Stock Pyramids, Cross-Ownership and Dual Class Equity: The Mechanisms and Agency Costs of Separating Control From Cash-Flow Rights

Lucian Aye Bebchuk, Reinier Kraakman, and George Triantis

Stock Pyramids, Cross-Ownership, and Dual Class Equity: The Creation and Agency Costs of Separating Control From Cash-Flow Rights

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Abstract

This paper examines common arrangements for separating control from cash flow rights: stock pyramids, cross-ownership structures, and dual class equity structures. We describe the ways in which such arrangements enable a controlling shareholder or group to maintain a complete lock on the control of a company while holding less than a majority of the cash flow rights associated with its equity. Next, we analyze the consequences and agency costs of these arrangements. In particular, we show that they have the potential to create very large agency costs—costs that are an order of magnitude larger than those associated with controlling shareholders who hold a majority of the cash flow rights in their companies. The agency costs of these structures, we suggest, are also likely to exceed the agency costs of attending highly leveraged capital structures. Finally, we put forward an agenda for research concerning structures separating control from cash flow rights.
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JEL Classification: G30

Most literature addressing the structure of corporate ownership compares dispersed ownership (DO) with a controlled structure (CS) in which a large blockholder owns a majority or large plurality of a company's shares. This paper, by contrast, examines an ownership structure in which a shareholder exercises control while retaining only a small fraction of the equity claims on a company's cash flows. Such a radical separation of control and cash-flow rights can occur in three principal ways: through dual-class share structures, stock pyramids, and cross-ownership ties. Regardless of how it arises, we term this pattern of ownership a *controlling-minority structure* (CMS) because it permits a shareholder to control a firm while holding only a fraction of its equity. The CMS structure resembles CS insofar as it insulates controllers from the market for corporate control, but it resembles DO insofar as it places corporate control in the hands of an insider who holds a small fraction of the firm's cash-flow rights. Thus, CMS threatens to combine the incentive problems associated with both the CS and the DO ownership in a single ownership structure.

CMS structures are common outside the U.S., particularly in countries whose economies are dominated by family-controlled conglomerates.[1] Because these structures can radically distort their controllers' incentives, however, they put great pressure on non-electoral mechanisms of corporate governance, ranging from legal protections for minority shareholders to reputational constraints on controlling families. For the same reason, CMS structures have recently come under close political and market scrutiny in many countries. The time is ripe, therefore, for an analysis of the governance and incentive features of these structures.

We start in Section 10.1 by analyzing the ways in which the three arrangements under consideration—stock pyramids, cross-ownership structures, and dual class equity structures —produce a separation of control from cash-flow rights. Indeed, we show how corporate planners can use such arrangements to produce any degree of separation that is desired. We

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[1] LaPorta, Lopez-de-Silanes, and Shleifer (1999), who conduct a comprehensive survey of ownership structures around the world, demonstrate that CMS structures, and particularly stock pyramids, are widespread.

illustrate our analysis with examples of CMS structures drawn from companies around the world.

Section 10.2 analyzes the agency costs of CMS structures. In this section, we show how CMS structures distort the decisions that controllers make with respect to firm size, choice of projects, and transfers of control. Our central contribution here is to highlight the potentially large agency costs that such structures involve. We demonstrate that the agency cost imposed by controlling shareholders who have a small minority of the cash-flow rights in their companies can be an order of magnitude larger than those imposed by controlling shareholders who hold a majority of the cash-flow rights. This is because, as the size of cash-flow rights held decreases, the size of agency costs increases, not linearly, but rather at a sharply increasing rate.

Section 10.3 compares the agency costs of CMS structures with those of debt under circumstances of extreme leverage. Although leverage also separates cash flow from control rights, we argue that the agency costs of debt may well be less troublesome than those of CMS structures. The status of CMS noncontrolling shareholders compares poorly to that of debtholders, who are protected by priority rights and protective covenants. The contrast is so marked that a CMS controller might plausibly incur debt just to signal her willingness to limit the agency costs that she is prepared to impose.

Our analysis of the agency costs of CMS structures raises many issues that call for further empirical and theoretical study. In Section 10.4, we put forward the agenda of research that is warranted by our findings concerning the agency costs of CMS structures.

2. Mechanisms of Separating Cash Flow and Control

In this section, we describe the three basic mechanisms that permit a company's controller to retain only a minority of the cash-flow rights attached to the firm's equity: differential voting rights structures, pyramid structures, and cross-ownership structures. Although a minority shareholder often exercises a form of working control when a firm's remaining shares are dispersed, we are not concerned with such contingent forms of control

here. Instead, we consider structures in which a minority shareholder possesses entrenched control that is wholly insulated from any takeover threat. Each of the three basic CMS forms firmly entrenches minority control, as do hybrids of these forms that are best analyzed in terms of the basic structures. In each case, the CMS form can be used in principle to separate cash-flow rights from control rights to any extent desired. We denote the degree of separation induced by a CMS structure between control and cash-flow rights by α, which represents the fraction of the firm's equity cash-flow rights held by the controlling-minority shareholder.

