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

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Abstract

Despite the seminal work of Claessens et al. (2002), who highlighted the role of ownership structure on firm performance in East Asia, the relationship between capital structure and ownership remains much unexplored. This is important, given recent empirical and theoretical work linking capital structure and performance. The novelty of the present paper is that in examining the effects of ownership concentration on capital structure and firm performance, it not only allows for simultaneity between capital structure and firm performance, but also controls for one possible source of moral hazard related to the higher voting rights relative to cash flow rights. The paper clearly establishes that results are rather country-specific and the effects of ownership structure on firm performance cannot be delineated from its effects on leverage. More interestingly, these results highlight that higher voting rights could pose some moral hazard problem if there is a controlling manager shareholder called Cronyman in our analysis. Evidently family ownership could mitigate some of these moral hazard problems, though it could exacerbate the problem of over-lending. As such, the results presented here confirm and extend the essential findings of Claessens et al. (2002), though illustrate the importance of allowing for simultaneity between capital structure and firm performance.

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1. INTRODUCTION

The Asian Crisis of the late 1990s highlighted the problems of corporate governance among South East Asian corporations. Recent literature confirms the high concentrations of ownership, dominance of controlling shareholders, separation of voting and cash flow rights and limited protection of minority rights in many of these countries badly affected by the Crisis (Claessens et al., 2000; 2002). However a clear understanding of the effects of ownership structure on capital structure and firm performance remains hitherto unexplored. Claessens et al. (2000) examine the pattern of ownership in seven East Asian countries, and Claessens et al. (2002) investigate the effect of large shareholding on firm valuation. Further, Lemmon and Lins (2003) link ownership structure to stock returns in these countries. However, none of these recent studies consider the effect of ownership structure on capital structure and firm performance, and the possible interaction between capital structure and firm performance. In an attempt to fill in this gap in the literature, the paper examines how ownership structure may affect capital structure and performance of firms in South East Asian countries. As this paper will demonstrate, this is an important issue in the worst affected countries and in doing so, we not only allow for the possible non-linearity in these relationships, but also correct for the simultaneity bias, if any, between capital structure and firm performance, often ignored in the literature.

Previous theoretical and applied literature has highlighted the complex nature of the relationships between ownership structure, capital structure and firm performance. Traditional approaches to this question tend to take a more partial approach than the one adopted here. Existing literature highlights the agency problems between managers and shareholders. In an attempt to ensure the continued viability of the firm, the latter may result in a generally lower leverage ratio below the optimum level. Jensen and Meckling (1976) however argue that introduction of

managerial share ownership may reduce these agency problems, thus aligning the interests of managers and shareholders.[1] Extending this idea, Brailsford et al. (2002) suggest that the relationship between managerial share ownership and leverage may in fact be inverted u-shaped. Thus debt first increases with an increase in managerial share ownership; but beyond a critical level of managerial share ownership debt may fall because there could be only a few agency related benefits by increasing debt further as the interests of managers and owners get very strongly aligned. Stulz (1988) formalised a concave relationship between managerial ownership and firm valuation too; with increase in managerial ownership and control, the negative effect on firm value associated with entrenchment (see discussion below) starts to exceed the incentive benefits of managerial ownership Empirically Shleifer and Vishny, (1986) suggest that concentration of ownership may improve firm performance while Morck et al., (1988) argue that it may even deteriorate firm performance.

Much of the existing literature is however based on the functioning of US firms, and therefore presumes a wider dispersion in ownership structure than one finds in SE Asian countries.[2] A series of recent studies by Claessens et al. (2000, 2002) highlight the distinctive pattern of ownership structure in East Asia. East Asian corporations are often dominated by large family holdings and are often characterised by concentration of ownership as well as the presence of a CEO, Board Chairman or Vice Chairman who is also a controlling shareholder of the company (labelled as Cronyman hereafter). Ownership of these firms is also characterised by the separation of voting rights from cash flow rights where control rights (or voting rights) of the largest owners often exceed the corresponding cash flow rights. It is clear that high 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. Claessens et al. (2002) referred this case as *non-dilution of entrenchment*. Further, the separation of voting rights from cash flow rights increases the likelihood of misallocation of resources, which in turn is likely to adversely affect the performance of the firm.

[1] Demsetz (1983), Demsetz and Lehn (1985) went further to claim that the level of optimal managerial ownership is firm-specific and endogenous to expected performance.

[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 (2005); Burkart *et al*. (2003). Such arguments are supported by large scale studies such as La Porta *et al. (*1999) as well.

The distinction between owners and managers may however be blurred in the case of family firms, as it is common for family members to be employed as managers. In such cases, standard analysis of the conflict of interests between owners and managers in the presence of dispersed ownership may not apply, though dominance of family members may still give rise to conflict of interests with minority shareholders. In addition, family ownership may give rise to greater leverage than in the case of disperse ownership, again because of the non-dilution of entrenchment effects. Anderson et al. (2003) further argue that family ownership reduces the cost of debt financing. The divergence of interests between family shareholders (owner) and debt holders (banks) is potentially less severe than between diversified shareholders and debt holders. This is because families represent a special class of large shareholders that potentially have unique incentive structures and motives to manage a firm. Families are different from other shareholders in at least two respects including family's interest in the long-term survival and also its concern for the firm reputation. In addition, banks often develop personal and well-informed relationships with family executives, suggesting that the family's presence allows these relationships to build over a number of years.

Thus family ownership is the predominant form of ownership in East Asia and is closely associated with presence of Cronyman, higher control than cash flow rights and also concentrated ownership. It is the possible to envisage how the dominance of certain individuals, or families may lead to the problems of excessive borrowing and over-investment that typically characterised the Asian crisis of the late 1990s. However, the precise link between the prevalent ownership structure and over borrowing/firm performance remains unexplored in the existing literature. In this paper, we attempt to unravel the complex interactions between ownership structure, capital structure and firm performance in two of the worst affected countries, namely, Indonesia and Korea.

This paper is then distinctive in a number of ways. The theoretical basis of the link between ownership structure, capital structure and firm performance is primarily derived from Bajaj, Chan and Dasgupta, (1998), that allows for both moral hazard and adverse selection problems in firm financing. This framework hypothesizes that

ownership and the degree of monitoring[3], both determined exogenously, will impact on capital structure and firm performance. In the light of our specific sample characteristics, we however empirically extend Bajaj et al. (1998) in a number of ways. Firstly, we highlight the case of family firms where often the controlling manager is the member of the same family. We argue that this kind of ownership structure would mitigate the moral hazard problem, at least to some extent, because the family members would directly gain from a better firm performance. Secondly, we allow for the simultaneity between capital structure and firm performance, often ignored in the literature, but recently highlighted by Berger and di Patti (2003). Ignoring this important simultaneity could bias the effects of ownership on capital structure and firm performance (see section 5). Finally, as Stulz (1988) and Brailsford et al. (2002) suggest that there could be important non-linearities in the effects of ownership on capital structure and firm performance (though this is not accounted for by Bajaj et al., 1998). In view of initial non-parametric analyses of our samples, we however allow for nonlinearities in the relationships between ownership concentration, capital structure and firm performance. This is a crucial aspect of our analysis, especially when one considers the potential importance of majority shareholdings, and the potential threshold effects of different levels of concentration (51% for example) on capital structure and firm performance. The importance of these issues is demonstrated in terms of both parametric and non-parametric analyses.

The analysis here is based on two of the countries most deeply affected by the crisis, Indonesia and Korea. These countries provide an interesting contrast, given their distinctive corporate histories and different levels of capital market development (for further discussion on this see Chelley-Steeley, 2004). These differences suggest potentially differing impacts of different ownership and governance structures on capital structure and firm performance.

Claessens et al. (2002) have highlighted the importance of ownership structure in determining firm performance in East Asia, though the effect of ownership structure on capital structure remains much unexplored. This paper seeks to investigate these issues, whilst allowing for simultaneity and non-linearity in these relationships, an issue hitherto unexplored. Further, the analysis presented here

[3] While ownership concentration is of course important, and directly available, we also consider more subtle indicators of ownership structure, including family ownership and separation of voting rights from cash flow rights. This is discussed in more detail in sections 2 and 3.

controls for one possible source of moral hazard, where voting rights exceed cash flow rights. The paper clearly establishes that the effects of ownership structure on firm performance cannot be separated from its effects on leverage. Importantly, our analysis demonstrates that indeed family ownership may somewhat mitigate the moral hazard problem, but may exacerbate the problem of over-borrowing. Within this framework, the essential findings of Claessens et al. (2002) are confirmed, in that the results presented here exhibit similar relationships between ownership and performance. We however offer several extensions, identifying different effects across different ownership structures, and highlighting the differences between Indonesia and Korea and thus make a case for studying these countries separately rather than attempting to impose uniform coefficients by pooling them.

The paper is developed as follows. Section 2 presents the data and its characteristic features, highlighting the nonparametric relationships between ownership structure, capital structure and firm performance in our samples. Section 3 builds up the analytical framework while section 4 translates the analytics into empirics. Section 5 presents and analyses the results and the final section concludes.

