

How Does Ownership Structure Affect Capital Structure and Firm Performance? Recent Evidence from East Asia

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Abstract: The present paper empirically examines the effects of ownership structure on capital structure and firm valuation in four East Asian countries worst affected by the last Crisis. In doing so, we distinguish ownership from both control and management and also allow for the simultaneity between capital structure and firm valuation in the sample countries. Results obtained from 3SLS estimates with error components confirm and extend the findings of Claessens et al. (2002) and particularly highlight the contrasting behaviour of family firms and non-family firms with/without a Cronyman.

JEL classification: G32, L25

Keywords: Asian Crisis, Corporate Governance, Family and non-family firms, Presence of a Cronyman, Separation of cash flow and control rights, Capital structure, Firm value, 3SLS estimates with error components, Simultaneity bias.

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1. INTRODUCTION

The Asian Crisis of the late 1990s has highlighted the problems of corporate governance among South East Asian corporations. Of particular concern are concentrated ownership, dominance of controlling shareholders, separation of voting and cash flow rights and limited protection of minority rights, these problems being particularly acute in the countries badly affected by the Crisis (Claessens et al., 2000). While there is a relatively large literature on the effects of ownership on firm valuation (e.g., see Claessens et al. 2002), the relationship between ownership structure and capital structure remains much unexplored, especially in East Asia.¹ It is however important to understand the effects of ownership structure on capital structure, particularly in the context of over-investment and over-borrowing among East Asian corporations during the last crisis. Furthermore, prior studies (e.g., McConnell and Servaes, 1995; Berger and di Patti, 2003) have highlighted the link between firm value and capital structure that remains much unexplored. The present study thus integrates these various strands of the literature and examines the effects of ownership structure on both capital structure and firm value (after allowing for the possible simultaneity between capital structure and firm value). The analysis is done for the four countries, worst affected by the crisis, Indonesia, Korea, Malaysia and Thailand and highlights the different mechanisms of control and management between family and non-family firms. These results not only confirm some of the key findings of Claessens et al. (2002), e.g., significance of the separation of ownership

¹ Brailsford et al. (2002) however study the effects of external block ownership and managerial share ownership on capital structure among the US firms.

(i.e., cash flow rights) from control rights, but also extend the latter by distinguishing ownership from management among family and non-family firms, and also highlighting the differences in results among the sample countries.

Conflict of interests between managers and shareholders as well as between controlling and minority shareholders lie at the heart of the corporate governance literature. This literature however fails to produce any conclusive evidence on the relationship between ownership structure, capital structure and firm value/efficiency. The following section reviews various strands of this literature with a view to identifying the possible ways ownership could affect capital structure and firm valuation.

Effects on capital structure: First external block-holders may reduce the scope of managerial opportunism resulting in lower direct agency conflicts between management and shareholders (Shleifer and Vishny, 1986). If external block-holders serve as active monitors, management may not be able to adjust debt to their own interests as freely if such investors do not exist. In other words, firms with higher external block-holding are likely to have a higher debt ratio. Second, managerial self-interests in continued viability of the firm may also be important in inducing managers to lower debt. This is because large debt increases the risks of bankruptcy. Third, corporate debt policy has also been viewed as an internal control mechanism that may lower agency conflicts between managers and shareholders, especially in the presence of free cash flow (Jensen, 1986). Jensen and Meckling (1976) in addition argue that managerial share-ownership may reduce managerial incentives to consume perquisites, expropriate shareholders' wealth and to engage in other non-maximising behaviour and thus helps in aligning the interests of management with those of the shareholders. Fourth, Fama and Jensen (1983) and Demsetz (1983) insisted that

managerial share-ownership may still have adverse effects on agency conflicts. The latter may in fact entrench the incumbent management leading to an increase in managerial opportunism. In addition, Brailsford et al. (2002) suggest that the relationship between managerial share ownership and leverage may in fact be non-linear: At low level of managerial ownership, agency conflicts fall leading to higher debt and capital structure. However, when managers already hold a significant portion of firms' equity, an increase in managerial ownership may lead to an increase in managerial opportunism and therefore may cause lower debt.

Effects on firm valuation: The link between ownership structure and firm value/performance/efficiency has been the subject of an on-going debate going back to Berle and Means (1932), who suggested that firms with a wide dispersal of shares tend to under-perform. In general, a positive relation between ownership concentration and firm efficiency is predicted and many studies have confirmed this (Shleifer & Vishny, 1986; Short, 1994; Gedajlovic & Shapiro, 1998; Thomsen & Pederson, 2000; Gorton & Schmidt, 1996; Kang and Shivadasani, 1995). Further, Stulz (1988) formalised a concave relationship between managerial ownership and firm valuation: an increase in managerial ownership and control will first increase firm value; but at a higher level of managerial ownership, firm value will decrease because of entrenchment effects. Demsetz and Lehn (1985) however argued that concentration is endogenous to value and therefore has no effect. Much of this variation in these results may however be attributable to the difficulties in obtaining a uniform measure of firm performance, firm value or efficiency.

Existing empirical literature is however largely based on the functioning of the US firms generally characterised by a wide dispersion in ownership structure than one

finds in SE Asian countries.² A couple of recent studies by Claessens et al. (2000, 2002) however highlighted the distinctive pattern of ownership structure in East Asia. East Asian corporations are often dominated by large family owners and are characterised by concentration of ownership as well as the presence of a Cronyman; the latter is a special case where the Chief Executive Officer (CEO), Board Chairman or Vice Chairman is also a controlling shareholder of the company. In other words, firms with a Cronyman come closest to the owner-managed firms in the literature.

Ownership structures are also characterised by the separation of voting rights from cash flow rights where control rights (or voting rights) of the largest owners were often generally greater than the corresponding cash flow rights. Higher voting rights may give rise to serious agency problems, and are often associated with pyramid ownership structures, and crossholding. Such situations are associated with an over-reliance on debt, due to large shareholders being unwilling to dilute their ownership. This is known as *non-dilution of entrenchment* (Claessens et al., 2002).

In this context, it is also important to distinguish family firms from other non-family firms,³ as it would help one to disentangle the complex relationship between ownership structures on the one hand and capital structure and firm valuation on the other. Family controlled firms in East Asia often have a large controlling shareholder with a fringe of small shareholders so that the classic agency problem between managers and shareholders is mitigated here. Thus the controlling shareholder has the interests to monitor the manager, which in turn may increase firm value by

² Recent evidence however tends to highlight a substantial degree of ownership concentration including family ownership in large firms around the world (e.g., see, Morck et al., 2005). Such arguments are supported by large scale studies such as La Porta *et al.* (1999) as well.

³ In our sample non-family firms include both state owned and other widely held firms. While Claessens et al. (2002) conduct separate analysis for the state-owned firms for their pooled data of all countries taken together, there is insufficient observations in our case for separately analysing the behaviour of state-owned firms for each country using more complex 3SLS estimates with error components.

minimising managerial opportunism. Controlling shareholders may however still expropriate minority shareholders, thus destroying the firm value somewhat. There is also some literature (e.g., see Daly and Dollinger, 1992) to suggest that owner managed family firms are more risk-averse even at the highest level of concentration. The latter may in turn challenge the conventional wisdom of the positive effects of concentration on capital structure and firm value among family firms.

Non-family firms in contrast tend to have more dispersed ownership so that the expropriation of minority shareholders is less of an issue, while the classic conflict of interests between managers and shareholders remains pertinent. There are various ways of disciplining managers in non-family firms, including direct monitoring by the Board of Directors (despite CEO's power) and also indirectly by tying managerial rewards to firm performance, rules concerning CEO appointment and tenure. These direct and indirect rules may motivate the management to implement successful strategic decisions and prevent CEO entrenchment. Family firms in contrast rely on rather informal process of monitoring because family owners often have intimate relationship with the management (e.g., via the presence of a Cronyman in owner-managed firms); in other words, personal relations with the management in family firms embody governance mechanisms. It is also possible for the family firms to align the interests of the managers with those of the family not only in a given generation, but also across generations.

The above considerations suggest that effects of ownership on leverage and firm value will vary between owner-managed family and other non-family firms, possibly even to the extent of working in different directions. For example, for family firms, especially the owner-managed ones (i.e., those with a Cronyman), higher concentration and incentive effects may have positive effects on both capital structure

and firm value, while entrenchment effects (against minority shareholders) may increase leverage but lower firm value. Equally risk aversion may lower leverage (below the optimal) as well as firm value. Thus the total effect could be positive or negative. In non-family firms, especially which are not owner-managed, in contrast, the relationship between ownership, leverage and firm value will depend primarily on the ability of the firm to minimise managerial opportunism by formal monitoring. Entrenchment and risk-aversion effects, if any, are likely to be small. If the monitoring mechanism works, the net effect could be lower leverage but higher firm value.

