2.42	4.02
Communications	0.61	0.57
Property	4.85	5.17
Media	0.00	4.02
Conglomerates	7.27	0.00
Miscellaneous	7.27	9.20

Table 3a: Company Characteristics: Performance & Capital Structure Measures

	Prasad-Green-Murinde			Prasad-Green-Murinde			Singh (1995)		
	Malaysia			Thailand			Malaysia	Thailand	All
	HC	FIFO	LIFO	HC	FIFO	LIFO	HC	HC	HC
ROBE									
Mean	0.144	0.135	0.090	0.211	0.281	0.283	0.103	0.077	0.111
Median	0.132	0.126	0.131	0.206	0.244	0.246			
ATRR									
Mean	0.967	0.187	0.213	19.25	12.35	11.25	0.517	0.487	0.629
Median	0.433	0.606	0.656	0.385	0.429	0.373			
IFG									
Mean	0.514	1.874	0.557	0.859	2.394	0.389	0.297	na	0.320
Median	0.673	0.410	0.434	0.353	0.201	0.169			
EFGD									
Mean	0.195	0.162	0.074	0.295	-0.913	0.224	0.120	na	0.160
Median	0.000	0.000	0.000	0.020	0.000	0.000			
EFGE									
Mean	0.290	-1.037	0.368	-0.154	-0.482	0.388	0.480	na	0.411
Median	0.127	0.303	0.253	0.217	0.705	0.735			
CGNA									
Mean	0.119	0.074	0.075	0.136	0.347	-0.269	0.103	0.558	0.186
Median	0.023	0.020	0.020	0.069	0.091	0.089			
CGNW									
Mean	0.129	0.105	0.107	0.238	0.554	0.598	0.127	1.284	0.237
Median	0.024	0.018	0.018	0.075	0.073	0.071			
VAL									
Mean	2.177	2.235	2.297	3.283	7.470	12.75	1.97	na	1.3
Median	1.732	1.714	1.729	2.267	2.706	2.693			

Notes: HC = Historic cost
Singh's data are for the 100 largest companies in Malaysia and Thailand. "All" is an average of the largest companies in 10 developing countries: 100 companies for 6 of these countries, and a smaller number for the remaining 4.

Table 3b: Variable Definitions

Measure		**Definition**
Return on book equity	ROBE	EBT/Shareholders funds
After tax retention ratio	ATRR	(EAT - (Ordinary + Preference dividends))/EBT
Internal finance	IFG	Retained earnings/? Net assets
External finance: long-term debt	EFGD	? Long-term debt/? Net assets
External finance: equity	EFGE	1-IFG – EFGD
Capital gearing (net assets)	CGNA	Long-term debt/Net assets
Capital gearing (net worth)	CGNW	Long-term debt/Net worth
Valuation ratio	VAL	Market value of equity/Net worth

Notes: EBT = Earnings before tax.; EAT = Earnings after tax; Share price used to value equity is the average of the highest and lowest price over the year

Table 4: A Summary of the *a priori* influence of the RFFSM exogenous variables.

Variable	Hypothesised direction of influence
Tangibility	?
Growth	-
Profitability	?
Size	+

Table 5: Summary of Endogenous Variable Definitions.

	Variable	Definition
Liabilities	Long-term debt (w_1)	Total of long-term liabilities[?] ? (Total of shareholder's funds[?] + Total liabilities[?])
	Short-term debt (w_2)	Total of short-term liabilities ? (Total of shareholder's funds[?] + Total liabilities[?])
Shareholders' funds	Equity (w_3)	(Ordinary share capital + Preference Share Capital) ? (Total of shareholder's funds[?] + Total liabilities[?])
	Retained Earnings (w_4)	Retained earnings [?] ?(Total of shareholder's funds[?] + Total liabilities[?])

Note : [1] [?] Where appropriate inflation adjusted variables will be employed under EKM, FIFO and LIFO. [2] $w_1 + w_2 + w_3 + w_4 = 1$ for the balance sheet to balance. [3] Total of shareholder's funds + Total Liabilities ? Total Assets. The latter is used to reduce heteroskedasticity, see Titman and Vessels .

Table (6a): Initial OLS and Diagnostic Test Results for the RFCSM.