2. DATA AND PRELIMINARY OBSERVATIONS

We examine the effect of ownership structure on capital structure and corporate leverage among listed non-financial companies in Indonesia and Korea. Data used for this analysis come from two sources. Firm-level accounting data extracted from Worldscope 2002 is matched with ownership data for these firms described in Claessens et al. (2002). La Porta et al (1999) demonstrate that ownership structures in these firms are very stable over time[4]; thus without much loss of generality we assume that ownership pattern remained more or less stable among sample firms over the period 1994-1998.

[4] This assertion is supported by Bajaj et al. (1998).

2.1. 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 most prevalent form of ownership in both sample countries. 75% of Indonesian firms, and 79% of Korean firms in our samples are family owned, with the remainder being state owned, (Indonesia: 8%; Korea: 5%) or widely dispersed patterns of ownership.

Secondly, management is rarely separated from ownership control. In nearly 70% of firms in both countries the Chief Executive Officer (CEO), Board Chairman or Vice-chairman was also a controlling owner. This is labelled as *Cronyman in our analysis.* Perhaps not surprisingly, both countries exhibit a close association between family ownership and presence of a Cronyman. 90% of family owned firms in Indonesia are characterised by the presence of such an individual, while the corresponding proportion for Korea is about 77%. In contrast, presence of Cronyman is rather low among the non-family owned firms in both countries, particularly so in Indonesia.

The separation of voting rights from cash flow rights is another important feature of East Asian corporations. In particular, voting rights are higher in more than half of the Indonesian firms (the corresponding proportion is about 25% among Korean firms). More interestingly, there is a close association between presence of Cronyman and higher voting rights in both countries: more than 90% of Cronyman firms in both countries exhibit voting rights in excess of cash flow rights.

The distribution of concentration of ownership among top five shareholders clearly varies in the two countries. The average level of concentration is higher in Indonesia (47% as against 27% in Korea), with the top five shareholders holding more than 50% of shares in 47% of Indonesian firms but only 6% of Korean firms. Equally, in just under half the Korean firms, the top five shareholders account for less than 25% of holdings, while in only 3% of Indonesian firms do the top five shareholders account for less than 25% of the equity. There is however no significant difference in the level of concentration among family firms and widely-held firms in our samples though the average is again significantly lower in Korea.

This initial analysis clearly reveals the complex nature of the ownership structure in the selected countries, especially in view of the observed close association between family ownership, presence of Cronyman, concentration, and also higher voting than cash flow rights. The question that is commonly ignored in this literature, is therefore how the observed ownership structure affects capital structure and firm performance, after allowing for the simultaneity. This is discussed in more detail in sections 3 and 4.

2.2. Ownership and capital structure

The key indicator of capital structure in our analysis is leverage, or debt-equity ratio, defined as total debt divided by book value of common equity. It is possible in this context for debt-equity ratios to be negative if firms exhibit negative values of equity. In order to avoid this, we employ the absolute value of the debt-equity ratio in our analysis.

Depending on the relative use of debt and (absolute value of) equity financing, one can distinguish between low and high debt firms. Thus low debt firms are those relying relatively more on equity finance while high debt firms are those relying more on debt finance. Assuming 1993 as the base year, Table 2 summarises selected characteristics of these two groups of firms in Indonesia and Korea over two periods, before (1994-96) and during (1997-98) the Crisis. This clearly highlights the fluctuations of average leverage for these two groups of firms over this period.

Table 3 summarises the average leverage values (absolute) for different types of ownership structure in the two countries. Leverage rates in Indonesia were lower than Korea at the start of the period, across all categories. However, the data also show clearly that increases in leverage through the crisis were far more marked for Indonesia, while the Korean firms increasing leverage rates but at a less dramatic rate. The highest level of ownership concentration (>50%) in Korea exhibited the highest levels of leverage in the pre-crisis period, but in Indonesia this was in the firms in the medium range of concentration. The presence of a Cronyman is also associated with higher levels of leverage in both countries while higher voting rights seem to give rise to higher leverage in Indonesia, but not in Korea.

In order to examine this further, we present some nonparametric Kernel scatter plots (see Figures 1, 2) to illustrate the non-linearity in the relationship between levels of ownership concentration and capital structure in both countries. The non-linearity appears particularly significant for Indonesian firms. This nonparametric analysis is indicative of a u-shaped relationship between concentration and leverage for Indonesian firms, for both sub-periods 94-96 and 97-98. In other words, lower levels of concentration are associated with lower levels of leverage as existing shareholders are less concerned about the dilution of their dominance. At a higher level of concentration, leverage increases (the trend is more obvious if we exclude the outlier firm with concentration level of 73%) because of the fear of dilution of dominance of large controlling shareholders. The u-shaped relationship is however not so pronounced for Korea. However, firms with ownership concentration in excess of 45%, exhibit higher levels of leverage, though in general non-linearity is much less obvious during the crisis period where firms with high concentration exhibit a marginal fall in leverage.

2.3. Ownership and firm performance

Our indicator of performance is the pre-tax profit margin. Table 3 shows the average levels of profit margin associated with different types of ownership structure for the pre-crisis period (94-96) and the crisis period (97-98). The data show a general deterioration of firm performance over the period. There is a weak positive relation between average profit margins and concentration for Korea in the pre-crisis period, though the reverse is apparent for Indonesia. These non-parametric analyses suggest only a weak relationship between profit margins and the other indicators of ownership structure for Indonesian firms, and a marginally stronger one for Korea.

Again the nonparametric kernel scatter plots are informative (see the middle panels in Figures 1, 2). While there is no obvious non-linearity in this respect for Indonesia (more or less uniform performance with higher levels of concentration), one can observe some degree of non-linearity in the relationship for Korean firms, particularly for the crisis period. In particular, it appears that firm performance is lowers for the firms with concentration levels between 30% and 50%. This is consistent across the two time periods.

Having characterised the ownership structure, capital structure and firm performance in our samples, we shall now move on to investigate the complex inter-relationships between ownership structure, capital structure and firm performance in terms of an analytical framework.

3. ANALYTICAL FRAMEWORK

This section outlines the analytical framework used to rationalise the possible effects of ownership structure on capital structure and firm performance in a world characterised both by *adverse selection* and *moral hazard* problems of firm financing.

An understanding of the conflict of interests between managers and owners, i.e., agency problems, remains central to the analysis of the relationship between ownership structure, capital structure and firm performance. This analysis dates back to the classic work of Jensen and Meckling, (1976) and Leland and Pyle (1977). More recently, Bajaj, Chan and Dasgupta (1998) extend Leland and Pyle (1977) and develop a signalling model to show how both adverse selection and moral hazard may interact to determine firms' financing decisions and performance measures in terms of ownership structure. This theoretical work is particularly relevant for our empirical analysis as it enables us to explain capital structure and firm performance in terms of ownership structure (assumed to be exogenous). Ownership structure is captured in terms of manager-shareholder that addresses the traditional agency conflict between manager and the shareholder (a la Jensen and Meckling, 1976). Thus without any loss of generality, we proceed to make use of Bajaj et al. (1998). In this section we explain the primary hypotheses as to how ownership structure and degree of monitoring may affect capital structure and firm performance in a world characterized by moral hazard and adverse selection.

3.1. Modeling Framework

Bajaj et al. (1998) consider the investment and financing behaviour of an

entrepreneur/manager who owns the rights to a production technology, but needs to raise investment capital by selling some combination of equity and debt. Financial returns to the manger are fully captured by the share ownership of the firm (his/her initial wealth is assumed to be zero). The technology is characterised by the production function $f(k)(\mu+\varepsilon)$ where k denotes investment and ε is a random variable with a mean of zero and a known distribution. The parameter μ is a measure of the productivity (or profitability) of the firm's technology, which is only known to the manager (who is risk-averse); the market (assumed to be risk-neutral) cannot however directly observe this.

The analysis covers a single period from point 0 (when production and financing decisions are made) to the point 1 (when output is realised). At point 0, the manager announces a public offering for $(1-\alpha)$ fraction of equity claims. Upon learning α the market values the equity of the firm as $S(\alpha) = S(\mu'(\alpha))$, using an inference schedule $\mu'(\alpha)$. Eventually the firm obtains $(1-\alpha)\ S(\alpha)$ for the equity. Thus the financing constraint is given by: $k= (1-\alpha)\ S(\alpha) + D$. After paying the debt-holders, managers are left with some residual cash flow given by $RCF = f(k)(\mu+\varepsilon)– F$, where F is the risk-free face value of debt given by $(1+r)\ D$.

It is assumed that manager's compensation is determined not only by the fraction of the equity they retain, but also by their ability to divert cash flows for perquisite consumption; the latter captures how moral hazard too can affect the relationships of our interest. In particular, in the absence of a perfect monitoring technology, the manager diverts a fraction γ of the residual cash flow for perquisite consumption; thus a higher value of γ could reflect a lower value of monitoring.