It thus follows that any attempt to disentangle the complex effects of ownership on capital structure and firm valuation in East Asia requires the identification of family/other firms with respect to ownership, control and management. Although our analysis builds on Claessens et al. (2002) and retains the separation of cash flow rights (i.e., ownership) from control (i.e., voting) rights, we extend Claessens et al. (2002) in a number of ways. First, we examine the effects of ownership on both firm value and capital structure; in doing so, we also allow for the simultaneity between capital structure and firm valuation which in turn justify the joint determination of capital structure and firm performance in a sample of four countries badly affected by the recent crisis. We believe that the introduction of capital structure in this framework is particularly important for the worst affected East Asian firms during the recent crisis. This is because over-borrowing and over-investment have been identified as one major cause of the crisis, though its link to ownership structure remains much unexplored in the existing literature. Second, unlike Claessens et al. (2002), we separate ownership from management, using the ‘Cronyman’ variable (where the CEO, Board Chairman or Vice Chairman is also a

controlling owner). In particular, our analysis focuses on a distinction between (a) family firms with a Cronyman and (b) non-family firms without a Cronyman.⁴ This embodies a crucial distinction between family and non-family firms that remains much unexplored in the literature. Finally, our analysis looks at individual countries rather than pooling them together as in Claessens et al. (2002). Results highlight the differences between the sample countries, thus making a case for studying them separately.

The paper focuses on four countries worst affected by the crisis, namely, Indonesia, Korea, Malaysia and Thailand. These countries offer interesting similarities and differences: while family firms dominate in all these countries, ownership concentration is relatively less in Malaysia and Thailand; also these countries are at different stages of capital market development (e.g., see Demirguc-Kunt et al., 1995). This comparative analysis could thus potentially yield differing impacts of ownership, control and management on capital structure and firm valuation in the sample countries.⁵

The paper is developed as follows. Section 2 presents the data and discusses its characteristic features, highlighting the differences in ownership, control and management on capital structure and firm valuation in four East Asian countries, badly affected by the crisis. Section 3 builds up the methodology and analyses the results. The final section concludes.

⁴ Note that this is a useful classification in our context because a majority of family firms tend to have a Cronyman while a majority of a non-family firms do not. Thus there are insufficient observations for us to do meaningful analysis for family firms without a Cronyman and non-family firms with a Cronyman. Note that Claessens et al. (2002) distinguishes family firms from state-owned and other widely held firms. We however find that there are insufficient observations to do separate regressions for individual categories of firms and produce robust 3SLS estimates.

⁵ Note, however, that we did not have enough observations (after merging Worldscope data with ownership data) to analyse the cases of firms in Hong Kong and Singapore.

2. DATA AND PRELIMINARY OBSERVATIONS

We examine the effects of ownership structure on capital structure and firm value among listed non-financial companies in Indonesia, Korea, Malaysia and Thailand. Data used for this analysis come from two sources. Firm-level accounting data for the period 1994-98 extracted from Worldscope is matched with 1996 ownership data for these firms described in Claessens et al. (2002).⁶ La Porta et al (1999) demonstrate that ownership structures in these firms are very stable over time⁷; thus without much loss of generality we assume that ownership pattern remained more or less stable among sample firms over the period 1994-1998, before the post-crisis restructuring programmes came into operation.

2.1. Characterisation of Ownership Structure

The differences in ownership structures among firms in these countries are illustrated in Table 1A and Table 1B.

As is well documented, family ownership is the predominant form of ownership in most of these sample countries: 75% of Indonesian firms, 79% of Korean firms and 76% of Malaysian firms in our samples were family owned; the corresponding proportion was 61% for Thai firms. The rest of the firms were state owned, (e.g., Indonesia: 8%; Korea: 5%) or labelled as widely held corporations.

Secondly, management is rarely separated from ownership, especially among family firms in these countries. This is characterised by the presence of a Cronyman where the Chief Executive Officer (CEO), Board Chairman or Vice-chairman was

⁶ We also tried to include firms in Singapore and Hong Kong as the comparator countries; however there were insufficient observations in the merged files for these two countries; as a result we were unable to perform the 3SLS estimates for these countries.

⁷ Bajaj et al. (1998) too assume ownership structure to be given exogenously.

also a controlling owner. Information on the presence of a Cronyman is available in the data constructed by Claessens et al. (2002). Presence of a Cronyman was noted in as high as 85% or more family firms in all the sample countries. In contrast, presence of a Cronyman was rather uncommon among non-family firms in all the sample countries.

The separation of cash flow rights (i.e., ownership) from control (i.e., voting) rights is another important feature of East Asian corporations, especially those owned by families. This measured by a binary variable CEC that takes a value 1 if control or voting rights exceed cash flow rights. In particular, control rights exceed cash flow rights among nearly 90% or more family firms in all the sample countries. More interestingly, we observe a close association between presence of a Cronyman and higher voting than cash flow rights in the sample countries: more than 90% of Cronyman firms in Indonesia, Korea and Malaysia exhibit voting rights in excess of cash flow rights (the corresponding proportion for Thai firms was around 67%) though. In contrast, the proportion varied between 6-11% among other non-family firms in the sample countries (see Table 1).

Ownership concentration is often the most common measure of ownership in the literature. The distribution of concentration of ownership among top five shareholders clearly varies among the sample countries. The proportion of total firms with concentration greater than 50% was 47 in Indonesia, 6 in Korea and none in Malaysia and Thailand. Equally, in just around half the Indonesian and Korean firms, the top five shareholders account for 25-50% of holdings; the corresponding proportions were 16% and 23% for Malaysian and Thai firms. While in only 3% of Indonesian firms do the top five shareholders account for less than 25% of the equity, the figures are as high as 84% and 77% respectively for Malaysian and Thai firms; in

other words, level of concentration is significantly less in Malaysian and Thai firms in our samples.

We also experiment with cash flow rights of the largest shareholder as an alternative index of ownership.⁸ Average cash flow rights of the largest owner varied between 51-58% in the sample countries. We however do not find any significant difference in this respect between family and other firms in our samples.

2.2. Effects of Ownership on Capital Structure and Firm Valuation

We started with two possible indicators of capital structure, namely, debt-equity ratio, defined as total debt divided by book value of common equity, and a ratio of total debt to total assets. Given that debt-equity ratios could be negative in some cases when firms exhibit negative values of equity, we choose to use total debt to total assets as the relevant measure of capital structure in our analysis. Table 2 illustrates the average leverage among sample firms with different structures of ownership, control and management during 1994-98. We consider two sub-periods, namely, 1994-96 (pre-crisis period) and 1997-98 (crisis period). Compared with Indonesia and Malaysia, firms in Korea and Thailand relied on particularly high leverage even in the pre-crisis period. Demircuc-kunt and Maksimovic (1995) suggest that the over-reliance on debt in the worst affected countries, especially Korea, can be partially explained by the relatively low levels of stock market development in the country. The relationship between concentration and average leverage is not monotonic and it also varies among the sample countries. Average leverage is higher among firms with higher concentration (concentration>25%). Average leverage is generally higher among

⁸ Final Tables (see Appendix 1) present the estimates using concentration as the relevant measure of ownership. In an alternative specification, we also present 3SLS estimates using cash flow ownership (see Appendix 2).

family firms in Indonesia and Korea. Presence of a Cronyman however had significant impact on leverage in Indonesia and Malaysia particularly. While higher control than cash flow rights did not make a significant difference in average leverage in the pre-crisis period, the difference became significant during the crisis period, especially in Indonesia and Thailand. Average leverage increases significantly during the crisis years for all different categories of ownership, control and management.

Our indicator of firm value is Tobin's Q, which is defined as the firm's market value as a proportion of total assets. Table 2 shows the average levels of Q associated with different types of ownership structure during the pre-crisis (1994-96) and the crisis (1997-98) years. The data show a general deterioration of firm valuation during the crisis period. Average Q is generally higher among firms with greater concentration, especially in Korea and Indonesia. Effects of family ownership or presence of Cronyman on Q is however not so obvious here and may work in either direction; if at all, the effect seems to be small.