INFLATION ADJUSTMENT	Historic Prices		EKM		FIFO		LIFO	
COUNTRY / VARIABLE	MALAYSIA	THAILAND	MALAYSIA	THAILAND	MALAYSIA	THAILAND	MALAYSIA	THAILAND
PANEL (A)								
Tangibility	0.499409*** (0.142842)	1.50037** (0.992018)	0.328647** (0.15153)	1.8835* (1.1063)	0.414833*** (0.159611)	1.88253* (1.10403)	0.415738*** (0.137602)	1.75986* (1.06899)
Size	0.040236* (0.023604)	1.0518*** (0.228064)	0.343337*** (0.03842)	1.01943*** (0.223034)	0.3245*** (0.038482)	1.01934*** (0.223058)	0.335605*** (0.038312)	1.00238*** (0.222198)
Profitability	2.86152*** (0.304669)	-1.07531** (0.614696)	-0.665958*** (0.156293)	-0.642537* (0.483324)	0.00498662 (0.00505037)	-0.605474* (0.469192)	-0.267474*** (0.1018)	-0.6084* (0.46885)
Market-to-Book	0.034709*** (0.00672044)	-0.00106634*** (0.000303873)	0.012157 (0.010731)	-0.00107321*** (0.000298035)	-0.01073 (0.010652)	-0.106859x10^-3* (0.296816x10^-4)	-0.010468 (0.010605)	-0.00116663*** (0.000311102)
Diagnostics								
Mis.?	5.84861*** ~F(3,976)	1.649236 ~F(3,677)	2.958335** ~F(3,1137)	1.27083 ~F(3,677)	1.59638 ~F(3,1137)	1.24808 ~F(3,677)	1.2065 ~F(3,1137)	0.41023 ~F(3,677)
Het.?	3.648347*** ~F(3,1141)	0.55045 ~F(3,681)	2.5165* ~F(3,1141)	0.42415 ~F(3,681)	1.2249 ~F(3,1141)	2.34481* ~F(3,681)	4.21845** ~F(3,1141)	1.5873 ~F(3,681)
Q (1)?	94.76933***	20.013***	141.3232***	19.8689***	151.85602***	19.8866***	142.08082***	20.1623***
Norm.?	473439.4***	46891.12***	6731.526***	14103.82***	6027.848***	14102.16***	6407.78***	13577.23***
R^2?	25.65%	70.88%	50.96%	62.86%	50.0%	70.86%	50.58%	70.91%
N?	1145	685	1145	685	1145	685	1145	685
Haus.?	28.07295***	6.25841&	21.18169***	6.82181&	83.559352***	6.837602&	24.60497***	6.99354&
PANEL (B)								
Tangibility	0.499409*** (0.142842)	0.00364325*** (0.00102135)	0.187559** (0.094353)	0.0049947*** (0.00115251)	0.320623*** (0.099367)	0.00493389** * (0.00115054)	0.378294*** (0.085924)	0.00499426** * (0.0011301)
Size	0.040236* (0.023604)	0.00046064** (0.000234808)	0.00622728 (0.023923)	0.00046969** (0.00023235)	-0.0051685 (0.023957)	0.000467558** (0.000232456)	0.00419647 (0.023924)	-0.438461x10^-3* (0.231346x10^-4)
Profitability	-2.86152*** (0.304669)	-0.00137669*** (0.000632874)	-0.541581*** (0.097318)	-0.817534x10^-4* (0.0503512x10^-4)	-0.0336887 (0.00314416)	-0.778637x10^-4** (0.488959x10^-4)	-0.117878* (0.063568)	-0.771792x10^-4** (0.488153x10^-4)
Market-to-Book	0.034709*** (0.00672044)	-0.1438x10^-3*** (0.312859x10^-8)	-0.014169** (0.00668189)	-0.139365x10^-3*** (0.310483x10^-8)	-0.0012576* (0.00663177)	-0.139073x10^-3*** (0.309321x10^-8)	-0.012336* (0.00662241)	-0.145447x10^-3*** (0.323911x10^-8)
Diagnostics								
Mis.?	5.84861*** ~F(3,1137)	7.53296*** ~F(3,677)	15.59691*** ~F(3,1137)	7.144212*** ~F(3,677)	3.2086** ~F(3,1137)	7.02542*** ~F(3,677)	19.58613*** ~F(3,1137)	7.1226*** ~F(3,677)
Het.?	3.64835*** ~F(3,1141)	2.51422* ~F(3,681)	8.90984*** ~F(3,1141)	2.38446* ~F(3,681)	4.282759** ~F(3,1141)	9.07283*** ~F(3,681)	7.28463*** ~F(3,1141)	2.565819* ~F(3,681)
Q (1)?	94.76933***	0.036792	128.58179***	0.00784435	151.6558***	0.0773003	149.15355***	0.0708456
Norm.?	473439.4***	228.7324***	501507.7***	236.4557***	503901***	237.7128***	509178.5***	236.9278***
R^2?	43.08%	56.29%	38.66%	56.64%	37.47%	56.6%	37.83%	56.75%
N?	1145	685	1145	685	1145	685	1145	685
Haus.?	28.07295***	18.93154***	18.86773***	23.00158***	41.22742***	22.84117***	23.80946***	23.53166***
PANEL (C)								
Tangibility	0.106029*** (0.03275)	0.134471*** (0.041518)	0.145424 (0.120715)	0.177519*** (0.048127)	0.476013*** (0.180445)	0.175765*** (0.048257)	-0.0086861 (0.139512)	0.202785 (0.047271)
Size	0.015624*** (0.00541185)	0.02977*** (0.0954499)	-0.055864* (0.030607)	0.030512*** (0.0970261)	-0.152795*** (0.043505)	0.030498*** (0.09747975)	-0.136311*** (0.038844)	0.033471*** (0.098255)
Profitability	-1.032*** (0.069852)	-0.093716*** (0.025726)	-1.05467*** (0.12451)	-0.054174*** (0.21026)	2.9278*** (0.00570962)	-0.050737*** (0.02508)	1.24531*** (0.103213)	-0.04814** (0.020732)
Market-to-Book	-0.00272237** (0.00154081)	-0.356341x10^-3*** (0.12717x10^-5)	0.0088534 (0.00854883)	-0.371778x10^-3*** (0.129653x10^-5)	0.019963* (0.012043)	-0.373088x10^-3*** (0.129737x10^-5)	0.016113 (0.010753)	-0.353536x10^-3*** (0.137569x10^-5)
Diagnostics								
Mis.?	0.793553 ~F(3,1137)	9.052719*** ~F(3,677)	80.2267*** ~F(3,1137)	7.02113*** ~F(3,677)	527.9472*** ~F(3,1138)	6.83631*** ~F(3,677)	498.2163*** ~F(3,1137)	6.42499*** ~F(3,677)
Het.?	0.4331 ~F(3,1141)	3.02145** ~F(3,681)	1.369862 ~F(3,1141)	0.416559 ~F(3,681)	8.33922*** ~F(3,1141)	2.2812* ~F(3,681)	223.8113*** ~F(3,1141)	2.1444* ~F(3,681)
Q (1)?	159.77682***	2.36125	4.08664**	2.60311	2.40756	2.5829	0.22523	1.95894
Norm.?	647.8385***	292.2805***	2035019***	496.1496***	1821997***	531.552***	1487313***	461.5989***
R^2?	63.47%	68.85%	26.22%	68.17%	99.7%	58.63%	25.14%	67.75%
N?	1145	685	1145	685	1145	685	1145	685
Haus.?	20.91454***	12.12695***	23.51157***	13.50738***	23.05547***	13.62343***	34.06953***	14.48542***