The simple cross-sectional implications of the model are pertinent for our analysis. Denoting indices of capital structure and firm performance by Y_1 and Y_2 respectively, one can write the following:

$$\begin{aligned} Y_{1i} &= f(\alpha_i, \gamma_i) \\ Y_{2i} &= g(\alpha_i, \gamma_i) \end{aligned} \qquad (1)$$

Thus each endogenous variable Y_{ki} , k = 1,2, for the i-th firm, $i = 1,\ldots,n_j$ for the j-th country depends on indices of ownership (α_i) as well as the degree of outside monitoring (γ_i).

3.2. Primary Hypotheses

Bajaj et al. (1998) suggest that ownership[5] is positively correlated with (a) various measures of the debt-equity ratio and (b) also with indices of firm performance.[6] With the degree of moral hazard (γ) unchanged, various measures of debt-equity ratios increase with managerial ownership. This is because as the firm sells less equity (higher α being retained by the manager), it relies more on debt financing (via the financing constraint equation). Because in the signalling equilibrium managers of higher productivity firms retain more shares, they have to use higher leverage, especially if these firms invest more relative to the lower productivity firms.

For a given γ, higher managerial ownership (α) is associated with higher net present value as well as higher firm valuation. This operates through a trade-off between the risk-aversion effect and productivity effect. The risk-aversion effect refers to the incentive of a risk averse manager to reduce his / her holding as the financial risk of the firm increases, The productivity effect however suggests that as the productivity of the firm increases, so does the incentive to concentrated ownership. It has been argued that for all types of firms (low and high productivity firms taken together), higher managerial ownership is associated with higher net present value of investment because of higher productivity effect. In other words, higher investment leads to higher market value net of perquisite consumption when managerial ownership increases in this model.

The monitoring parameter γ is also important here. This will impact on leverage and firm valuation differently. With profitability μ unchanged, leverage is an increasing function of the degree of moral hazard γ (in both absolute and relative terms). An increase in γ lowers the value of equity because it is associated with a

[5] Here ownership is defined as managerial shareholding.

[6] Zhang (1998) too argues that a controlling large shareholder is more averse to risky projects (due to under-diversification, which is also the opportunity cost of concentrated ownership) than shareholders whose portfolios are fully diversified. The latter may result in under-investment by rejecting projects preferred by the minority shareholders. This under-investment problem can however be mitigated by issuing debt since the 'risk-shifting' effect of debt offsets the under-investment incentive of the under-diversified owner. Thus a firm's leverage increases with concentrated ownership, and this relation becomes stronger the more risk-averse the controlling shareholder is.

larger diversion of RCF. Also an increase in γ lowers the scale of investment, though the reduction in investment is lower than the reduction in equity valuation. Thus debt has to increase in both absolute and relative terms to balance the budget (no pre-commitment though).[7] If however outside monitoring is less effective, managers have an incentive to under-lever the firm to avoid bankruptcy risk (e.g., see Mehran, 1992). Thus, the value of the firm will be a decreasing function of the degree of moral hazard. This is because investment level moves away from the optimal level and as managers collect more perquisites (higher γ), which are not valued by the market, firm valuation falls. In our empirical analysis we however distinguish between family and other firms with/without a controlling manager. This highlights the fact that this moral hazard problem could be somewhat mitigated for a controlling manager who is also a member of the family running the firm. This is because in the latter case the controlling manager directly benefit from better firm performance (see further discussion in section 4 and 5).

4. From Analytics to Empirics

In view of the distinctive characteristics of our samples, we shall in this section attempt to translate the analytical arguments into an empirical exercise.

Our discussion in sections 1 and 2 summarises the significant characteristics of the ownership structure in East Asia. Firstly, 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 time. We however need to allow for the fact that we have a sample of panel nature where we observe firms over a period of five years 1994-98. This in turn means that our ownership variables do not vary over time (as is indicated by Bajaj et al., 1998), though most other firm-level variables tend to vary over time and across firms. Secondly, we do not directly observe the managerial shareholding in our data, but reckon that the binary information on the presence of a Cronyman is the closest proxy for the presence of a controlling manager in our data. We also note that presence of a Cronyman is predominant in family owned firms.

[7] This result is also consistent with the agency view of Jensen (1986) that in the presence of free cash flow, pre-commitment to higher debt is value increasing.

Thus our analysis focuses on the family firms with Cronyman and compares the behaviour of these firms from others. Thirdly, we need to take account of the possible *simultaneity* between capital structure and firm performance. This issue remains much ignored in the literature despite the fact that its omission may bias (positively or negatively) the effects of ownership on capital structure and firm performance. Finally, in view of the apparent non-linearity in the relationship between ownership concentration and capital structure in our samples (see discussion in section 2), we allow for the possible *non-linearity* between ownership concentration and capital structure only. All these considerations necessitate us to modify the set of equations (1).

4.1. Measurement Issues

While ownership concentration as reflected in the distribution of cash flow rights of top five shareholders is directly observable, we do not directly observe managerial shareholding. We however observe if the CEO, board chairman or Vice Chairman is also a controlling owner (variable labelled as Cronyman in our data-set). The latter is arguably the closest proxy for the managerial shareholding in our data-set. Perhaps not surprisingly there is a close degree of correlation between family ownership and presence of a Cronyman in both countries of our choice and especially so in Indonesia. The latter perhaps reflects the traditional practice in these countries where a manager is often a member of the family running the firm.

Taking account of the close association between various relevant ownership variables, we started with the individual effects of the available ownership variables, namely, ownership concentration (Concen), Cronyman, family ownership (Famown) and higher voting rights (Voting). We then controlled for interaction between Famown and Crony as well as that between Famown and Concen. The pooling of different types of firms (family and others) may however bias the effects of ownership if the family firms are run differently from others. That is why next we estimate equations (4) and (5) for family and other firms with/without the presence of a controlling manager. Indeed the latter is justified by the significant instability of the coefficients for family and other types of firms. We therefore conclude that the best way to proceed forward is to consider the effects of concentration of ownership (a

measure of α_i) and higher voting rights (a measure of γ_I) as laid in equations (4) and (5) for various sub-samples of firms characterised by differential ownership pattern, whether family ownership (Famown=1,0) and whether there is a controlling manager(Crony=1,0). Whether a firm is family owned or not and whether the firm has a Cronyman are quite important in our analysis. This is because the incentive effects are likely to be much stronger if the manager-shareholder is part of the family (Crony=1 and Famown=1), which is the dominant group in our sample. In contrast, those with Famown=0 and Crony=1, comes closest to the common manager-shareholder in standard models including Bajaj et al. (1998). It however needs to be noted that there is only 1 Indonesian firm in this category and hence we could estimate equation (4) and (5) only for the Korean sample in this case. Finally, we consider those, which are neither family owned (Famown=0) nor have a controlling manager (Crony=0). Thus a comparison of the effects of concentration and higher voting rights on leverage and firm performance between firms with Famown=1 and Crony=1 (both for Korea and Indonesia) on the one hand with Famown=0 and Crony=1 (for Korea) and also Famown=0 and Crony=0 (for both countries) on the other would allow us to capture the effects of differential ownership structure on capital structure and firm performance. We argue that this is a better way of disentangling the effects of ownership structure on firm financing and performance in our samples than considering the effects of various ownership variables in the full sample.

A further difficulty is to find an appropriate measure of the degree of monitoring. Various proxies have been used in the existing literature, e.g., percentage of outside directors (Mehran, 1992), shareholder voting rights (Lippert and Moore 1995) or control potential (e.g., measured by institutional ownership, as in Mehran, 1995). Given the limited ownership information at our disposal, we could use a possible indicator, namely, if control rights are greater than the cash flow rights (labelled as Voting) to instrument the degree of monitoring in our model. When a controlling manager 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 undermining the interests of the company (this could give rise to a kind of moral hazard problem). Thus in this case (non-family owned firms with a controlling manager) 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. In addition, Zhang (1998) suggested that higher concentration of ownership in the hands of a few holders could lead to slower response to changing market conditions due to a lack of professional monitoring mechanism. Secondly, a higher level of ownership concentration may be an indication of an environment where it is costly to conduct control-related activities. Thus the level of ownership concentration could also indirectly account for the lack of monitoring of the activities of minority of controlling shareholders. But we argue that the moral hazard problem could be mitigated somewhat if the controlling manager is a member of the family running the firm (Famown=1 and Crony=1). This will be examined in our empirical analysis as we compare the effects of concentration and higher voting rights for different sub-sample of firms (see section 5).

We could now proceed to specify the empirical relationships of our interest in terms of the available information at our disposal.

4.1.1. Ownership and Capital Structure

Leverage among sample firms may increase or decrease with the level of ownership concentration as has been reflected in a kind of u-shaped relationship in this respect (e.g., see the non-parametric Kernel scatter plots in Figures 1, 2 and discussion in section 2). The u-shaped relationship is particularly pronounced for the Indonesian firms such that at lower level of concentration, shareholders may make use more of outside equity (resulting in a lower leverage) since they would not be concerned about the dilution of their dominance. The relationship however seems to change as we move to higher level of concentration when leverage level increases with further increases in levels of concentration possibly because of the non-dilution of the entrenchment effect. Similar effect is also noted among Korean firms though it remains less pronounced.