3. EMPIRICAL ANALYSIS

Our discussion in sections 1 and 2 summarises the distinctive characteristics of ownership structure in East Asian corporations, which in turn highlights the importance of identifying the ownership of family and non-family firms separately, with respect to control and management. In doing so, we particularly focus on family firms with Cronyman and non-family firms without Cronyman and analyse the effects of ownership (i.e., concentration as well as separation of ownership from control) on capital structure and firm value, taking account of their respective simultaneity.

While there are variations in ownership structures across firms, following La

Porta et al. (1999) and Bajaj et al. (1998), we consider these to be stable over the period of our analysis (at least before the post-crisis restructuring programmes were launched). We thus have a sample of panel nature for the period 1994-98 where most firm-level variables tend to vary over time while ownership variables remain time-invariant.

We do not directly observe the managerial shareholding in our data, but capture the presence of a controlling manager through the variable labelled as Cronyman in the ownership data a la Claessens et al. (2002). A high correlation between the presence of a Cronyman and family ownership in our samples may indicate a close correlation between owner and managers of a family firm. As indicated earlier, the latter could play an important role in affecting leverage and firm value of sample firms. In order to address this issue, our analysis distinguishes between family firms with Cronyman and non-family firms without Cronyman;⁹ the latter may characterise the differential nature of control and management in family (as opposed to non-family) firms.

Thirdly, the existing literature suggests efforts to minimise managerial opportunism/moral hazard plays an important role as to how ownership structure could affect capital structure and firm valuation. While this is ensured through informal mechanism in family firms, especially the owner managed ones (e.g., personal relationship between owner and manager in Cronyman firms), formal monitoring of a more direct nature plays an important role in limiting managerial opportunism in non-family firms. It is however difficult to find an appropriate and truly exogenous measure of the degree of monitoring. Various proxies have been used in the existing literature, e.g., percentage of outside directors (Mehran, 1992),

⁹ There is however insufficient number of observations to conduct the analysis for family firms without a Cronyman and non-family firms with a Cronyman.

shareholder voting rights (Lippert and Moore, 1994) or control potential (e.g., measured by institutional ownership, as in Mehran, 1995). Since we do not observe these proxies used in the literature, we generate a number of binary variables related to the separation of control rights from cash flow rights as possible measures of managerial opportunism. These may include control minus cash-flow rights (CMC) and also control exceeds cash-flow rights (CEC) of the largest owner. We generate a third variable that takes a value 1 if control rights of the largest owner are higher than cash-flow rights and if this separation is higher than the median separation in corporations where control and ownership differ (CECHIGH). Inclusion of both CEC and CECHIGH would allow us to capture non-monotonicity in the relationship, if any.¹⁰ When a large shareholder keeps significant control rights with relatively small cash flow rights, s/he has little stake in firm value and can get away despite taking reckless policies (e.g., over-borrowing) undermining the interests of the minority shareholders. Thus in this case market forces such as the product market (Hart 1983) or the corporate control market (Stulz 1988) may fail to discipline the controlling shareholder towards firm value maximisation.

A higher level of ownership (cash flow rights) concentration may also be an indication of an environment where it is costly to conduct control-related activities. Thus the level of ownership concentration among the top 5 shareholders (CONCEN) could also indirectly account for the lack of monitoring of the activities of minority of controlling shareholders.

It would also be interesting to analyse the differential effects of these moral hazard variables (e.g., CEC and CECHIGH) in family firms with Cronyman and non-family firms without Cronyman. In particular, while CEC and CECHIGH could be

¹⁰ In an alternative specification we also include CMC and the results are comparable to when we include CEC and CECHIGH though the latter were more robust. Hence we decided to present these results only.

significant for family firms relying on informal relationship, these may turn out to be insignificant for non-family firms (especially those without a Cronyman) relying more on formal monitoring mechanisms, ; the latter would constitute an indirect test of differential monitoring mechanism among non-family firms.

3.1. Empirical Relationships

Having discussed the analytical and measurement issues, we shall in this section specify the empirical relationships of our interest.

Ownership and Capital Structure

We experimented with different combinations of ownership variables and also with different threshold points for the ownership concentration variables to capture non-linearity. Equation 1 turns out to be the most parsimonious specification for determining leverage in terms of ownership structure. Thus the relationship between ownership structure and capital structure (DA) for firm i in year t is given as follows:

$$DA_{it} = \alpha_0 + \alpha_1 (Concen)_i + \alpha_2 (Concen > 50\%)_i + \alpha_3 CEC_i + \alpha_4 CEHIGH_i + \alpha_5 X_{lit} + u_{lit} \quad (1)$$

Here X_{lit} refer to other possible control variables (see discussion later in this section) and the residual error term is u_{lit} . As is evident, our specification closely follows Claessens et al. (2002); this is done with a view to facilitate comparison of our results with those of Claessens et al. (2002). The discussion below also demonstrates the extensions that we offer to previous work, including the family/ non-family distinction, and the simultaneity between leverage and firm value.

Ownership and Firm Performance

Firm valuation (Q) in our analysis is measured by Tobin's q (see discussion in section

2) and is determined as follows:

$$Q_{it} = \beta_0 + \beta_1(\text{Concen})_{it} + \beta_2(\text{Concen} > 50\%)_{it} + \beta_3\text{CEC}_{it} + \beta_4\text{CECHIGH}_{it} + \beta_5 X_{2it} + u_{2it} \quad (2)$$

Equation 2 is also the most parsimonious valuation function that we had identified after testing of alternatives against one another. Here X_{2it} captures all other possible factors and u_{2it} are the residual error term (see section 4.1.3. below).

Other Explanatory Variables

In addition to indicators of ownership structure, we include a number of other firm-specific control variables commonly used in existing studies.

Firm size: Firm size is measured by log of total sales. Firm size may be positively (Friend and Lang, 1988; Marsh, 1982) or negatively (Rajan and Zingales, 1995) related to leverage. Large firms may exercise economies of scale, have better knowledge of markets and are able to employ better managers. Large size may enable greater specialisation. It may also measure a firm's market power or the level of concentration in the industry. Large firms can however be less efficient than smaller ones, because of the loss of control by top managers over strategic and operational activities (Himmelberg et. al 1999, Williamson 1967). Also as Jensen (1986) notes professional managers of a firm (who are not the owners) derive personal benefits from expanding beyond the optimal size of the firm by their desire to have, among others, power and status. The latter may increase leverage and lower firm efficiency.

Age of the firm: Firm performance may depend on the accumulated knowledge about the market, experience and firm's reputation. Hence, one would expect a positive relationship between firm age (measured in years since establishment) and firm valuation. Old firms however, may be less open to new technology as well as more rigid in terms of style and effectiveness of managerial

governance. This may result in a negative relation between the age and performance of the firm. As for capital structure, old firms, particularly in East Asian countries, are likely to have developed close links with their lenders and hence may be able to acquire debt more easily and at a cheaper rate, resulting in a positive relationship between the age and leverage of the firm.

Investment and growth opportunities: We include sales growth in previous year and capital spending as a share of sales (investment) in the firm valuation equation. It is expected that both these variables will exert a positive effect on firm value because they proxy for a firm's growth prospects and investment. Investment variable is however dropped from the leverage equation because of the obvious simultaneity problem.

Diversification: A firm is classified as diversified if it operates in more than three market segments, each accounting for more than 10% of the total revenue of the firm. Unlike Claessens et al. (2002), we include this variable in both equations (1) and (2). Diversified firms may enjoy higher profits as a result of combining activities such as production, distribution, marketing and research. The transaction cost theory (Williamson 1975) and imperfect external capital markets provide a rationale for firms to diversify. A different strand of this literature, however, argues that diversification has a negative effect on firm performance since diversified firm is prone to cross-subsidise investments, poor growth opportunities (Berger and Ofek 1995) and the distortions in investment decisions can occur in the presence of managerial power struggle among the firm's various diversified divisions (Rajan, Servaes, and Zingales 2000). Empirically diversified firms do not appear to perform better and the causation tends to run from low performance resulting in a diversification of a firm. Inconclusive empirical evidence on this issue also suggests

that managers may have objectives other than maximising profits, such as the growth of revenue, that lead firms to become diversified. As for capital structure, Lewellen (1971) argues that diversified firms enjoy greater debt capacity.