Note: [1] &, *, **, and *** represent statistical significance at the 20%, 10%, 5% and 1% levels respectively. [2] Standard errors are contained within parentheses. [3] ? Ramsey RESET test for mis-specification using the squared, cubed and fourth power of residuals, see Maddala. [4] ? Ramsey RESET test for heteroskedasticity using the squared, cubed and fourth power of residuals, see Maddala. [5] ? Ljung-Box *first* order auto-correlation test. [6] ? Wald test for normality, see Greene. [7] ? Adjusted value. [8] ? Number of observations. [9] ? Hausman test, see Svestre and Trognon. [10] F (3,976) critical values are: 2.07698, 2.6008 and 3.8096 for the 10%, 5% and 1% significance levels respectively; F(3,525) critical values are: 2.08186, 2.60869 and 3.8268 for the 10%, 5% and 1% significance levels respectively; F(3,979) critical values are: 2.07696, 2.60078 and 3.80952 for the 10%, 5% and 1% significance levels respectively; and F(3,528) critical values are: 2.0818, 2.6086 and 3.8266 for the 10%, 5% and 1% significance levels respectively. [11] Panel (A): leverage scaled by the book value of equity; Panel (B): leverage scaled by the market value of equity; and Panel (C): leverage scaled by total assets.

Table (6b): Initial OLS and Diagnostic results for the ACSM for Malaysia.