Thus the relationship between ownership structure and capital structure (DE) for firm i in year t can be expressed as follows:

$$DE_{it} = \alpha_0 + \alpha_1 (Concen)_i + \alpha_2 (Concen > 50\%)_i + \alpha_3 Voting_i + \alpha_4 X_{1it} + u_{1it} \qquad (2)$$

We experimented with different combinations of ownership variables and also with different cut-off points for the ownership concentration variables (to capture non-linearity; see further discussion in section 4). Equation 2 turns out to be the most parsimonious specification for determining leverage in terms of ownership structure. Here X_{1it} refer to other possible control variables (see discussion later in this section) and the residual error term is u_{1it}. Voting is a binary variable taking a value 1 if voting rights of the largest shareholder is higher than the cash flow rights.

4.1.2. Ownership and Firm Performance

The link between ownership structure and firm performance 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) Some studies have however contradicted this general finding (see, for example, Demsetz and Lehn, 1985 and Morck et al. 1988). Much of the variation in this literature appears attributable to the difficulties in obtaining a uniform measure of firm performance. However, it is also clear that much of this literature fails to control for variations in ownership structure and also the potential endogeneity problems.

Firm performance (Π) in our analysis is measured by the pre tax profit margin.[8] In constructing a standard model of firm performance based on the industrial economics literature, one would include numerous variables relating to market structure, such as industry concentration, in order to allow for inter-firm variation in profits generated through inter-industry variation. However, such data that can be matched in with these data are not available, so it is necessary to remove the industry level variation from the data. We therefore calculate the firm level deviation of firm profit (pre and post tax) from the corresponding within-sample industry mean[9] and specify two possible profit functions as follows:

[8] The analysis was also carried out using post-tax profit margin and obtained similar results.
[9] In section 5 we present the estimates using profit margin in deviation form. We however find that estimates using profit margin with industry dummies are very similar to those using profit margin as deviation from industry mean.

$$\Pi_{it} = \beta_0 + \beta_1 (Concen)_i + \beta_2 (Concen > 50\%)_i + \beta_3 Voting_i + \beta_4 X_{2it} + u_{2it} \qquad (3)$$

As with equation 2, equation 3 is also the most parsimonious profit functions 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.

4.1.3. Other Explanatory Variables

In addition to indicators of ownership pattern, leverage and firm performance, a number of other control variables are included in both leverage and profit margin equations, most of which tend to vary over time for a given firm in our samples.

Firm size: We measure firm size by the 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. On the other hand, however, relatively large firms can 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 but lower firm efficiency.

Tobin's Q value: This is a proxy for growth opportunities. The trade-off theory predicts that firms with more opportunities carry less leverage. The traditional version of the pecking order theory predicts the opposite result. Debt typically grows when retained earnings are less than investment requirement and vice-versa. Hence, for a given level of profitability, leverage is likely to be higher for firms with more growth/investment opportunities.

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 age and profit margin. 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.

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. 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. Also if diversified firms have more stable cash flows, this is likely to have a positive impact on the supply of debt.

There are also some identifying variables in leverage and profit equations, given respectively by equations (2) and (3). This becomes particularly evident as we introduce simultaneity between leverage and profit equations (4) and (5). This is discussed in the following subsection.

4.2. Simultaneity between Capital Structure and Firm Performance

In this section we allow for the possibility of interaction between capital structure and firm performance, if any, in our analysis. Conventionally, 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. Most existing literature that allow for this effect of capital structure on firm performance however tends to be within a single equation approach and does not consider the possibility of reverse causality from firm performance to capital structure. 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.

Berger and di Patti (2003) offer two hypotheses for the reverse causation from performance to capital structure. First, more efficient firms choose lower equity ratios than others, all else equal, because higher efficiency reduces the expected costs of bankruptcy and financial distress. The second hypothesis focuses on the income effect of the economic rents generated by efficiency (as an indicator of performance) on the choice of leverage. Thus more efficient firms choose higher equity capital ratios, all else equal, to protect the rents or franchise value associated with high efficiency from the possibility of liquidation. Prior evidence supports the notion that firms hold additional equity capital to protect franchise value (e.g., Keeley, 1990).

If firm performance 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 performance. In the light of the two-way relationship between capital structure and firm efficiency, one needs to allow for the simultaneity between capital structure and firm performance. Thus equations (2) and (3) are modified as follows:

$$DE_{it} = \alpha_0 + \alpha_1 (Concen)_i + \alpha_2 (Concen > 50\%)_i + \alpha_3 Voting_i + \alpha_4 X_{1it} + \alpha_5 PFT_{it} + \alpha_6 PFT_{it}^{\ 2} + u_{1it} \quad \textbf{(4)}$$

$$PFT_{it} = \beta_0 + \beta_1 (Concen)_i + \beta_2 (Concen > 50\%)_i + \beta_3 Voting_i + \beta_4 X_{2it} + \beta_5 DE_{it} + u_{2it} \quad \textbf{(5)}$$

As argued above, firms with higher profit margins may substitute outside equity capital for debt. On the other hand it may also be true that more efficient firms try to protect the value of their high income by holding more equity capital. The estimated coefficient of profit in the leverage equation would capture the net value of these two possible and opposite effects.

As indicated above, one may also expect some non-linearity in the effects of firm efficiency on capital structure so that firms at a higher level of efficiency may behave differently from those at a lower level. Since we are not sure about the nature of this non-linearity, we experimented with a few alternatives, namely, (a) inclusion of an additional square term of efficiency measure; (b) replacing efficiency measure by its log (natural) and (c) inclusion of an additional inverse term of the efficiency measure. In the end, inclusion of a square term of profit margin worked best in comparison to other alternatives as is highlighted in equation 4.

The agency cost hypothesis would predict that an increase in leverage raises efficiency. Some may however argue that there is a possible non-linearity in the effects of leverage on profit margin as a measure of firm efficiency as well. In particular, when leverage is sufficiently high, further increases may result in lower efficiency because the benefits in terms of reduced agency costs of outside equity are overcome by greater agency costs of debt. Our initial analysis in terms of non-parametric scatter plots (Figure 1, 2) in section 2 does not however suggest any non-linearity; hence in the final analysis we refrain from introducing any non-linearity in the effects of capital structure on profit margin. This is an important difference between the leverage and profit equations, after allowing for simultaneity.

4.3. Econometric Issues

Given that ownership information is available only for the year 1996, we could construct a cross-section data-set for the period 1996-1998. This would mean that there will be 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 single cross-section data cannot capture the aspect of time variation for a particular firm, if any. For one thing, 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. Secondly, 1996-98 period could be quite destabilising for the corporate sector in these countries when the crisis was in full fledge. Thus by focusing on the crisis period only, we may lose sight of some significant behavioural patterns among these Asian corporations.

Thus, 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 over the years in our samples.

An important issue here relates to the potential endogeneity of ownership highlighted by Demsetz (1983). Empirical evidence does not however corroborate this. For example, Demsetz and Lehn (1985) used two stage least square (treating ownership as potentially endogenous) to find that ownership fails to explain variations in firm performance, which is further confirmed by Hermalin and Weisbach (1989) and Cho (1998). On the other hand, Morck et al. (1988) and other studies ignored the issue of endogeneity of ownership structure and produce evidence of a statistically significant effect of ownership structure on performance. Thus without much loss of generality, we treat ownership structure to be exogenously given. In any case, given that our ownership information is available only for 1996, following Bajaj et al. (1998) and La Porta et al. (1999), we assume ownership structure to be rather stable over time in our sample. This allows us to focus directly on the issues of our interest, i.e., to reinvestigate the relationship between capital structure and firm performance in terms of ownership structure, among others, allowing for the simultaneity and non-linearity between capital structure and firm performance.

Although, we have theoretically rationalised the simultaneity betweenleverage and performance, 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 performance (equation 5), and performance in leverage (equation 4) is rejected. This therefore means that the standard "within" panel data determination of capital structure and firm performance that is reported elsewhere 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 (4) and (5), allowing for simultaneity between capital structure and firm efficiency. While the use of panel data to estimate systems of simultaneous equations is well understood, this generally involves converting the data to differences and estimate 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), which allows for individual effects both within individual equations and in the covariance matrix between the equations, based on the more general approach of Arrellano and Bond (1988, 1991) or the more recent Blundell and Bond (1998) GMM systems estimator. It still relies on employing lags as instruments; so with short panels of unbalanced data such estimation reduces the number of observations dramatically. However, the essential problem here is that the data contain time-invariant 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 (4) and (5), for example, separately using a standard "within estimator"[10], and then calculating the covariance matrix between the equations using the errors. The data are the transformed by dividing through by the square root of the covariance, and finally equations (4) and (5) are estimated by 3SLS employing the transformed data. 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 a controlling manager (often from the same family) with higher voting rights (relative to cash flow rights). There are however other groups of firms that do not conform to this pattern. Given the issues that this paper seeks to address, the relationship between ownership, leverage and performance, 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.

[10] For both equations for both countries, random effects estimator rejects the restriction of fixed effects.

5. EMPIRICAL RESULTS

In this section we present and analyse the 3SLS estimates of the most parsimonious leverage and profit margin equations (4) and (5), allowing for simultaneity and non-linearity.