3.2. Simultaneity between Capital Structure and Firm Performance

McConnell and Servaes (1995) argued that firm value and capital structure could be closely correlated. This is further clarified in Berger and Udell (2003). On the one hand, high leverage may reduce the agency costs of outside equity, and increase firm value by encouraging managers to act more in the interests of shareholders.¹¹ On the other, there can be reverse causation from firm efficiency/performance to capital structure. For example, more efficient firms may choose lower equity ratios than others, all else equal, because higher efficiency reduces the expected costs of bankruptcy and financial distress. More efficient firms may also choose higher equity capital ratios, all else equal, to protect the rents or franchise value associated with high efficiency from the possibility of liquidation (Berger and Udell, 2003). While the former is known as the efficiency-risk (ER) hypothesis the latter is known as the franchise-value (FV) hypothesis. The estimated coefficient of Q in the leverage equation would capture the net value of these two possible effects that work in opposite directions.

We also examine if there is any non-linearity in the effects of leverage on firm valuation and conversely, that of firm value on leverage in our samples where firm value is taken to be a measure of firm efficiency. For example, if leverage is relatively

¹¹ Most existing literature in this area seeks to investigate the relation between profits (internal finance) and the choice between debt and equity (external finance). This however tends to be within a single equation approach, thus ignoring the potential simultaneity in the determination of profits and leverage. This is perhaps surprising when one considers the large literature that is concerned with determining the optimal capital structure at the firm level, see for example Rajan and Zingales (1995), or Roberts (2002) and the literature discussed therein.

high, further increases may generate significant costs including bankruptcy cost and thus may lower firm value. Similarly, effects of firm value on leverage could be non-monotonic; while at lower level of firm value ER could be greater than FV, FV could exceed ER at a higher level of firm value. Accordingly, we initially included a square Q term in the leverage equation and square leverage term (DA) in the Q equation though in the final analysis this turns out to be rather insignificant.¹²

If firm valuation affects the choice of capital structure and vice versa, then the failure to take this into account may result in serious simultaneity bias, with important implications for pattern of firm financing and valuation. In the light of the two-way relationship between capital structure and firm efficiency, we need to allow for the simultaneity between capital structure and firm performance. Thus equations (1) and (2) are modified as follows:

$$DA_{it} = \alpha_0 + \alpha_1(Concen)_i + \alpha_2(Concen > 50\%)_i + \alpha_3CEC_i + \alpha_4CECHIGH_i + \alpha_5X_{1it} + \alpha_6Q_{it} + u_{1it} \quad (3)$$

$$Q_{it} = \beta_0 + \beta_1(Concen)_i + \beta_2(Concen > 50\%)_i + \beta_3CEC_i + \beta_4CECHIGH_i + \beta_5X_{2it} + \beta_6DA_{it} + u_{2it} \quad (4)$$

While most variables are included in both equations (3) and (4), there are also some identifying variables, i.e., variables that are included in one of these equations only. This becomes particularly evident as we introduce simultaneity between leverage and profit equations (3) and (4). Thus Q_{it} is included in equation (3) and not in (4); while leverage (DA) is included in Q equation (4) only. We also experiment with the square

¹² However, in view of the insignificant squared leverage term in the single equation Q estimates, we only included the squared Q term in the leverage equation in all the sub-samples (see Table A1-A4). There is however no evidence of non-linearity in our sample as the squared Q term remains insignificant in the 3SLS estimates across the sub-samples (see Table A2-A4).

terms of q in (3) and that of DA in (4);. In addition, the investment variable is only included in the firm valuation equation.

3.3. Econometric Considerations

Given that the ownership information is available only for the year 1996, we could construct a cross-section data-set for the period 1996-1998. This would however mean a single observation for each firm such that leverage and firm performance relate to the average values of these variables for the period while all other variables correspond to the initial year 1996. There are at least two disadvantages with this kind of data-set. First, the relationship between capital structure and firm performance is more pertinent for a given firm over time rather than among the cross-section of the firms. Thus a single cross-section cannot capture the aspect of time variation for a particular firm. Second, results based on only 1996-98 period are likely to be misleading as many firms in these countries were facing the full effects of the crisis. Thus by focusing on the crisis period only, we may lose sight of some significant behavioural patterns among these Asian corporations. Accordingly, we make use of the annual panel data-set for the period 1994-98, which we believe would capture the behavioural transition of these corporations better from the pre-crisis years into the crisis.

An important issue here relates to the potential endogeneity of ownership highlighted by Demsetz (1983). In this vein Demsetz and Lehn (1985) used two stage least square estimates (treating ownership as potentially endogenous) to suggest that ownership has no significant effect on firm performance, which is further confirmed by Hermalin and Weisbach (1988) and Cho (1998). On the other hand, Morck et al. (1988) among others ignored the issue of endogeneity of ownership structure and

produced evidence of a statistically significant effect of ownership structure on performance. Given that our ownership information is available only for 1996, we assume ownership structure to be exogeneously given in our sample (while other variables varied across firms as well as over time) for 1994-98 (before post-crisis ownership restructuring programme was launched in the sample countries); the latter could be supported in the light of La Porta et al. (1999).¹³ This allows us to focus directly on the issues of our interest, i.e., to reinvestigate the effects of ownership structure on capital structure and firm valuation, among others, accounting for the possible simultaneity between capital structure and firm value.

Although, we have analytically rationalised the simultaneity between leverage and firm value, it is still important to test the hypothesis explicitly. Strictly, this involves testing for endogeneity in the variables, using a standard Hausman test. In all sub samples, and all models discussed above exogeneity of leverage in Q (equation 4), and Q in leverage (equation 3) is rejected. This therefore means that the standard “within” panel data determination of capital structure and firm performance, as is often reported in the literature is invalid. While it is trivial to correct for the potential endogeneity with instrumental variables estimation, a preferred strategy is to jointly estimate equations (3) and (4), allowing for simultaneity between capital structure and firm valuation. While the use of panel data to estimate systems of simultaneous equations is well understood, this generally involves converting the data to differences and estimating the system by either three stage least squares (3SLS) or generalised methods of moments (GMM) using lagged values as instruments to generate orthogonality conditions on differenced data. This is a straightforward simultaneous equations estimator following Holtz-Eakin et al. (1988) or Cornwell et al. (1992),

¹³ This could further be rationalised in terms of an absence of a market for corporate control in the selected countries.

which allows for individual effects both within individual equations and in the covariance matrix between the equations, based on the more general approach of Arellano and Bond (1988, 1991) or the more recent Blundell and Bond (1998) GMM systems estimator. These approaches rely on employing lagged values as instruments; so with short panels of unbalanced data such estimation reduces the number of observations dramatically. However, the essential problem that we face is that the data contain time-invariant variables (e.g., ownership variables). As such, one cannot adopt one of these approaches, as differencing the data becomes infeasible. We therefore adopt the 3SLS “within” estimation with error components suggested by Baltagi and Li (1992), based on Baltagi (1981). In practice this involves estimating equations (3) and (4) separately using a standard “within estimator”¹⁴ method, and then calculating the covariance matrix between the equations using the errors. The data are then transformed by dividing through by the square root of the covariance, and finally equations (3) and (4) are estimated by 3SLS employing the transformed data.¹⁵ As the use of 3SLS over 2SLS implies further restrictions in the model, these restrictions can be tested again using a standard Hausman F test, and in all cases these restrictions are not rejected.

A final consideration is the issue of stability of coefficients across firms, which again is often ignored in this literature. As is outlined above, a high proportion of firms in SE Asia are family owned, with high concentrations of voting rights. There is however a significant group of firms that do not conform to this pattern. Given the

¹⁴ For both equations, random the random effects estimator rejects the restriction of fixed effects in all the sample countries.

¹⁵ Our estimation technique is significantly different from Claessens et al. (2002) who use single equation random effects estimates of firm value for pooled data containing firms for all the sample countries. With panel data, there is also the concern that the standard errors on some coefficients are biased downwards due to correlation across years. The standard “clustering” algorithm is employed to allow for this – see for example Petersen (2006). However, in practice the panels used here are relatively unbalanced, such that the difference between the clustered and unclustered standard errors is small.

issues that this paper seeks to address, the relationship between ownership, leverage and Tobin's Q, one must consider whether any model designed to test for this would be expected to generate consistent results across these sub-samples. Accordingly, we test for this in each of the models that we present below. The hypothesis of uniform coefficients across groups is strongly rejected in every case using a standard F test, while the individual parameters point to the sources of this instability. A chow test for stability of coefficients across groups of firms within each country is presented in the tables below.