Inflation Adjustment	Historic Prices				EKM					
Equation	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
	w_1	w_2	w_3	w_4	w_1	w_2	w_3	w_4	w_1	w
PRO	-0.235048† (0.054858)	-0.382737† (0.073704)	0.255727† (0.072761)	0.362057† (0.073641)	-0.052464 (0.038305)	-0.194842† (0.053732)	0.067948 (0.050477)	0.179359† (0.058966)	-0.16224† (0.034911)	-0.07 (0.054
Size	-0.54019E-2 (0.575147E-2)	0.040161† (0.772716E-2)	0.925398E-3 (0.762835E-2)	-0.035684† (0.772059E-2)	-0.832135E-3 (0.429821E-2)	0.021198† (0.60293E-2)	-0.278547E-2 (0.566403E-2)	-0.01758† (0.661664E-2)	-0.01447† (0.459745E-2)	0.043 (0.7273
Growth	1.01141 (1.07698)	-0.717941 (1.44695)	-4.24528† (1.42845)	3.95181† (1.44572)	0.648303‡ (0.317171)	0.380115 (0.444912)	-0.367562 (0.417957)	-0.660856 (0.488252)	0.350865 (0.211417)	0.650 (0.328
Risk	-0.939663E-3† (0.362282E-3)	0.21489E-2† (0.486738E-3)	-0.149922E-3 (0.480515E-3)	-0.105932E-2‡ (0.486325E-3)	-0.879257E-3† (0.318567E-3)	0.149078E-2† (0.44687E-3)	-0.485368E-4 (0.419797E-3)	-0.562965E-3 (0.490401E-3)	-0.269524E-3† (0.452076E-4)	0.43385 (0.7079
NDTS	0.476187 (0.250447)	-0.619213 (0.336484)	0.096215 (0.332181)	0.046811 (0.336198)	0.394227‡ (0.16253)	0.070275 (0.227988)	0.39466§ (0.214176)	-0.859163† (0.250197)	0.302237‡ (0.153737)	0.464 (0.246
INDUS[a]	7.730654† ~F(131,853)	8.732784† ~F(131,853)	11.41855† ~F(131,853)	18.78202† ~F(131,853)	7.810492† ~F(129,828)	7.708016† ~F(129,828)	10.03435† ~F(129,828)	12.45629† ~F(129,828)	7.401226† ~F(130,825)	5.999 ~F(130
R^{2} [b]	0.579117	0.748944	0.658948	0.794563	0.552647	0.715577	0.624284	0.724881	0.449883	0.686
Haus[c]	10.065§	68.281†	18.133†	14.602‡	18.932†	61.749†	19.409†	19.522†	7.0663	62.8
Q_1 [d]	90.3408†	42.4571†	131.878†	117.895†	94.6619†	36.1676†	48.1039†	16.1507†	173.4406†	28.7
Norm[e]	1274.278†	340.949†	181.9906†	8.641927†	132.123†	112.1968†	289.2347†	56.46695†	3480.573†	228.3
Hetero[f]	10.24426† ~F(3,1013)	4.09969† ~F(3,1013)	4.13528† ~F(3,1013)	6.60058† ~F(3,1013)	2.83564 ¿ ~F(3,986)	2.07754 ø ~F(3,986)	5.00471† ~F(3,986)	3.46024 ¿ ~F(3,986)	129.0756† ~F(3,985)	2.504 ~F(3,
Missp[g]	4.62487† ~F(3,848)	3.0028 ¿ ~F(3,848)	1.73542 ø ~F(3,1013)	3.83134† ~F(3,848)	1.19869 ø ~F(3,823)	0.73641 ø ~F(3,823)	3.56528 ¿ ~F(3,823)	2.09724 ¢ ~F(3,823)	6.04358† ~F(3,979)	2.223 ~F(3,

Notes: [1] †, ‡, § and Þ represents significance at the 1%, 5%, 10% and 20% levels respectively. [2] ¿, ¢ and ø represents *in*significance at the 1%, 5% and 10% levels respectively. [3] Standard errors are within parentheses. [4] [a] F-test statistic calculated using the method employed by Balestra (1996*a*). [5] [b] Adjusted value. [6] [d] Ljung-Box *first* order auto-correlation test. [7] [e] Wald test for normality (Greene). [8] [f] Ramsey RESET test for heteroskedasticity using the squared, cube and fourth power of residuals (Maddala). [9] [g] Ramsey RESET test for mis-specification using the squared, cube and fourth power of residuals (Maddala). [10] PRO: profitability and NDTS: non-debt-tax-shields.

Table (6b): Initial OLS and Diagnostic results for the ACSM for Thailand.