2.1 Differential Voting Rights

The most straightforward CMS form is a single firm that has issued two or more classes of stock with differential voting rights. Indeed, such a multi-class equity structure is the only CMS form that does not depend on the creation of multiple firms.

The Separation of Cash-Flow and Control Rights

Calibrating the separation of cash-flow and control rights in a dual class equity structure is child's play. A planner can simply attach all voting rights to the fraction α of shares that are assigned to the controller, while attaching no voting rights to the remaining shares that are distributed to the public or other shareholders.[2]

The Incidence of Differential Voting Rights

Despite its simplicity, however, dual class equity is not the most common CMS structure. One reason may be that the corporate law of some jurisdictions restricts both the voting ratio between high- and low-vote shares and the numerical ratio between high- and low-vote shares that a firm is permitted to issue. These restrictions implicitly mandate a lower bound on the size of α. Yet, such legal restrictions cannot wholly explain the lagging popularity of differential voting rights. As La Porta, Lopez-de-Silanes, and Shleifer (1999)

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[2] In their sample of dual class firms, DeAngelo and DeAngelo (1985) found that insiders held a median of 56.9 percent of the voting rights but only 24 percent of the common stock claims to cash flow.

observe, even in jurisdictions where firms often have stock with differential voting rights, CMS companies typically do not reduce the fraction of controller ownership α to the legal minimum.

Dual class voting structures are particularly common in Sweden and South Africa. The most prominent Swedish example is the Wallenberg group, which controls companies whose stock comprises about 40 percent of the listed shares on the Stockholm Stock Exchange. Family trusts hold 40 percent of the voting rights but only about 20 percent of the equity in the group's principal holding company, Investor (if allied investors are included, these percentages increase to 65 percent of the votes and 43 percent of the equity, respectively). In turn, Investor controls a large number of operating companies. For example, it holds about 95 percent of the votes but less than 7 percent of the equity in Electrolux, the large manufacturer of household appliances; and it holds 40 percent of the votes but less than 4 percent of the equity in Ericsson Telefon, a large telecom ("Storming the Citadel" 1990). In South Africa, dual class equity is also becoming widely accepted (although it remains less popular than CMS pyramids). Companies have been permitted to list low-vote "N shares" on the Johannesburg Stock Exchange since 1995.

2.2 Pyramids

A CMS firm can be established with a single class of stock by pyramiding corporate structures. In a pyramid of two companies, a controlling-minority shareholder holds a controlling stake in a holding company that, in turn, holds a controlling stake in an operating company. In a three-tier pyramid, the primary holding company controls a second-tier holding company that in turn controls the operating company.

Separating Cash-Flow and Control Rights

To see the extent of separation of cash-flow and voting rights in a pyramid structure, consider the simple case of a sequence of $n \geq 2$ companies, in which the controller holds a fraction s_1 of the shares in company 1, company 1 holds a fraction s_2 of the shares in company 2, and so on. In this example, the nonpaper assets will be placed in company n.

As long as $s_i \geq 2$, $i = 1, ..., n$, the controller exercises formal control over the assets. As to cash-flow rights, the controller holds a fraction

$$\alpha = \left(\prod_{i=1}^{n}\right) s_i$$

PROPOSITION 1. *For any fraction α, however small, there is a pyramid that permits a controller to control a company's assets completely without holding more than α of the company's cash-flow rights. This follows from the fact that, by setting n large enough, the product*

$$\left(\prod_{i=1}^{n}\right) s_i$$

can become as low as desired.

In the boundary case in which the controller holds 50 percent of voting rights at each level of a pyramid (the minimum necessary for formal control), $\alpha = (0.5)^n$. To take a concrete example of how rapidly pyramiding separates equity from control, consider a three-level pyramid with $s_i = 0.50$ at each level. Here, the minority investor controls the firm with only 12.5 percent of its cash-flow rights.

Incidence of Pyramid Structures

La Porta, Lopez-de-Silanes, and Shleifer (1999) find that pyramids are the most commonly used mechanism for concentrating control in a CMS structure. Pyramiding is quite common in Asian countries (see Claessens et al. 1999) as well as in some European countries (see, e.g., Bianchi, Bianco, and Enriques 1997; and Holmen and Hogfeldt 1999). One example of a well-known pyramid is the Li Ka-shing group, operating out of Hong Kong. The Li Ka-shing family operates through the Cheung Kong public company, in which it has a 35 percent interest (La Porta, Lopez-de-Silanes, and Shleifer 1999). Cheung Kong, in turn, has a 44 percent interest in its main operating company, Hutcheson Wampoa.