4. EMPIRICAL RESULTS

In this section we present and analyse the 3SLS estimates with error correction for the most parsimonious leverage and firm value equations (3) and (4). We start with the pooled sample of all firms for individual sample countries.¹⁶ However pooling of firms under different ownership structures could bias the estimates, especially if these firms are managed and controlled differently. Hence, we also compare the estimates for all firms with those for family firms with a Cronyman and non-family firms without a Cronyman. The proportion of firms in the other two sub groups, namely, family firms without a Cronyman and non-family firms with a Cronyman for each country are too small for any 3SLS results to be meaningful. Full 3SLS results are summarised in Appendix 1 Tables A2-A4 while a summary of results for the effects of ownership structure on leverage and firm-valuation is presented in Table 4. One

¹⁶ We started with the pooled sample of all firms in the sample countries. However pooling of firms under different ownership structures (and controlled and managed differently) could bias the results, especially when the nature of the legal/political institutions is different in these countries. The results we present illustrate significant differences in the coefficient across countries, such that any model attempts to impose uniform coefficients across countries is invalid.

can also compare the 3SLS estimates (Appendix Table A2) with the corresponding single equations fixed-effects estimates presented (Appendix Table A1) Among other things, there is evidence that the single-equation estimates tend to under-estimate the effects of firm value on leverage and that of leverage on firm value. Our discussion in this section is therefore couched in terms of the 3SLS estimates with error correction with specific reference to family firms with a Cronyman (Table A3) and non-family firms without a Cronyman (Table A4).

4.1. Effects of ownership structure

Effects of ownership concentration on leverage and firm valuation seem to differ somewhat across the sample countries and also for the particular sub-sample (family/non-family firms with/without Cronyman) for a given country. Our discussion in this section tends to highlight the distinction between family firms with a Cronyman and non-family firms without a Cronyman. It is evident that concentration reduces agency conflicts for both groups of firms and tends to maximise firm valuation, even after accounting for expropriation of minority shareholders. Effects of concentration on leverage however differ between these two groups of firms: higher concentration increases leverage in family firms while it tends to lower it among non-family firms in Indonesia, Malaysia and Thailand. Thus there is some support to the hypothesis of non-dilution of entrenchment in family firms, while the effect is absent among non-family firms. The case of family firms in Thailand seems to be somewhat different from the other countries where incentives and risk-aversion effects tend to outweigh each other making the overall effect insignificant.¹⁷

¹⁷ In order to further test the robustness of ownership results, we also estimated an alternative specification of (3) and (4), replacing concentration (of cash flow rights among top five shareholders) by cash-flow rights of the largest shareholder (see Tables in Appendix 2). In this case, we obtain mixed results: effects are similar for Indonesia, but not for Korea and Malaysia and remain insignificant for

Next we analyse the effects of managerial opportunism/moral hazard/monitoring (as measured by CEC and CECHIGH)¹⁸ on leverage and firm valuation. The results presented here suggest that CEC has little impact on leverage and firm valuation among non-family firms without a Cronyman while its effects on leverage and Q of family firms with a Cronyman are significant. In fact, the latter seems to be rather similar to the effects of concentration among these family firms with a Cronyman. Higher voting rights (in relation to cash flow rights) among family firms with a Cronyman have significantly positive effects on leverage and Q in Indonesia, Korea and Malaysia; as before these effects remain insignificant for firms in Thailand. The essential implication of these results is that incentive effects among family firms tend to dominate, which in turn yield favourable effects of higher control than cash flow rights. For non-family firms without a Cronyman, however, effects of CEC and CECHIGH are largely insignificant. This suggests that there is effective direct and formal monitoring in such firms, which acts to minimise managerial opportunism/moral hazard problems. There is also some evidence of non-linearity in the effects of monitoring (or lack of it) on leverage and firm performance among family firms; the latter is particularly interesting for firms in Thailand. While CEC remain insignificant on both leverage and Q among these firms (for both family and non-family firms), CECHIGH have significant and negative effects on leverage and firm valuation among family firms with a Cronyman in Thailand (the effect remains insignificant among non-family firms though). Similar effects are observed among

Thailand as before. It is likely that higher cash flow rights of the largest owner (as opposed to top 5 owners) is associated with greater risk-aversion than incentive effects among the family firms with a Cronyman, thus causing negative impact on both leverage and firm value. Note however that these results may suffer from the problem of multicollinearity as the cash flow rights of the largest owner could be closely correlated with CEC for the largest owner.

¹⁸ In an alternative specification we replace CEC and CECHIGH with control minus cashflow rights (CMC) and find rather similar results.

family firms with a Cronyman in Malaysia. In other words, higher degree of moral hazard (relative to the median level) tends to lower leverage as well as Q among family firms in Malaysia and Thailand; this effect is however absent among similar firms in Indonesia and Korea.

4.2. Effects of other variables

There is also some evidence of a significant simultaneity between leverage and firm valuation in our samples. Irrespective of the choice of sub-group, higher Q significantly lowers relative debt levels in all the sample countries. Similarly, higher leverage significantly lowers Q in all the countries. There is however no evidence of non-linearity in this respect in any of the sample countries. While only the squared Q term was significant in the single equation estimates (Table A1), it remains insignificant in the 3SLS estimates for all sub-samples (Table A2-A4).

Among other variables, degree of diversification appears to be particularly important among both family and non-family firms in Thailand; higher rate of diversification is associated with higher levels of leverage and firm valuation among firms in this country. In general older family firms with Cronyman tend to have significantly higher leverage and firm valuation in Korea, Malaysia and Thailand while these effects are opposite in Indonesia. Effects of age are however generally small among non-family firms in our sample countries.

5. CONCLUDING COMMENTS

While many recent studies have highlighted the role of weak corporate governance in the recent Asian crisis (e.g., Claessens et al., 2000, 2002), effects of corporate

governance (as reflected in the ownership structure) on both capital structure and firm valuation among Asian firms remain much unexplored. The present paper therefore attempts to disentangle the complex relationship between ownership structure, on the one hand, and capital structure and firm valuation, on the other, among firms in four East Asian countries worst affected by the crisis.

Unlike Claessens et al. (2002), our results tend to vary between the sample countries with different institutional/legal institutions and perhaps question the basis of pooling of firms in different countries. Secondly, our estimates highlight the importance of differentiating the effects of ownership not only from control but also from management. Our analysis thus focuses on a distinction between family firms with a Cronyman and non-family firms without a Cronyman. While the effects of ownership (concentration) on firm value are similar among family and non-family firms those on leverage are different; in particular there is evidence of non-dilution of entrenchment among family firms as found by Claessens et al. (2002). These two groups of firms however behave differently with respect to managerial opportunism as measured by the separation of control and cash flow rights. Separation of control from cash-flow rights have limited effects on leverage and valuation among non-family firms without a Cronyman, while these seem to matter significantly for the family firms with a Cronyman. In particular, there is evidence that incentive effects among family firms are strong in all the countries except Thailand; however, large difference in control and cash flow rights may give rise to entrenchment effects (in excess of incentive effects) among Thai family firms with Cronyman.

If there is one lesson to be learnt from the last Crisis, it is that these corporations have become over-reliant on debt, this in part being a function of the prevailing ownership structures. One must therefore question whether firms in these

countries will be able to maintain their robust patterns of recovery unless they reduce their leverage by going directly to capital markets rather than to banks. Of course East Asian countries will gain little by dismantling large family owned businesses. What is needed at this stage is the strengthening of bank-based corporate governance and other legal and judicial reforms that will improve the transparency and accountability of these enterprises and better protection of minority shareholders.

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TABLES

Table 1. Ownership Structure

Ownership	Korea	Indonesia	Malaysia	Thailand
Cash flow rights of the largest owner	51%	58%	58%	57%
Average for all firms	17.4%	29.6%	27%	35%
Average for family firms	18.5%	26.7%	26%	35%
Average for non-family firms	14%	37%	15%	36%
Family Ownership				
% of total firms with family ownership	79	75	76	61
Concentration of ownership				
% of total firms with Concentration				
>50%	6	47	0	0
25%- 50%	45	50	16	23
<25%	49	3	84	77
Highest level of concentration	63%	73%	32%	31%
Cronyman =1				
% total firms	69	69	85	42
% of family owned firms out of firms with cronyman =1	86	98	89	86
% of other firms	14	2	11	14
Control exceeds cashflow (CEC)				
% of total firms	25	54	39	12
% of firms with cronyman =1 out of firms with CEC =1	90	92	94	67
% of firms with Concen>50% out of firms with CEC =1	8	49	0	0
% of family firms out of firms with CEC =1	89%	94%	94%	89%
% of other firms out of firms with CEC =1	11%	6%	6%	11%
% of family firms with CEC=1 and Cronyman=1	91%	100%	98%	100%
% of non-family firms with CEC=1 and Cronyman=1	9%	0%	2%	0%