Inflation Adjustment	Historic Prices				EKM				FIFO		
Equation	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]
	W_1	W_2	W_3	W_4	W_1	W_2	W_3	W_4	W_1	W_2	W_3
PRO	-0.142838† (0.0471)	-0.181402† (0.061107)	0.155714† (0.035438)	0.212224† (0.052683)	-0.591937E2 (0.026388)	-0.44091E-2 (0.035724)	0.048041† (0.020349)	-0.037712 (0.032241)	0.500406E-2 (0.032981)	-0.871646E2 (0.049023)	-0.023859 (0.033289)
Size	-0.337157E3 (0.196011E2)	0.176435E-2 (0.254302E2)	0.775783E-3 (0.143993E2)	-0.418301E2 ‡ (0.212375E2)	0.741096E-4 (0.188023E2)	0.15418E2 (0.58787E-2)	-0.451018E3 (0.144994E2)	-0.116489E2 (0.229729E2)	-0.040575† (0.647354E2)	-0.174127E2 (0.9622332E-2)	0.017503† (0.653404E2)
Growth	0.100867 (0.092679)	-0.302469‡ (0.1204)	0.049752 (0.071446)	0.169948 (0.107507)	-0.23005E-2‡ (0.969094E3)	0.830152E-3 (0.131197E-2)	-0.296132E3 (0.747319E3)	0.176648E-2 (0.118405E2)	-0.454214E2† (0.154165E2)	0.685219E-2† (0.229153E2)	0.289118E-2§ (0.155606E2)
Risk	-0.786833E4 (0.500087E4)	0.173167E-3† (0.648807E4)	-0.1908503E-4 (0.385932E4)	-0.882167E4 (0.58106E-4)	-0.162997 (0.129204)	-0.391262‡ (0.174918)	0.791076† (0.099636)	-0.236817 (0.157863)	-0.039942† (0.014928)	0.067088† (0.022189)	0.027178§ (0.015067)
NDTS	-0.786833E4 (0.019604)	-0.061235‡ (0.025434)	0.171715† (0.01032)	0.038138 (0.023399)	-0.010088 (0.12632)	-0.030516§ (0.017101)	0.01687§ (0.974114E2)	0.23734 (0.015434)	-0.907506E2 (0.013093)	-0.03822‡ (0.019461)	0.030484‡ (0.013215)
INDUS[a]	5.936385† ~F(126,509)	8.962598† ~F(126,509)	14.46983† ~F(126,509)	10.52916† ~F(126,509)	5.964369† ~F(125,509)	8.516115† ~F(125,509)	15.86885† ~F(125,509)	10.46511† ~F(125,509)	3.947707† ~F(128,506)	4.460334† ~F(128,506)	5.645483† ~F(128,506
R^{2} [b]	0.61157	0.690045	0.719703	0.60873	0.614469	0.674533	0.807194	0.69788	0.52797	0.518827	0.593329
Haus[c]	10.217§	9.196 þ	6.4847	3.9437	9.3282§	14.648‡	9.2178 þ	16.507†	35.8†	13.211‡	14.204‡
Q_1 [d]	6.53845†	1.64785	99.7873†	161.615†	4.09012‡	1.86132	0.000902	5.16762‡	6.613‡	2.11406	13.5387†
Norm[e]	131.7914†	77.17585†	456.772†	338.0306†	159.937†	22.46464†	684.4977†	0.254096	52.26693†	141.8557†	191.9614†
Hetero[f]	0.15502 ø ~F(3,669)	8.91693 † ~F(3,669)	247.444† ~F(3,669)	556.5906† ~F(3,669)	0.31006 ø ~F(3,668)	0.75201 ø ~F(3,668)	11.66018† ~F(3,668)	0.73076 ø ~F(3,668)	2.61917 ø ~F(3,668)	0.61773 ø ~F(3,668)	1.20909 ø ~F(3,668)
Missp[g]	0.18828 ø ~F(3,504)	3.68242 ¿ ~F(3,504)	22.77894† ~F(3,663)	35.06208† ~F(3,663)	1.28569 ø ~F(3,504)	0.24384 ø ~F(3,504)	9.85492† ~F(3,504)	0.40815 ø ~F(3,504)	0.83675 ø ~F(3,501)	0.2153 ø ~F(3,501)	1.01297 ø ~F(3,501)

Notes: [1] †, ‡, § and þ represents significance at the 1%, 5%, 10% and 20% levels respectively. [2] ¿, ¢ and ø represents *in*significance at the 1%, 5% and 10% levels respectively. [3] Standard errors are within parentheses. [4] [a] F-test statistic calculated using the method employed by Balestra (1996*a*). [5] [b] Adjusted value. [6] [d] Ljung-Box *first* order auto-correlation test. [7] [e] Wald test for normality (Greene). [8] [f] Ramsey RESET test for heteroskedasticity using the squared, cube and fourth power of residuals (Maddala). [9] [g] Ramsey RESET test for mis-specification using the squared, cube and fourth power of residuals (Maddala). [10] PRO: profitability and NDTS: non-debt-tax-shields.