We started with the individual effects of these ownership variables for the full sample, taking one at a time. These results are summarised in Appendix Table A1 for the two sample countries. Having tested for the effects of ownership concentration and higher voting rights (after controlling for all other factors as well) for the full sample and also for the relevant sub-samples (Famown=0, 1 and/or Cronfam[11]=0, 1), we find that 3SLS estimates are robust as well as stable for various sub-samples while those for the full sample are not. These estimates are summarised in Table 5A (Indonesia) and Table 5B (Korea) while Table 5C highlights the central results of our interest corresponding to the variables indicating ownership concentration and degree of moral hazard.

Discussion of our results in this section specifically focuses on the 3SLS estimates obtained for three groups of firms, namely, family firms with a controlling manager (Famown=1 & Crony=1, for both Indonesia and Korea), non-family firms with no controlling manager (Famown=0 and Crony=0, for Indonesia only) and also non-family owned firms with a controlling manager (Famown=0 and Crony=1; for Korea only) and compare the effects of ownership structure (namely, concentration and degree of monitoring) on capital structure and firm performance for these various groups in the light of the analytical arguments (see section 3).

5.1. Effects of ownership structure

The dominant category in our samples is family firms with a controlling manager (famown=1 and crony=1), accounting for some 67% of Indonesian and 60% of Korean firms. Higher ownership concentration is associated with higher leverage among this group of firms, confirming the general theoretical predictions of Bajaj et al

[11] Note that this category is created by taking account of the interaction between family ownership (Famown=0, 1) and presence of a Cronyman (Cronyman=0,1) and is labelled as Cronfam=1,0. Clearly. Cronfam=1 when Famown=1 and Cronyman=1. But Cronfam=0 includes three subgroup of firms: (a) Famown=0 and Cronyman=0;(b) Famown=1 and Cronyman=0 and (c) Famown=0 and Cronyman=1. It could however be noted that most firms in this subgroup fall in the sub-category (a) in both sample countries. Thus Cronfam=0 constitutes our reference category of non-family owned firms.

for any firms with a manager-shareholder. The effect of ownership concentration on profitability may however differ from the theoretical prediction of Bajaj et al., depending on the country of our choice. For example, concentration exerts a positive effect on profitability (though insignificant) for Korea (the sign conforms to the theoretical prediction though), while the result is opposite (negative and significant) for Indonesian firms. The latter suggests that the risk aversion effect dominates the productivity effect among this group of firms in Indonesia possibly because of the greater risk-aversion among family firms, generally observed in this region of the world.

Bajaj et al. (1998) predict that the degree of moral hazard is positively related to leverage while inversely related to firm performance. Since higher voting (relative to cash flow) rights are taken to be a measure of moral hazard, we expect the voting variable to have a positive effect on leverage and negative effect on profit margin. Any observed relationship is however the result of two underlying effects: incentive effects (managers gain from better performance) and entrenchment effects (managers seek to prevent dilution of their control). The results presented here suggest that voting has little impact on performance (as well as leverage) in Korea, such that the incentive and entrenchment effects outweigh each other. Voting concentration in Indonesia has a negative effect however on leverage (incentive effects being greater), but no effect on profit margins, again suggesting that the two effects outweigh each other. In other words, degree of moral hazard has limited impact on leverage or performance among family firms with a controlling manager. The latter may reflect the fact that in many cases managers are themselves the members of the owner's family (which is often the case in South East Asia) and may therefore directly gain from better firm performance. In other words, family ownership with a controlling manager from the same family may mitigate some of the moral hazard problems associated with higher voting than cash flow rights.

Turning now to the analysis of the rest of the firms, we can identify three other possible groups in our samples: (a) Family owned, but does not have a controlling manager (Famown=1, Crony=0): there are only 7 Indonesian firms and 20 Korean firms in this category. (b) Not family owned, but has a controlling manager (Famown=0, Crony=1): there are only 1 Indonesian firms and 15 Korean firms in this category. c) Neither family owned nor has a Cronyman (Famown=0, Crony=0): there are 22 Indonesian firms and 20 Korean firms. Clearly the more interesting cases are

(b) and (c). We thus compare our estimates for family firms with Cronyman with cases (b) and (c), in the light of the theoretical predictions of Bajaj et al. (1998).

Evidently, the majority of Indonesian firms who are not family owned, do not have a controlling manager (case c). Thus these are the traditional firms without a controlling manager. For this group of firms, the effect of concentration on leverage is positive and significant in both countries. There is some evidence of entrenchment effects in Korea (coefficient of Concen>50% is positive and significant) though not in Indonesia. In other words, the Indonesian case supports the Brailsford result so that beyond concen>50%, leverage decreases. Difference between the Korean and Indonesian result in this respect could perhaps be explained by lower average level of concentration in Korea. Perhaps not surprisingly, the Voting variable (that captures higher control than cash flow rights) has a limited impact both on leverage and profit margin in our samples, especially in Korea. While higher voting rights are associated with higher leverage only in Indonesia (insignificant in the Korean leverage equation), the variable is not significant in the profit equation in either country.

Finally, we consider the firms, which are not family owned, but has a controlling manager (case b). This could be considered only for the Korean firms as we do not have enough information to get the estimates for the Indonesian sample in this case. This case comes closest to the case considered by Bajaj et al. (1998). We find that the effect of higher concentration on leverage and profit margin conforms to the theoretical prediction – both positive and significant. Effect of higher moral hazard on leverage is also compatible with their hypothesis but that on profit margin is not. In particular, higher voting rights (a measure of moral hazard in our analysis) are associated with significantly higher leverage and profit margin for non-family owned Korean firms with a controlling manager in our sample. The latter may be a result of lower average level of ownership concentration in Korea so that higher voting rights in Korea may be associated with greater incentive effects (relative to entrenchment effects).

These 3SLS estimates presented here demonstrate that the effects of concentration and higher voting rights not only vary with the nature of the ownership structure (whether family owned or not, whether has a controlling manager shareholder), but also with the country of choice. Taken together, there is evidence that higher concentration is associated with higher leverage under different types of ownership structure, but its effect on firm performance may differ depending on

whether firms are family owned and/or have a controlling manager. More interestingly, there are clear indications that higher voting rights could give rise to some moral hazard problems, especially if there is a controlling manager-shareholder. Family ownership could however mitigate some of these problems, especially if the controlling manager belongs to the family running the firm that non-family owned firms cannot.

5.2. Simultaneity between capital structure and firm performance

There is also evidence of simultaneity between leverage and firm performance in our model though the effect may be different in different groups of firms with different types of ownership structure. Irrespective of the ownership structure, higher profit margin raises relative debt levels in Indonesia, but reduces them in Korea. There is also some evidence of non-linearity observed[12] in this respect. These results suggest that the substitution effect (against equity capital) is greater for more efficient firms in Indonesia, the income effect is relatively greater for Korean firms (see discussion in section 3).[13]

There is also some evidence of reverse causality though it is somewhat weaker in that it holds only for certain types of ownership structure considered and differs between the two countries of our choice. Higher absolute levels of debt are associated with higher profit margins in family-owned Indonesian firms (with/without a Cronyman), and lower profit margins among non-family owned Korean firms (with/without a Cronyman). The latter may be a result of the greater average levels of leverage in Korea (see Table 3), such that further increases in debt may result in lower efficiency. This occurs because the benefits of reduced agency costs of outside equity are outweighed by greater agency costs of debt.

[12] There is also some difference in the nature of nonlinearity. The result is saying that leverage declines at a more than linear rate in Korea as profit increases. This is different from Indonesia, where a turning point can be identified, i.e., the two profit terms have opposite signs.

[13] While profit margin affects capital structure in a non-linear way, there is however no evidence of non-linearity in the effect of capital structure on profit margin in our samples. Hence, we do not include the non-linear term in the profit function.

6. CONCLUDING COMMENTS

While many recent studies have highlighted the role of corporate governance on the recent Asian crisis (e.g., Claessens et al., 2000, 2002), effects of corporate governance (as reflected in the ownership structure) of these Asian corporations on capital structure and firm performance remains much unexplored. The present paper departs from this literature and attempts to disentangle the complex relationship between ownership structure, capital structure and firm performance in a world characterised by adverse selection and moral hazard. In doing so it also takes account of the possible simultaneity and non-linearity between capital structure and firm performance, much overlooked in the existing studies.

Results obtained from 1994-98 panel data drawn from a sample of Indonesian and Korean firms are supportive of a significant simultaneity between capital structure and firm performance. After allowing for this simultaneity, higher ownership concentration is associated with higher leverage irrespective of whether a firm is family owned or not. But the effects of higher control rights on leverage and profit margin depend on whether a firm is family owned or not and also whether it has a controlling manager. These results highlight that higher voting rights could pose some moral hazard problems if there is a controlling manager shareholder labelled Cronyman in our analysis. Evidently family ownership could mitigate some of these moral hazard problems, though it could still exacerbate the problem of over-lending.