Table 2. Effects of ownership structures on leverage and firm performance

	Leverage	Tobin's Q	Leverage	Tobin's Q	Leverage	Tobin's Q
Korea	Concentration<25		25<= Concentration >=50		Concentration>50	
1994-96	0.51	0.21	0.47	0.27	0.37	0.34
1997-98	0.59	0.12	0.54	0.22	0.39	0.32
	Family firms		Other firms			
1994-96	0.49	0.25	0.46	0.26		
1997-98	0.56	0.18	0.51	0.18		
	CEC=1		CEC =0			
1994-96	0.48	0.26	0.49	0.25		
1997-98	0.57	0.19	0.55	0.17		
	Cronyman=1		Cronyman =0			
1994-96	0.49	0.24	0.47	0.28		
1997-98	0.56	0.18	0.55	0.16		
Indonesia	Concentration<25		25<= Concentration >=50		Concentration>50	
1994-96	0.24	0.40	0.38	0.05	0.28	0.50
1997-98	0.43	0.08	0.65	0.19	0.51	0.32
	Family firms		Other firms			
1994-96	0.36	..47	0.29	0.48		
1997-98	0.61	0.23	0.48	0.30		
	Cronyman =1		Cronyman =0			
1994-96	0.34	0.48	0.28	0.49		
1997-98	0.61	0.23	0.50	0.29		
	CEC=1		CEC =0			
1994-96	0.37	0.47	0.31	0.48		
1997-98	0.63	0.21	0.51	0.28		
Malaysia	Concentration<25		25<= Concentration >=50		Concentration>50	
1994-96	0.21	0.51	0.19	0.50	-	-
1997-98	0.35	0.38	0.27	0.50	-	-
	Family firms		Other firms			
1994-96	0.21	0.51	0.21	0.54		
1997-98	0.34	0.42	0.32	0.32		
	Cronyman =1		Cronyman =0			
1994-96	0.19	0.54	0.24	0.55		
1997-98	0.30	0.38	0.36	0.25		
	CEC=1		CEC =0			
1994-96	0.21	0.51	0.20	0.51		
1997-98	0.30	0.48	0.32	0.43		

Table 2. (continued)

	Leverage	Tobin's Q	Leverage	Tobin's Q	Leverage	Tobin's Q
Thailand	Concentration<25		25<= Concentration >=50		Concentration>50	
1994-96	0.41	0.43	0.39	0.47	-	-
1997-98	0.56	0.26	0.64	0.17	-	-
	Family firms		Other firms			
1994-96	0.40	0.44	0.40	0.43		
1997-98	0.56	0.26	0.41	0.21		
	Cronyman =1		Cronyman =0			
1994-96	0.40	0.44	0.39	0.43		
1997-98	0.59	0.22	0.62	0.16		
	CEC=1		CEC =0			
1994-96	0.38	0.41	0.39	0.45		
1997-98	0.76	-0.06	0.58	0.24		

Table 3. Model specification

Explanatory variables	Dep. Variable Leverage	Dep. Variable Q
Firm size (SALES)	✓	✓
Growth of sales (GSALE)	✓	✓
Age of the firm (AGE)	✓	✓
Diversification (DIVER)	✓	✓
Capital expenditure (IS)	-	✓
Concentration (CONCEN)	✓	✓
Concentration > 50%	✓	-
Control exceeds cashflow (CEC)	✓	✓
Control exceeds cashflow high (CECHigh)		
Q ratio (Q)	✓	-
Square of Q (Qsq)	✓	-
Leverage (TDTA)	-	✓
Leverage square (TDTAsq)	-	✓
Cash flow rights of the first owner(CASH1)	✓ (alternative)	✓ (alternative)

Table 4A. Summary Statistics

	Indonesia		Korea		Malaysia		Thailand
	Mean	Std Dev	Mean	StdDev	Mean	StdDev	Mean
Leverage	0.47911	0.29200	0.52120	0.26861	0.26840	0.36528	0.47391
Firm value Q	0.35008	0.31135	0.22137	0.33338	0.46079	0.59410	0.34800
Firm size	225.99228	460.3315	1659.754	4091.887	368.73532	649.26434	236.4176
Growth of sales	-0.27975	0.85491	13.77369	28.08173	1.10957	0.68242	1.20406
Age of the firm	25.16822	15.04544	32.89511	12.94478	28.75952	17.32579	22.45253
Investment share	0.74498	1.98248	0.83296	2.83325	0.53313	1.59104	1.66979
Diversificatiobn	0.28660	0.45288	0.35776	0.47969	0.55311	0.49767	0.19620
Concentration (%)	47.64486	9.90699	26.72135	12.23322	18.08016	5.96657	19.87975
Concentration>50%	26.71340	28.08745	3.07967	12.87189	0.00000	0.00000	0.00000
CEC	0.64798	0.47835	0.66810	0.47123	0.81764	0.38653	0.63924
CECHIGH	0.48598	0.50058	0.52155	0.49989	0.48898	0.50038	0.42089
Cash flow rights of the largest owner	29.56075	13.42259	17.83190	9.46917	26.76954	12.21778	34.79051

**Table 4B. Effects of ownership structure on leverage and firm valuation:
A summary of results**

Variables	Country	All firms		Family firms with a Cronyman		Non-family firms without a Crony	
		Leverage	Q	Leverage	Q	Leverage	Q
Concentration	Indo	+ *	+ *	+ *	+ *	- *	+ *
	Korea	+ *	+ *	+ *	+ *	- *	+ *
	Malaysia	+ *	+ *	+ *	+ *	+ *	+ *
	Thailand	+	+	+	-	- *	- *
CEC	Indo	+ *	+ *	+ *	+ *	- *	+ *
	Korea	+ *	+ *	+ *	+ *	-	+
	Malaysia	+ *	+ *	+ *	+ *	+	+
	Thailand	+	+	-	-	-	-
CECHIGH	Indo	+	+	-	-	-	+
	Korea	+ *	+ *	+	+	+ *	+ *
	Malaysia	-*	-*	- *	- *	-	-
	Thailand	- *	- *	- *	- *	-	+

APPENDIX 1

Table A1. Single equation estimates of leverage and firm value, all firms

	Indonesia		KOREA		MALAYSIA		THAILAND	
Dependent variable: leverage								
Variable	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
Firm size	-0.0000300	-0.82	-0.00000159	-0.60	-0.0000629	-2.75**	--0.0000039	-1.76*
Firm value	-0.4174	-17.86**	-0.2700	-7.62**	-0.7539	-19.87**	-0.9381	-44.30**
Firm value square	-0.1724	-3.80**	0.0680	5.54**	-0.0572	-10.79**	-0.0666	-9.77**
Growth of sale	-0.0124	-0.98	.0000000245	.0000991	.00044	0.30	.00046	1.83*
Firm age	.000124	0.70	.000276	3.54**	.000103	1.23	-0.000254	-0.30
Diversification	0.0664	1.33	.000468	0.22	-0.0317	-1.12	-0.0174	-0.54
Concentration	.000279	0.72	.0000737	0.73	-.000059	-0.25	.000351	1.58*
Concentration>50%	-.000151	-1.06	-.0000351	-0.39				
CEC	-0.0658	-2.45**	-0.0105	-0.48	-0.0288	-0.96	.0000801	0.07
CECHIGH	0.0907	2.01**	.0000283	0.01	-0.0507	-2.18**	-.000914	-0.90
Intercept	0.5911	3.54**	0.4774	9.25**	0.6989	10.36**	0.7304	11.42**
R-sq	0.366131		0.8493		0.6499		0.8167	
AR(1) (p value)	1.295(0.254)		1.074(0.300)		1.562(0.2114)		1.995(0.1578)	
SSR	25.9740		26.1321		8.74349		3.1829	
Dependent variable: Firm value								
Variable	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
Firm size	.0000000232	.00061	-.000000649	-1.98**	-.0000066	-1.99**	-.0000038	-1.29
Leverage	-0.4387	-16.98**	-0.6314	-15.82**	-1.1255	-20.55**	-1.2235	-63.59**
Growth of sale	-0.0234	-1.59*	.0000862	2.73**	0.0266	0.94	.000391	0.96
Diversification	-0.0251	-0.46	-0.0156	-0.60	-0.0472	-1.19	-0.0114	-0.30
Firm age	-.000104	-0.55	.0000896	0.92	.0000668	0.58	.0000413	0.41
Concentration	.000542	1.31	.000422	3.42**	-.000421	-1.24	.000375	1.44
Concentration>50%	.0000204	0.13	-.000160	-1.44*				
CEC	0.1279	4.95**	0.0803	2.94**	0.1123	1.98**	-0.0244	-1.54*
CEChigh	-0.0643	-1.32	-7.00008	-0.03	-0.0784	-1.80*	-6.00002	-0.40
Investment share	0.0118	1.56*	0.0108	2.79**	.000983	0.85	.0000324	0.46
Intercept	0.2007	1.10	0.2902	4.33**	0.7777	7.73**	0.8184	10.88**
R-sq (adj)	0.9643		0.3662		0.5642		0.9023	
AR(1)	3.214 (0.073)		3.078 (0.079)		3.198 (0.0737)		3.450 (0.063)	
SSR	36.0421		19.0818		12.7568		2.6800	
Observations(firms)	321 (91)		656 (162)		493 (129)		287 (70)	