Table 7: A Summary of RFCSM estimates for fixed effects and panel estimates corrected for Mis-specification and Heteroskedasticity.

Inflation Adjustment	Historic Prices		EKM		FIFO		LIFO	
COUNTRY VARIABLE	MALAYSIA	THAILAND	MALAYSIA	THAILAND	MALAYSIA	THAILAND	MALAYSIA	THAILAND
PANEL (A)	T	O	T	T	O	O	T	O
Tangibility	0.514824*** (0.145537)	1.50037*** (0.992018)	0.387246*** (0.157019)	2.232497*** (0.991412)	0.414833*** (0.159611)	1.88253*** (1.10403)	0.467627*** (0.140925)	1.75986** (1.06899)
Market-to-Book (*Growth*)	0.037803*** (0.00723542)	-0.00106634*** (0.000303873)	-0.00736726 (0.00736726)	-0.000114965*** (0.0000272153)	-0.01073*** (0.010652)	-0.0001068*** (0.0000296816)	-0.00543396 (0.011327)	-0.00116663*** (0.0000311102)
Size	0.067105*** (0.024235)	1.0518*** (0.228064)	0.417975*** (0.40444)	1.04934*** (0.19837)	0.32345*** (0.038482)	1.01943*** (0.223034)	0.408608*** (0.040361)	1.00238*** (0.222198)
Profitability	-3.42097*** (0.781531)	-1.07531** (0.614696)	-0.728002*** (0.156898)	-0.613865* (0.429222)	-0.00498662*** (0.00505037)	-0.605474* (0.469192)	-0.288091*** (0.1015)	-0.6084* (0.46885)
Number *of* observations	1145	685	1145	685	1145	685	1145	685
Adjusted R^2	~	0.7088	~	~	0.50	0.7086	~	0.7091
PANEL (B)	T	T	T	T	T	T	T	T
Tangibility	0.514824*** (0.145537)	0.000407337*** (0.0000913569)	0.249823*** (0.097589)	0.000554195*** (0.000103198)	0.386464*** (0.102372)	0.00054779*** (0.000103027)	0.432152*** (0.087861)	0.000552587*** (0.000009972)
Market-to-Book (*Growth*)	0.037803*** (0.00723542)	-0.507773×10^{-7}*** (0.286222×10^{-8})	-0.01339***, (0.00718812)	-0.151221×10^{-7}*** (0.283799×10^{-8})	-0.011387* (0.00707488)	-0.150709×10^{-7}*** (0.282667×10^{-8})	-0.011427* (0.00706809)	-0.157639×10^{-7}*** (0.296667×10^{-8})
Size	0.067105*** (0.024235)	0.0000491439*** (0.0000208538)	0.037141* (0.024953)	0.0000504452*** (0.000020629)	0.024124 (0.025017)	0.0000502858*** (0.0000203695)	0.033202* (0.024985)	0.0000470426** (0.0000432534)
Profitability	-3.42097*** (0.317497)	-0.00013409*** (0.0000561443)	-0.581923*** (0.097753)	-0.0000777495*** (0.0000446254)	-0.00300258 (0.00316997)	-0.0000740217*** (0.0000433354)	-0.130024** (0.063415)	-0.000072947** (0.000043253)
Number *of* observations	1145	685	1145	685	1145	685	1145	685
Adjusted R^2	~	~	~	~	~	~	~	~
PANEL (C)	O	T	T	T	T	T	T	T
Tangibility	0.106029*** (0.03275)	0.147209*** (0.037159)	-0.00951352*** (0.103779)	0.194196*** (0.043109)	-0.476013** (0.249508)	0.192408*** (0.043225)	0.234473** (0.128306)	2.18667*** (0.958407)
Market-to-Book (*Growth*)	-0.0272237* (0.0154081)	-0.38358×10^{-5}*** (0.116201×10^{-5})	0.019562*** (0.00735022)	-0.401622×10^{-5}*** (0.118473×10^{-5})	0.019963*** (0.026565)	-0.402432×10^{-5}*** (0.1185173×10^{-5})	0.027703*** (0.00964562)	-0.000123887*** (0.284716×10^{-4})
Size	0.015624*** (0.0541185)	0.030567*** (0.00849493)	-0.021269 (0.025722)	0.031458*** (0.00863326)	-0.152795** (0.072466)	0.031449*** (0.00867544)	-0.079141*** (0.0128306)	1.02923*** (0.197597)
Profitability	-1.032*** (0.069852)	-0.092181*** (0.022891)	-0.792248*** (0.106226)	-0.052764*** (0.018697)	2.9278*** (0.0628917)	-0.049387*** (0.018236)	1.3775*** (0.090661)	-0.577921* (0.416304)
Number *of* observations	1145	685	1145	685	1145	685	1145	685
Adjusted R^2	0.6347	~	~	~	~	~	~	~