The recovery of many East Asian Corporations in the early Millennium has revived the search for appropriate institutional reforms, in an attempt to regain their pre-crisis dynamism and strength. 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 physically 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. **TABLES**

Table 1A. Ownership Structure

	Korea	**Indonesia**
% of total firms with Concentration		
>50%	6	47
25%- 50%	45	50
<25%	49	3
Highest level of concentration	63%	73%
Cronyman =1		
% total firms	69	69
% of family owned firms out of firms with cronyman =1	86	98
Voting=1		
% of total firms	25	54
% of firms with Cronyman =1 out of firms with voting =1	90	92
% of firms with Concen>50% out of firms with voting =1	8	49
Family Ownership		
% of total firms with family ownership	79	75

Table 1B. Correlation between ownership variables

	Korea			
	CRONYMAN	VOTING	FAMOWN	CONCEN
CRONYMAN	1.000			
VOTING	0.448	1.000		
FAMOWN	0.931	0.443	1.000	
CONCEN	0.711	0.429	0.719	1.000
	Indonesia			
CRONYMAN	1.000			
VOTING	0.937	1.000		
FAMOWN	0.500	0.485	1.000	
CONCEN	0.476	0.476	0.949	1.000

These correlation coefficients illustrate the problem that one encounters in attempting to include all of these variables in an equation together. These are the correlation coefficients for the transformed data, allowing the covariance between the equations, based on the full sample estimates. They are higher than for the raw data, but the signs remain consistent.

Table 2. Capital Structure

Korea	Period	% of the total Firms	Proportion of firms with negative equity	Average Leverage (all firms	Average Leverage (negative equity firms)
Low Debt	1993	0.18	0.04	0.60	0.60
|leverage|<1	1994-96	0.22	0	0.45	0.71
	1997-98	0.22	0.01	0.53	0.57
	1994-98	0.22		0.54	0.64
High Debt	1993	0.82	0.02	4.9	29.3
	1994-96	0.78	0.01	4.18	27.5
	1997-98	0.78	0.13	7.37	11.8
	1994-98	0.78	0.08	5.61	13.1
Indonesia					
Low Debt	1993	0.45	-	0.37	-
|leverage|<1	1994-96	0.52	-	0.46	-
	1997-98	0.29	-	0.46	-
	1994-98	0.47	-	0.46	-
High Debt	1993	0.55	-	1.28	-
	1994-96	0.48	-	1.52	-
	1997-98	0.71	0.14	6.1	8.22
	1994-98	0.53	0.11	3.34	8.22

Table 3. Effects of ownership structure on leverage and firm performance

Korea	|ABDE|	Π	|ABDE|	Π	|ABDE|	Π
	Concen<25		25<= Concen >=50		Concen>50	
1994-96	3.85	0.09	2.77	0.10	4.98	0.12
1997-98	5.03	-0.05	5.79	-0.03	2.13	0.08
	Famown=1		Famown=0			
1994-96	3.24	0.09	3.53	0.11		
1997-98	4.41	-0.02	6.05	-0.01		
	Voting=1		Voting =0			
1994-96	2.97	0.09	3.56	0.10		
1997-98	4.73	-0.01	5.31	-0.04		
	Cronyman=1		Cronyman =0			
1994-96	3.55	0.09	2.99	0.10		
1997-98	4.79	-0.05	6.24	0.00		

Indonesia	|ABDE|	Π	|ABDE|	Π	|ABDE|	Π
	Concen<25		25<= Concen >=50		Concen>50	
1994-96	0.97	0.19	1.29	0.18	0.78	0.17
1997-98	10.38	-0.19	2.77	-0.20	5.50	0.10
	Famown=1		Famown=0			
1994-96	0.90	0.18	0.82	0.18		
1997-98	8.77	-0.07	5.17	0.04		
	Cronyman =1		Cronyman =0			
1994-96	0.91	0.18	0.80	0.18		
1997-98	8.70	-0.07	6.49	0.03		
	Voting=1		Voting =0			
1994-96	0.89	0.18	0.85	0.18		
1997-98	9.84	-0.16	5.23	0.10		

Note: ABDE is the absolute value of debt-equity ratio while Π is the pre-tax level of profit margin.

Table 4. Model specification

Explanatory variables	**Dep. Variable Leverage**	**Dep. Variable Profit margin**
Firm size (SALES)	√	√
Age of the firm (AGE)	√	√
Tobin's Q (LAGQ)	√	√
Diversification (DIVER)	√	√
Voting (VOTING)	√	√
Concentration (CONCEN)	√	√
Concentration > 50%	√	×
Profit margin (Π)	√	×
Square of profit margin (Π^2)	√	×
Absolute leverage (ABDE)	×	√

Table 5A. 3SLS estimates of the determinants of leverage and profit margin, KOREA

	Full Sample		**Famown=1**		**Famown=0**		**Crony=1, Famown=1**		**Crony=0, Famown=0**		**Crony=1,Famown=0.**	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
DETERMINANTS OF LEVERAGE												
	1.544	1.700	5.086	1.865	2.959	0.796	5.597	2.006	3.980	3.238	5.154	4.452
SALES	-0.001	-0.420	-0.004	-1.868	-0.033	-0.861	-0.005	-1.719	-0.0005	-2.237	-0.003	-1.464
AGE	-1.223	-0.930	-0.827	-2.552	-0.312	-0.265	-0.764	-2.741	-0.042	-0.652	-0.235	-2.126
QLAG	-0.797	-1.190	-0.517	-2.983	-0.118	-2.362	-0.570	-3.174	-0.197	-2.415	-0.831	-0.093
PROFIT	-1.089	-3.780	-2.833	8.254	-1.762	-3.127	-2.641	8.811	-2.113	5.089	-2.975	-3.828
PROFIT^2	-0.273	-2.530	2.266	0.692	-4.005	-3.732	2.230	0.630	-0.994	-1.032	-0.907	-4.186
DIVER	-0.124	-1.660	-4.335	-1.895	-2.351	-2.655	-4.579	-1.953	-2.974	-2.751	-4.007	-3.638
VOTING	1.073	1.780	0.369	2.037	0.104	2.730	0.512	3.121	0.090	1.559	0.214	2.067
CONCEN	-0.552	-0.820	-0.082	-0.908	1.363	2.912	0.270	0.989	0.443	10.107	-0.142	-1.735
CONCEN>50%	0.353	1.670	0.194	0.883	0.405	3.926	0.421	0.747	0.404	2.101	4.157	4.844
R^2 (adj)	0.329		0.624		0.437		0.642		0.412		0.600	
AR(1)	2.007 (0.156)		2.286 (0.131)		2.347 (0.129)		2.488 (0.115)		2.569 (0.109)		2.598 (0.107)	
Sargan	0.275		0.219		0.119		0.269		0.304		0.310	
SSR	97898		46255		13757		46341		29144		47096.1	
DETERMINANTS PROFITABILITY												
INTERCEPT	0.454	5.500	-0.280	-0.942	0.343	1.390	-0.285	-0.859	0.537	0.610	0.107	0.375
SALES	0.0000004	0.590	0.000001	0.293	0.00001	-3.002	0.000001	0.282	-0.00001	-8.882	-0.00001	-0.356
AGE	-0.001	-5.230	-0.002	-1.549	0.0002	2.568	-0.002	-1.683	0.001	2.624	0.0005	0.262
QLAG	0.004	0.180	0.111	6.253	0.042	2.802	0.105	6.812	0.047	1.402	0.253	2.205
ABDE	0.000	-1.280	-0.001	-0.835	0.000	-2.491	-0.001	-0.821	-0.009	-4.041	-0.003	-0.580
DIVER	-0.357	-4.790	0.179	3.933	-0.294	-1.372	0.195	3.822	-0.371	-0.581	-0.068	-0.301
VOTING	0.00003	0.130	0.003	2.660	0.002	0.251	0.002	2.891	0.0003	0.119	0.002	4.023
CONCEN	0.011	2.610	0.015	1.431	0.078	3.085	0.011	1.161	0.021	2.335	0.105	6.194
R^2 (adj)	0.403		0.410		0.514		0.426		0.563		0.574	
AR(1)	1.069 (0.33301)		1.231 (0.267)		1.309 (0.252)		1.270 (0.259)		1.9856 (.159)		1.888 (0.169)	
Sargan	0.201		0.261		0.194		0.198		0.235		0.186	
SSR	1531.3		896.3		132.23		847.189		15.23		6.00963	

Table 5B . 3SLS estimates of the determinants of leverage and profit margin, INDONESIA