Table A2. 3SLS estimates of leverage and firm valuation, all firms

Parameter	Indonesia		Korea		Malaysia		Thailand	
	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
Intercept	0.7253	25.35**	0.6404	50.04**	0.4793	22.53**	0.5963	32.15**
Firm size	-.000000846	-3.01**	-.000000036	-2.54**	.0000000963	-1.96*	.0000247	1.69*
Diversification	.000158	0.73	.000126	1.87*	-.00000646	-0.92	.000207	2.73**
Firm age	.0000196	0.24	-.0000168	-0.72	.0000523	2.02**	5.000008	1.41
Firm value	-0.0567	-35.03**	-0.0477	-21.58**	-0.0302	-8.88**	-0.0160	-17.07**
Firm value square	.0000000591	.0000584	.000122	0.22	.000148	0.58	-.000196	-0.81
Growth of sale	-.0000155	-0.12	3.0000005	0.34	.000101	1.41	-.0000161	-0.55
Concentration	.0000170	1.66*	.0000137	4.10*	.0000386	7.19**	.000005172	1.04
Concentration>50%	.00000118	0.20	-.00000626	-1.65*				
CEC	.00074	3.65**	.000232	2.68*	.000469	3.69**	.000088	0.81
CECHIGH	.0000164	0.08	.00022	2.86**	-.000191	-2.42**	-.000489	-9.40**
R-sq (adj)	0.3564		0.7024		0.5981		0.4014	
AR (1)	2.003(0.157)		1.65 (0.199)		1.585(0.208)		2.484(0.115)	
Sargan (p-value)	0.255		0.231		0.247		0.186	
SSR	37.3243		39.0018		39.5117		10.1496	
Firm Value equation								
Intercept	12.7873	19.42**	13.387	15.15**	16.2059	11.34**	34.052	9.63**
Firm size	-1.00006	-3.02**	-.000000755	-2.77**	-.00000338	-2.07**	.0000148	1.66*
Leverage	-17.6304	-30.33**	-20.8952	-15.59**	-33.855	-13.66**	-57.0457	-9.64**
Growth of sales	-.0027	-0.12	.00000787	0.39	0.0353	1.47*	-.000943	-0.53
Firm age	.0000346	0.24	-.0000421	-0.94	.000191	2.22**	.000356	1.45*
Diversification	0.0279	0.73	0.0269	2.07**	-0.0257	-1.10	0.1167	2.60**
Concentration	.000300	1.66*	.000288	5.60**	0.0132	8.06**	.000301	1.01
Concentration>50%	.0000208	0.20	-.000130	-1.79*				
CEC	0.1306	3.70**	0.0482	2.88**	0.1593	4.08**	0.0624	0.92
CECHIGH	.000290	0.08	0.047096	3.22**	-0.0646	-2.42**	-0.2912	-12.47**
Investment share	-.0000017	-0.02	.000166	1.57*	.0000753	0.12	-.0000128	-0.21
R ² (adj)	0.7726		0.6825		0.7783		0.8619	
AR(1)	2.722(0.100)		2.613(0.106)		2.003(0.157)		2.366(0.124)	
Sargan.	0.314		0.288		0.241		0.299	
SSR	51.20		21.256		28.13		17.5647	
Observations (firms)	321 (91)		656 (162)				287 (70)	

Table A3. 3SLS estimates of leverage and firm valuation, Family firms with Cronyman

	Indonesia		Korea		Malaysia		Thailand	
Leverage equation								
Parameter	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
Intercept	0.7875	21.99**	0.6933	34.29**	0.4581	19.93**	0.6368	18.47**
Firm size	-.00000068	-1.68*	-.000000022	-1.33	-.000000133	-2.73**	.000000333	0.70
Diversification	.000380	1.18	-.0000279	-0.23	-.0000249	-0.34	.000572	2.09**
Firm age	-.0000357	-2.35**	.00000791	2.26**	.00000966	3.58**	.00000604	0.88
Firm value	-0.0828	-27.48**	-0.0664	-9.92**	-0.0357	-7.97**	-0.0166	-5.45**
Firm value square	-.00000112	-.000532	.000728	0.49	.000431	1.22	-.00059	-0.89
Growth of sales	.000113	0.48	-.00000829	-3.03**	.0000749	1.01	.000175	1.28
Concentration	.0000422	3.46**	.0000103	2.33**	.0000387	6.72**	-.0000240	-1.21
Concentration>50%	-.000001	-0.73	-.00001	-0.25				
CEC	.000867	3.05**	.000470	2.64**	.000635	4.45**	-.0000282	-0.14
CECHIGH	-.000299	-1.08	.0000256	0.17	-.000153	-1.88*	-.000516	-5.39**
R ² (adj)	0.800		0.6214		0.607			0.51
AR(1)	2.135(0.144)		0.8172(0.366)		0.9663(0.325)			0.70(0.40)
Sargan.	0.301		0.258		0.243			0.20
SSR	29.81		17.54		30.20			5.23
Firm value equation								
Intercept	9.5135	16.44**	10.7932	11.71**	13.4114	9.63**	29.8499	6.40**
Firm size	-.00000817	-1.69*	-.00000042	-1.54*	-.00000435	-3.01**	.0000211	0.90
Leverage	-12.0803	-23.99**	-15.5113	-11.63**	-29.4037	-11.49**	-46.7103	-6.33**
Growth of sale	0.01368	0.48	-.000125	-3.39**	0.0253	1.15	0.1075	1.51*
Firm age	-.000431	-2.38**	.0001	2.15**	.000331	4.25**	.000342	0.10
Diversification	0.0459	1.18	-.000449	-0.27	-0.0151	-0.69	0.2775	1.91*
Concentration	.0000509	3.51**	.000168	2.84**	0.0116	7.52**	-0.0123	-1.19
Concentration>50%	-.0000729	-0.73	-.0000325	-0.35				
CEC	0.1047	3.13**	0.0720	3.04**	0.1875	5.03**	-0.0181	-0.18
CECHIGH	-0.0361	-1.10	2.0004	0.12	-0.0481	-1.95*	-0.2585	-5.93**
Investment share	.0000081	0.06	.000262	2.39**	.000541	0.43	-.000203	-0.21
R ² (adj)	0.921		0.8813		0.890		0.899	
AR(1)	1.199(0.273)		1.553(0.2127)		2.163 (0.141)		2.009(0.156)	
Sargan.	0.255		0.299		0.102		0.095	
SSR	8.73		10.32		18.4		12.25	
Observations (firms)	234 (66)		507 (125)		394 (103)		178 (47)	

Table A4. 3SLS estimates of leverage and firm valuation, non-family firms without Cronyman