Note: [1] *, ** and *** represent statistical significance at the 10%, 5% and 1% levels respectively. [2] Standard errors are contained within parentheses. [3] **T** [**O**]TOBIT [OLS] estimator used. [4] ? White (1982) heteroskedastic-consistent standard errors. [5] Panel (A): Debt/Book Value of Equity; Panel (B): Debt/Market Value of Equity; Panel (C): Debt/Total Assets; and Leverage = short-term debt + long-term debt reported by company accounts.

Table (8): ACSM Estimates corrected for Heteroskedasticity and Mis-specification.

Historic Prices				
Equation **Malaysia**	[1]?	[2]	[3]	[4] ?
	Long-term debt	***short-term debt***	***equity***	***retained earnings***
PRO	-0.271102† (0.055684)	-0.382737† (0.089269)	0.255727† (0.086898)	0.362057† (0.057436)
Size	-0.48887E-2 (0.547451E-2)	0.040161† (0.0011816)	0.925398E-3 (0.884686E-2)	-0.035684† (0.707007E-2)
Growth	3.82245§ (2.31297)	-0.717941 (1.10282)	-4.24528‡ (1.63767)	3.95181† (1.32391)
Risk	-0.125043E-2† (2.31297)	0.21489E-2† (0.364042E-3)	-0.149922E-3 (0.620669E-3)	-0.1095932E-2‡ (0.445348E-3)
NDTS	0.4873§ (0.238133)	-0.619213§ (0.364578)	0.096215 (0.719716)	0.046811 (0.307897)
Equation **Thailand**	[17]	[18]	[19] ?	[20] ?
	Long-term debt	***short-term debt***	***equity*** [16]	***retained earnings***
PRO	-0.142838† (0.0471)	-0.181402† (0.061107)	0.134228† (0.0013475)	0.203319† (0.049382)
Size	-0.337157E-3 (0.196011E-2)	0.176435E-2 (0.254302E-2)	-0.001305 (0.00013475)	-0.00266707 (0.0020551)
Growth	0.100867 (0.092679)	-0.302469‡ (0.1204)	0.018354 (0.063713)	0.18313 (0.097171)
Risk	-0.786833E-4 (0.500087E-4)	0.173167E-3† (0.648807E-4)	-0.138973E-5 (0.343791E-4)	-0.930927E-4§ (0.524324E-4)
NDTS	-0.786833E-4 (0.019604)	-0.061235‡ (0.025434)	0.044414† (0.013477)	0.040699‡ (0.020554)

Notes: [1] †, ‡, § and þ represents significance at the 1%, 5%, 10% and 20% levels respectively. [2] Standard errors are contained within parentheses. [3] PRO: profitability and NDTS: non-debt-tax-shields. [4] ? : TOBIT estimator applied.

[16]Equations [9], [19] and [20] were estimated in fixed form, see 3.6.2.1 for *a priori* reasoning.

Table (9): ACSM Estimates under current prices corrected for Heteroskedasticity and Mis -specification.