	Full Sample		**Famown=1**		**Famown=0**		**Cronyman=1,famown=1**		**Cronyman=0, famown=0**	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
DETERMINANTS OF LEVERAGE										
INTERCEPT	3.658	3.320	3.266	2.976	8.708	3.582	3.589	2.800	8.118	2.973
SALES	-0.021	-2.040	-0.020	-2.517	-0.002	-2.330	-0.019	-2.450	0.002	3.567
AGE	-0.357	-1.880	0.041	0.085	-0.619	-2.793	0.041	0.080	-0.019	-0.200
QLAG	-6.416	-2.640	-1.732	-3.863	0.609	0.501	-1.871	-3.720	2.448	1.752
PROFIT	0.493	1.990	0.214	4.511	0.338	3.152	0.205	4.870	0.169	0.856
PROFIT^2	-0.592	-2.230	-1.605	-3.560	-1.000	-1.951	-1.678	-3.900	-0.128	-0.302
DIVER	-0.202	-3.100	-0.222	-2.704	-0.429	-2.271	-0.241	-2.910	-0.428	-2.316
VOTING	0.348	2.520	0.516	2.735	0.663	2.921	0.371	3.000	0.674	2.030
CONCEN	-0.251	-3.190	0.263	0.967	0.363	2.230	0.578	1.210	0.419	2.367
CONCEN>50%	-0.255	-2.800	0.222	-4.832	-0.109	-2.519	-0.308	-4.400	-0.130	-1.726
R^2 (adj)	0.439		0.541		0.401		0.647		0.457	
AR(1)	2.047 (0.152)		2.150 (0.143)		1.865		2.897 (p=0.088)		2.001 (0.157)	
Sargan	0.201		0.219		0.287		0.214		0.207	
SSR	199028		175886		36056		165894		25457	
DETERMINATS OF PROFITABILITY										
INTERCEPT	-0.082	-0.001	-0.066	-4.939	-0.318	-1.592	-0.065	-5.190	-0.291	-1.441
SALES	0.0001	5.000	0.00003	9.853	0.0001	2.212	0.000003	10.460	0.00003	1.338
AGE	0.003	10.450	0.001	3.217	0.005	2.852	0.001	3.070	0.002	4.298
QLAG	0.059	2.430	0.405	5.455	0.235	3.445	0.417	6.060	0.271	2.812
ABDE	0.000	-0.150	0.002	2.186	0.002	0.599	0.002	2.060	0.002	0.549
DIVER	-0.042	-0.640	0.490	3.673	0.128	0.817	0.460	3.920	0.108	0.665
VOTING	-0.001	-4.500	-0.007	-3.378	-0.001	3.750	-0.003	-4.670	-0.001	-1.441
CONCEN	-0.073	-6.200	-0.001	-0.857	0.001	0.948	-0.002	-1.030	-0.063	-1.969
R^2 (adj)	0.389		0.397		0.496		0.583		0.484	
AR(1)	1.01 (0.314)		1.419		1.426 (0.232)		1.2474 (0.264)		1.6547 (0.198)	
Sargan	0.171		0.116		0.201		0.154		0.219	
SSR	134.53		86.2		21.42		76.1		14.52	

Table 5C. Effects of ownership on leverage and profit margin

		Indonesia		**Korea**	
		Leverage	Profit	Leverage	Profit
Famown=0	Concen	+ve **	-ve **	+ve **	+ve
	Concen>50%	+ve *		+ve **	
	Voting	-ve *	-ve*	+ve **	+ve **
Famown=1	Concen	+ve **	-ve **	+ve *	+ve *
	Concen>50%	+ve		-ve	
	Voting	-ve *	-ve	+ve	+ve
Famown=1 & Crony=1	Concen	+ve **	-ve **	+ve **	+ve
	Concen>50%	+ve		+ve	
	Voting	-ve *	-ve	+ve	+ve
Famown=0 & Crony=0	Concen	+ve **	-ve **	+ve**	+ve*
	Concen>50%	-ve *		+ve*	
	Voting	+ve *	-ve	+ve	+ve
Famown=0 & Crony=1	Concen	na	na	+ve *	+ve **
	Concen>50%	na		-ve *	
	Voting	na	na	+ve **	+ve *

Note: ‘na’ : Not available because of limited information.

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Indonesia : DE and Concen

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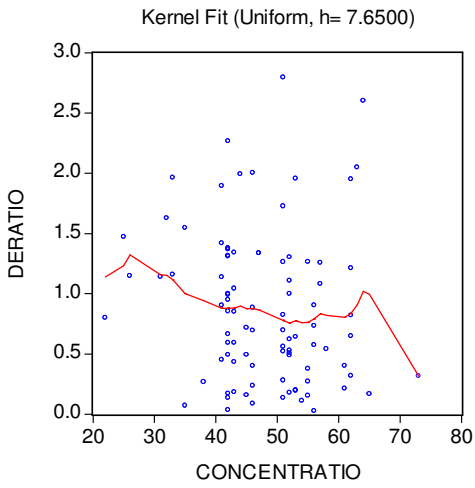

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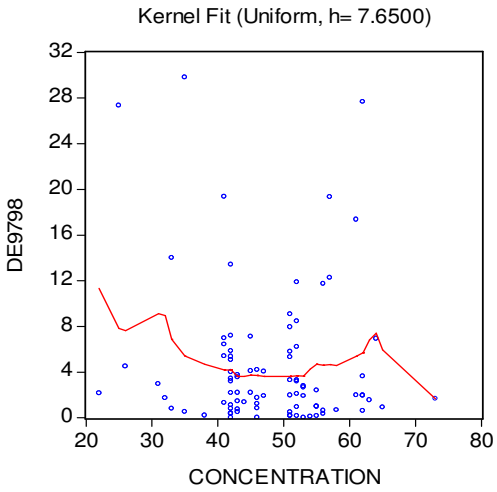

Profits and Concen

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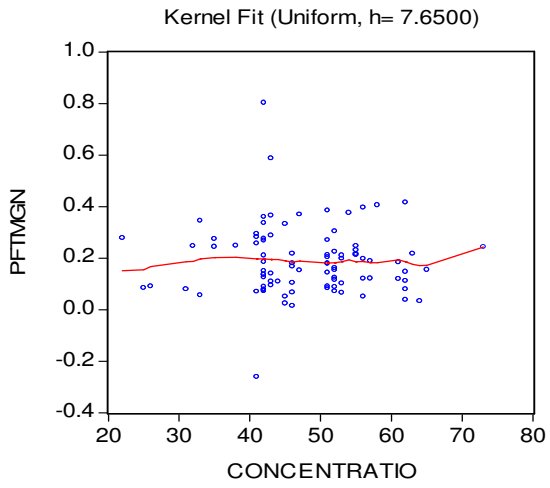

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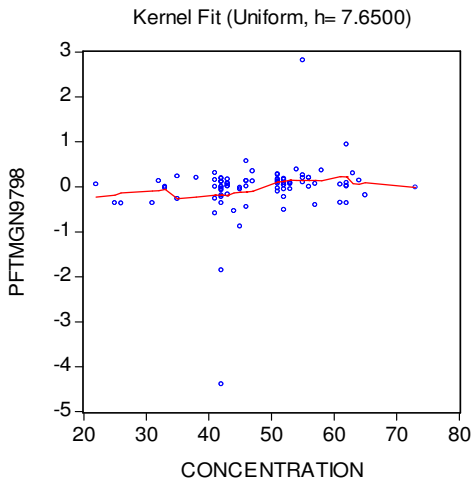

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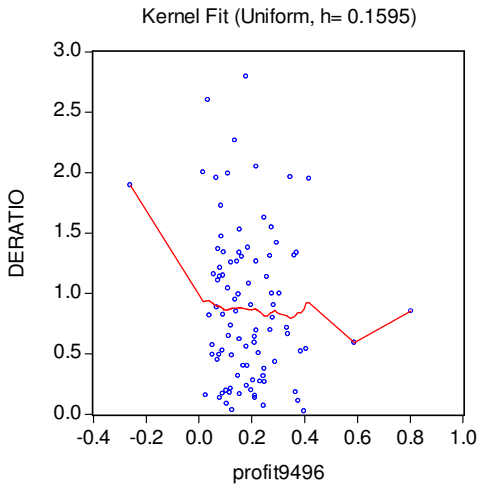

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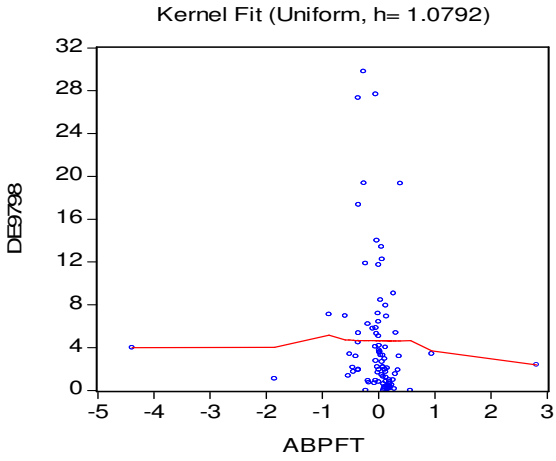

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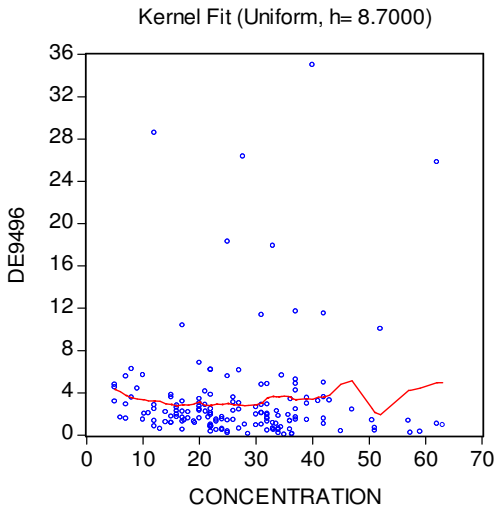