	Indonesia		Korea		Malaysia		Thailand	
Leverage Equation	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
Intercept	0.8558	9.79**	0.5345	25.44**	0.5731	7.24**	0.6027	18.68**
Firm size	-.0000043	-1.77*	.0000000432	1.38	-.0000014	-2.05**	.000000845	1.47*
Diversification	0.014979	1.57*	.0000897	0.76	-.0000096	-.000173	0.0103	2.64**
Firm age	-.0000189	-0.50	.00000399	0.42	.0000142	0.52	.0000347	2.96**
Firm value	0.1348	2.44**	-0.0448	-3.53**	-0.1216	-7.48**	-0.0428	-9.87**
Firm value square	-0.0318	-0.58	0.0101	0.40	.00000453	.000302	-.0000518	-0.14
Growth of sale	-.0000127	-0.03	.00000368	1.43	-.000238	-0.66	.000377	1.29
Concentration	-.0000857	-1.78*	.0000127	1.89*	3.0004	3.49**	-.000377	-1.63*
Concentration>50%	.0000258	0.7849	-.0000127	-0.90				
CEC	-0.0228	-2.9635**	-.000102	-0.48	0.0100	0.51	-.000152	-0.59
CECHigh	-0.0164	-1.4196	.000284	2.98**	-.000371	-0.83	.00011	0.45
R ² (adj)	0.5921		0.6621		0.4452		0.491	
AR(1),	1.556(0.212)		1.699(0.1924)		1.477(0.224)		1.329(0.249)	
Sargan.	0.155		0.2234		0.2255		0.2336	
SSR	10.258		4.26		2.905		2.907	
Firm value equation								
Intercept	-5.6691	-3.31**	9.0591	3.96**	4.6496	4.74**	14.0028	7.11**
Firm size	.0000238	1.29	.000000326	0.47	-.000011	-2.08**	.0000198	1.48*
Leverage	6.2344	2.68**	-16.7799	-4.00**	-8.0953	-5.88**	-23.2147	-7.38**
Growth of sale	.0000312	0.01	.00000706	1.70*	-0.0189	-0.68	0.0875	1.37
Firm age	.0000441	0.17	.000100	0.63	.000121	0.58	.0000805	3.06**
Diversification	-0.0945	-1.35	0.0106	0.54	-.000500	-0.01	0.2386	2.80
Concentration	.000596	2.36**	.000288	2.79**	0.0274	4.28**	-.00072	-1.71*
Concentration>50%	-.0000914	-0.43	-.000205	-0.65				
CEC	0.1869	4.15**	.000551	0.15	0.0818	0.54	-0.0341	-0.58
CECHigh	0.0912	0.97	0.0693	5.02**	-0.0309	-0.91	0.0258	0.45
Investment share	0.0406	1.14	.000992	1.20	.0000627	0.25	.0000341	0.04
R ² (adj)	0.709		0.4726		0.726		0.864	
AR(1),	1.533		2.087		2.399		2.877	
	(0.216)		(0.1486)		(0.121)		(0.090)	
Sargan.	0.2117		0.2339		0.1008		0.1087	
SSR	12.365		6.51		4.39		4.59	
Observations (firms)	87 (25)		149 (37)		99 (26)		109 (23)	

Appendix 2

3SLS estimates of leverage and firm valuation, family firms with cronyman
Alternative estimates using cash flow rights of the largest shareholder

	Indonesia		Korea		Malaysia		Thailand	
Leverage equation	Estimate	t-stat	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
Parameter								
Intercept	0.7431	20.69**	0.6470	35.85**	0.4245	18.50**	0.6063	18.73**
Firm size	-.000000706	-1.70*	-.0000000279	-1.34	-.00000014	-2.68**	3.0000004	0.70
Diversification	.000357	1.14	-.0000299	-0.23	-.0000246	-0.34	.000551	1.97**
Firm age	-.0000336	-2.19**	.00000836	2.22**	.0000101	3.66**	.00000567	0.86
Firm value	0.0859	-26.49**	-0.0634	-9.87**	-0.0336	-8.27**	-0.0162	-5.68**
Firm value square	-.00000120	-.00050	.000705	0.45	.000442	1.19	-.000552	-0.92
Growth of sales	.000117	0.46	-.00000809	-2.86**	.0000748	1.06	.000167	1.24
Cash flow rights of the largest owner	.000319	3.01**	-.000146	-2.48**	.000104	0.56	-.0000893	-1.07
CEC	.000839	2.86**	.000494	2.61**	.000659	4.49**	-.0000278	-0.14
CECHIGH	-.000297	-1.03	.0000242	0.16	-.000152	-1.90*	-.000551	-5.67**
R ² (adj)	0.758		0.591		0.588		0.48	
AR(1),	2.057 (0.052)		0.857 (0.355)		1.009(0.315)		0.699 (0.403)	
Sargan.	0.355		0.266		0.243		0.222	
SSR	30.56		19.62		33.47		5.77	
Firm value equation								
Intercept	9.0773	17.55**	10.9305	12.03**	13.3329	10.27**	27.8405	6.42
Firm size	-.00000805	-1.58*	-.000000403	-1.43*	-.00000438	-2.82**	.0000210	0.93
Leverage	-11.3766	-24.17**	-15.1259	-11.19**	-30.1295	-11.00**	-45.3502	-6.31**
Growth of sale	0.01359	0.48	-.000127	-3.18**	0.0260	1.14	0.1034	1.58*
Firm age	-.000456	-2.40	.000105	2.25**	.000327	4.22**	.000324	0.99
Diversification	0.0473	1.19	-4.27E-03	-0.25	-0.0141	-0.72	0.2698	1.80*
Cash flow rights of the largest owner	.00240	3.08**	-.00527	-2.15**	-0.0443	-2.06**	-0.0317	-1.10
CEC	0.1067	3.28**	0.07427985	3.16**	0.1963	4.66**	-0.0180	-0.19
CECHIGH	-0.0339	-1.13	.000232	0.12	-0.0476	-1.98*	-0.2566	-6.17**
Investment share	.00000769	0.06	.00054	2.44**	.000506	0.41	-.000216	-0.22
R ² (adj)	0.920		0.882		0.894		0.880	
AR(1),	1.232(0.267)		1.541(0.215)		2.104 (0.147)		2.026(0.155)	
Sargan.	0.235		0.291		0.096		0.099	
SSR	8.62		10.07		18.35		12.50	
Observations (firms)	234 (66)		507 (125)		394(103)		178 (47)	

3SLS estimates of leverage and firm valuation, non-family firms without Cronyman

	Indonesia		KOREA		Malaysia		THAILAND	
Leverage equation	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
Intercept	0.7971	10.68**	0.5085	27.12**	0.6277	6.39**	0.623549	17.11**
Firm size	-.0000042	-1.96*	.000000483	1.45	-.0000015	-2.13**	.000000831	1.63
Diversification	0.0159	1.55*	0.0009	0.85	-.0000087	-0.00	0.010206	2.43**
Firm age	-0.0002	-0.54	.00000402	0.41	0.0001	0.52	0.000367	3.22**
Firm value	0.12167	2.51**	-0.0457	-3.95**	-0.1399	-7.37**	-0.04479	-11.35**
Firm value square	-0.0307	-0.54	0.0110	0.36	.00000395	0.00	-0.0005	-0.12
Growth of sale	-0.0001	-0.03	.0000037	1.62	-0.0023	-0.57	0.003834	1.44
Cash flow rights of the largest owner	-0.0026	-0.62	0.0015	2.61**	0.0013	2.56**	-0.00094	-1.26*
CEC	-0.0237	-2.65**	-0.0009	-0.44	0.009911	0.58	-0.00148	-0.64
CECHIGH	-0.0157	-1.33	0.0025	2.76**	-0.0041	-0.95	0.001174	0.48
R ² (adj)	0.555		0.678		0.424		0.486	
AR(1),	1.548(0.213)		1.713 (0.191)		1.425(0.232)		1.358(0.244)	
Sargan.	0.188		0.228		0.261		0.208	
SSR	10.99		4.09		3.08		3.05	
Firm value equation								
Intercept	-5.2432	-3.53**	9.2495	4.15**	4.5737	4.72**	15.30478	7.86**
Firm size	0.0003	1.30	.000000323	0.45	-0.0001	-1.81**	0.000195	1.54*
Leverage	6.7917	2.79**	-16.3502	-4.30**	-8.3382	-6.55**	-21.1376	-7.74**
Growth of sale	0.0003	0.01	0.0008	1.95*	-0.0169	-0.65	0.081981	1.28
Firm age	0.0005	0.16	0.0011	0.55	0.0013	0.64	0.008441	3.14**
Diversification	-0.1079	-1.27	0.0113	0.62	-0.0054	-0.01	0.207818	3.19**
Cash flow rights of the largest owner	0.0153	0.41	0.0480	-2.20**	0.0488	1.94*	-0.03109	-1.23
CEC	0.1968	4.74**	0.0055	0.14	0.0865	0.62	-0.03814	-0.53
CECHIGH	0.0925	1.08	0.0608	5.60**	-0.0284	-0.86	0.023885	0.44
Investment share	0.0405	1.19	0.0114	1.27	0.0006	0.27	0.000378	0.044
R ² (adj)	0.687		0.471		0.687		0.855	
AR(1),	1.472(0.225)		2.037 (0.154)		2.328(0.127)		2.847(0.092)	
Sargan.	0.186		0.258		0.107		0.110	
SSR	13.68		6.62		4.66		4.89	
Observations (firms)	87 (25)		149 (37)		99 (26)		109 (23)	