Inflation Adjustment	EKM				FIFO				LIFO			
Equation	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]?	[13]	[14]	[15]?	[16]
Malaysia	***long-term debt***	***short-term debt***	***Equity***	***retained earnings***	***Long-term debt***	***short-term debt***	***equity***	***retained earnings***	***long-term debt***	***short-term debt***	***equity***	***retained earnings***
PRO	-0.052464 (0.038305)	-0.194842† (0.053732)	0.067948 (0.04603)	0.179359† (0.058966)	-0.151114† (0.035693)	-0.079769 (0.054574)	0.104499§ (0.052697)	0.113504 § (0.053896)	-0.044654 (0.037408)	-0.188244† (0.052429)	0.04445 (0.4514)	0.1884453† (0.058001)
Size	-0.832135E-3 (0.429821E-2)	0.021198† (0.60293E-2)	-0.278547E-2 (0.0570825E-2)	-0.01758† (0.661664E-2)	-0.0133375† (0.00482984)	0.043192† (0.727378E-2)	0.608277E-2 (0.8869475E-2)	-0.036038† (0.719095E-2)	0.183217E-3 (0.399184E-2)	0.018556† (0.59947E-2)	-0.612369E-2 (0.481688E-2)	-0.012602‡ (0.618931E-2)
Growth	0.648303‡ (0.317171)	0.380115 (0.444912)	-0.367562 (0.729733)	-0.660856 (0.488252)	0.384585 (0.420644)	0.650342‡ (0.328352)	-0.82813§ (0.455093)	-0.046349 (0.324236)	0.643448‡ (0.319759)	0.522172 (0.448153)	-0.436456 (0.385847)	-0.729164 (0.495784)
Risk	-0.879257E-3† (0.318567E-3)	0.149078E-2† (0.44687E-3)	-0.485368E-4 (0.580702E-3)	-0.562965E-3 (0.490401E-3)	-0.000257† (0.5274E-4)	0.433896E-3† (0.707999E-4)	0.20994E-3† (0.778301E-4)	-0.397689E-3† (0.700003E-4)	-0.985925E-3† (0.314747E-3)	0.153886E-2† (0.441127E-3)	0.184856E-3 (0.379798E-3)	-0.737797E-3 (0.488011E-3)
NDTS	0.394227‡ (0.16253)	0.070275 (0.227988)	0.39466 (0.387447)	-0.859163† (0.250197)	0.23667 (0.193822)	0.464871 (0.246632)	0.275217 (0.387706)	-0.949926† (0.24329)	0.399028‡ (0.163468)	0.127674 (0.229105)	0.339292§ (0.197253)	-0.865994† (0.253455)
Equation	[21]	[22]	[23]?	[24]	[25]	[26]	[27]	[28]	[29]	[30]	[31]	[32]
Thailand	***long-term debt***	***short-term debt***	***Equity***	***retained earnings***	***Long-term debt***	***short-term debt***	***equity***	***retained earnings***	***long-term debt***	***short-term debt***	***equity***	***retained earnings***
PRO	-0.591937E-2 (0.026388)	-0.44091E-2 (0.035724)	-0.562068E-2 (0.027296)	-0.037712 (0.032241)	0.500406E-2 (0.032981)	-0.871646E-2 (0.049023)	-0.023859 (0.033289)	0.027572 (0.047621)	0.471832E-2 (0.033093)	-0.897153E-2 (0.049124)	-0.023264 (0.033334)	0.027518 (0.04782)
Size	0.741096E-4 (0.188023E-2)	0.15418E-2 (0.58787E-2)	-0.103345E-3 (0.190367E-2)	-0.116489E-2 (0.229729E-2)	-0.040575† (0.647354E-2)	-0.174127E-2 (0.9622332E-2)	0.017503† (0.653404E-2)	0.024813† (0.934705E-2)	-0.040596 (0.649271E-2)	-0.165385E-2 (0.963799E-2)	0.017552† (0.654013E-2)	0.024698† (0.93822E-2)
Growth	-0.23005E-2‡ (0.969094E-3)	0.830152E-3 (0.131197E-2)	-0.229838E-2‡ (0.978332E-3)	0.176648E-2 (0.118405E-2)	-0.454214E-2† (0.154165E-2)	0.685219E-2† (0.229153E-2)	0.289118E-2§ (0.155606E-2)	-0.520123E-2‡ (0.222597E-2)	-0.376564E-2 (0.139913E-2)	0.636223E-2† (0.207691E-2)	0.246292E-2 § (0.140934E-2)	-0.505951E-2‡ (0.202179E-2)
Risk	-0.162997 (0.129204)	-0.391262‡ (0.174918)	-0.176283 (0.132183)	-0.236817 (0.157863)	-0.039942† (0.014928)	0.067088† (0.022189)	0.027178§ (0.015067)	-0.054324‡ (0.021554)	-0.036451 (0.015038)	0.069138† (0.022323)	0.025634§ (0.015148)	-0.058322† (0.021731)
NDTS	-0.010088 (0.12632)	-0.030516§ (0.017101)	-0.988834E-2 (0.012759)	0.23734 (0.015434)	-0.907506E-2 (0.013093)	-0.03822‡ (0.019461)	0.030484‡ (0.013215)	0.01681 (0.018904)	-0.942188E-2 (0.01343)	-0.038678§ (0.019509)	0.030406‡ (0.01239)	0.017694 (0.018992)

Notes: [1] †, ‡, § and þ represents significance at the 1%, 5%, 10% and 20% levels respectively. [2] Standard errors are contained within parentheses. [3] PRO: profitability and NDTS: non-debt-tax-shields. [3] PRO: profitability and NDTS: non-debt-tax-shields. [4]? : estimated using TOBIT.