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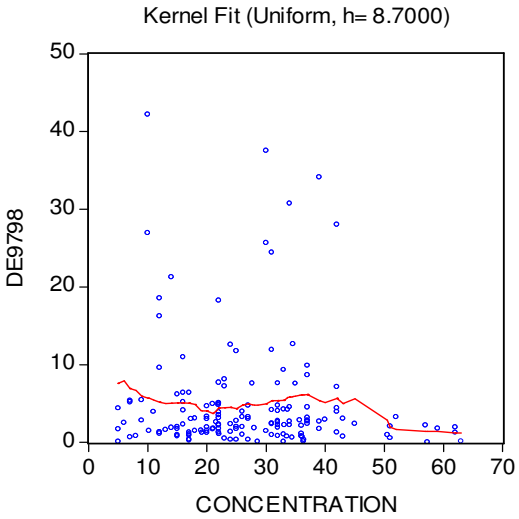

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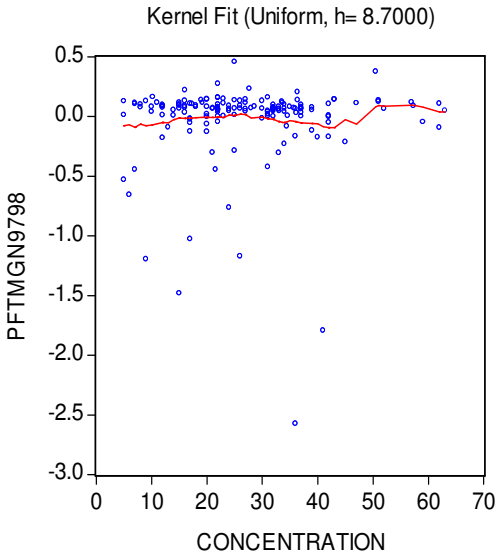

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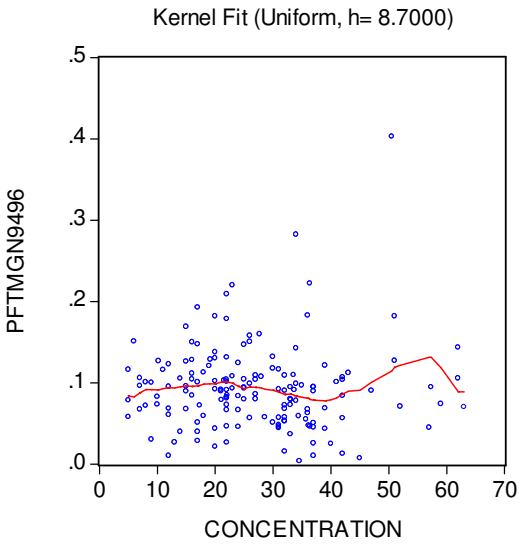

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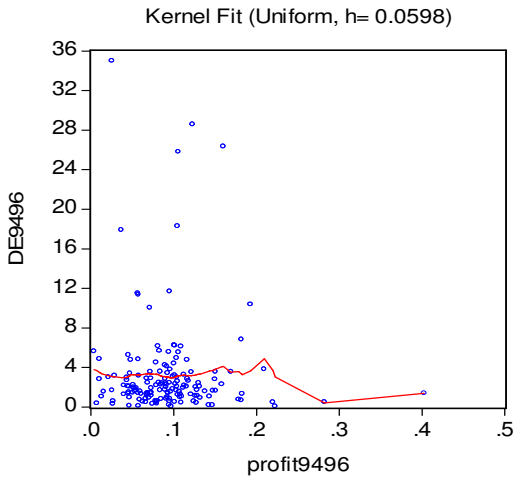

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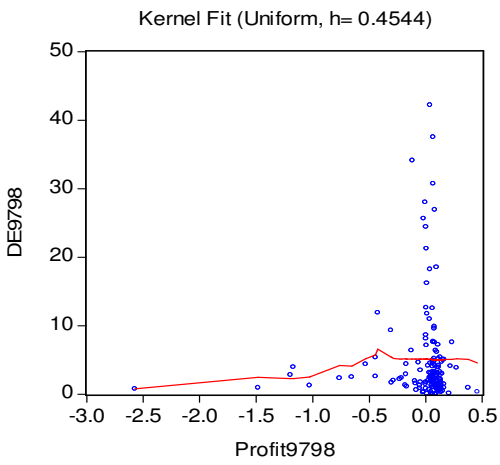

APPENDIX

Table A1. Individual effects of ownership variables: Indonesia (Full sample)

Parameter	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
Determinants of Leverage								
INTERCEPT	32.436	3.37	3.63	3.35	32.769	3.39	32.354	3.36
SALES	-.0269	-2.57	-.005	-2.04	-.0225	-2.37	-.025	-2.44
AGE	-.484	-2.65	-.170	-1.05	-.590	-2.91	-.483	-2.62
QLAG	-.591	-3.26	-.799	-2.82	-.476	-3.10	-.584	-3.17
PROFIT	1.005	3.91	.586	2.46	1.014	4.26	1.027	3.81
$PROFIT^2$	-1.267	-.61	-.488	-2.02	-13.536	-.63	-1.266	-.61
DIVER	-2.366	-3.16	-.204	-3.13	-2.127	-3.18	-2.193	-3.15
VOTING	1.909	-2.31						
CONCEN			.373	2.66				
CONCEN>50%			-.241	-3.17				
FAMOWN					.088	-2.56		
CRONY							-.165	-2.12
R^2 (adj)	0.699		0.675		0.634		0.630	
AR(1)	2.088		1.898		2.166		2.069	
Sargan	0.167		0.146		0.174		0.156	
SSR	334968.4		368259.9		395779		402454.9	
Determinants of Profitability								
INTERCEPT	-1.759	-3.58	-.099	-1.61	-1.766	-3.46	-1.770	-3.74
SALES	.0001	2.21	.0001	9.22	.0001	2.10	.0001	2.22
AGE	.004	4.13	.004	11.44	.004	4.10	.004	4.15
QLAG	.228	2.82	.107	3.44	.167	2.33	.224	2.77
ABDE	.005	2.34	.0001	.12	.005	2.28	.006	2.38
DIVER	1.241	3.34	.044	.69	1.194	3.30	1.238	3.50
VOTING	-.043	-4.92						
CONCEN			-.238	-6.13				
FAMOWN					-.088	1.52		
CRONY							-.042	-1.95
R^2 (adj)	0.562		0.514		0.489		0.486	
AR(1),	0.923		1.0167		0.905		0.966	
Sargan.	0.175		0.170		0.194		0.166	
SSR	79.366		78.235		76.383		75.459	

Table A1. Individual effects of ownership variables: Korea (Full sample, continued)

Parameter	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
Determinants of Leverage								
INTERCEPT	1.480	1.83	1.581	1.62	1.482	1.87	1.471	1.83
SALES	-.002	-1.26	-.0004	-2.25	-.00038	-.30	-.0017	-1.11
AGE	-.167	-.45	-1.633	-1.32	.484	1.39	.338	.98
QLAG	-.177	-1.57	-.107	-1.17	-79.593	-1.24	-.134	-1.47
PROFIT	-4.995	-2.34	-6.909	-3.66	-4.997	-2.35	-4.592	-2.59
$PROFIT^2$	-1.254	-1.40	-2.161	-2.31	-1.256	-1.43	-1.199	-1.47
DIVER	-1.170	-1.79	-1.383	-1.59	-1.128	-1.83	-1.163	-1.79
VOTING	3.669	1.58						
CONCEN			.509	2.84				
CONCEN>50%			-.366	-2.14				
FAMOWN					-.709	-1.805		
CRONY							-26.408	-1.28
R^2 (adj)	0.697		0.671		0.604		0.602	
AR(1)	1.963		2.070		1.796		2.027	
Sargan	0.209		0.216		0.203		0.185	
SSR	422370.3		447010.7		470767		511284	
Determinants of Profitability								
INTERCEPT	.870	3.35	.282	4.60	.884	3.45	.763	2.74
SALES	.000003	3.97	.0000001	.25	.000004	5.30	.000003	4.55
AGE	-.0009	-4.10	-.0013	-8.89	-.0006	-3.54	-.0009	-4.82
QLAG	-.107	-2.22	-.0147	-.90	-.068	-3.96	-.088	-2.16
ABDE	-.0006	-3.49	-.0002	-1.05	-.0006	-3.52	-.0005	-3.97
DIVER	-.674	-3.14	-.186	-3.11	-.663	-3.24	-.589	-2.58
VOTING	.0084	4.88						
CONCEN			.0006	3.67				
FAMOWN					-.0363	-2.56		
CRONY							-.0426	-4.30
R^2 (adj)	0.585		0.567		0.518		0.513	
AR(1)	0.910		0.970		1.033		1.020	
Sargan	0.268		0.295		0.263		0.252	
SSR	58.445		60.409		61.46		65.932	