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Hutcheson Wampoa owns Cavendish International, which is the holding company for Hong Kong Electric (Weidenbaum 1996). A second, Indian example is the Gondrej family, which holds, through the privately held Gondrej and Boyce Manufacturing Company, 67 percent of the publicly traded Godrej Soaps (which is listed on the Bombay Stock Exchange). In turn, Godrej Soaps owns 65 percent of Godrej Agrovet (agriculture) and, together with the Godrej group, 65 percent of Godrej Foods (food processing) (Morais 1998).

2.3 Cross-Ownership

In contrast to pyramids, companies in a cross-ownership structures are linked by horizontal cross-holdings of shares that reinforce and entrench the power of central controllers. Thus, cross-holding structures differ from pyramids chiefly in that the voting rights used to control a group remain distributed over the entire group rather than concentrated in the hands of a single company or shareholder.

The Separation of Cash-Flows and Control Rights

To clarify the relation between cross-holdings and control, consider a group of n companies in a cross-holding structure. Let us denote by s_{ij} the fraction of company *i*'s shares that are held by company *j*. And suppose that the controller also holds directly a fraction s_i of the shares of company *i*.

Assuming that, for each i, the controller maintains

$$s_i + (\sum_{j=1}^{n}) s_{ij} > \frac{1}{2},$$

the controller completely controls the assets of all n companies. However, the controller might hold only a small fraction of the cash-flow rights in these companies. The simplest example of a symmetrical case is a controller who holds identical stakes *s* in two companies with identical cross-holdings *h* in the other, such that $s + h \geq \frac{1}{2}$ (i.e., the controller's control in both companies is entrenched). In this case, the controller's fraction of the cash-flow rights

is the ratio of its direct holding *s* over the total fraction of shares that is not crossheld (1 – *h*):

$$\alpha = (\frac{s}{1 - h}).$$

PROPOSITION 2: *For any α, however small, it is possible to construct a cross-ownership structure such that the controller will have complete control over the assets but no more than a fraction α of the cash flow from the assets.*

PROOF: In a symmetrical two-company structure considered above, this can be accomplished by choosing *s* and *h* such that *s* + *h* ≥ ½ and *s*/(1 – *h*) gives the desired α. These conditions can be satisfied by setting *s* equal to 1/2 α (1 – α) and by setting *h* equal to 1/2[1 – α (1 – α)]. Although we demonstrate this proposition only for the case of a symmetrical two-company structure, cross-ownership ties yielding a desired α can be constructed for non-symmetrical or multicompany structures as well.

The Incidence of Cross-Holding Structures

Ethnic Chinese families employ cross-holdings as well as pyramids to secure control of their business groups. Cross-holdings are popular in Asia, it is said, because they make the locus of control over company groups less transparent (Weidenbaum 1996). A prominent example is the vast Chareon Pokphand Group (CP), based in Thailand, which owns directly 33 percent of CP Feedmill (agribusiness and some real estate, retailing, manufacturing, and telecom), 2 percent of CP Northeastern (agribusiness), and 9 percent of Bangkok Agro-Industrial (agribusiness). But CP Feedmill owns 57 percent of Northeastern. CP Feedmill also owns 60 percent of Bangkok Agro-Industrial, and CP Northeastern owns 3 percent of Bangkok Agro-Industrial. Bangkok Agro-Industrial owns 5 percent of CP Feedmill (Weidenbaum 1996.) CP Feedmill, CP Northeastern, and Bangkok Agro-Industrial are all listed on the Bangkok Stock Exchange.

A second example is the Lippo group, controlled by the Riady family. Lippo controls

a financial conglomerate comprising three principal companies that are linked by cross-holdings: Lippo Bank, Lippo Life, and Lippo Securities. Although the Riady family divested most of its equity stake in Lippo Bank and Lippo Life in 1996, it continues to control those companies through its majority stake in Lippo Securities, which holds 27 percent of the shares in Lippo Life, which in turn holds 40 percent of Lippo Bank (Solomon 1996). When the restructuring was proposed, many observers suspected that it was merely a means for the Riady family to extract assets from Lippo Life and Lippo Bank, and, as a result, there was some doubt as to whether it would be blocked by the shareholders or by the Indonesian stock market regulatory body (Solomon 1996). However, Lippo's restructuring plans succeeded nonetheless, partly on the basis of a pledge by the Riady family to reduce the group's cross-holdings over time ("Nothing Can Hold Back Lippo" 1997).

2. Agency Costs

In this section we examine the agency costs associated with the CMS structure in three important contexts: choosing investment projects, selecting investment policy and the scope of the firm, and choosing to transfer control.

The CMS structure lacks the principal mechanisms that limit agency costs in other ownership structures. Unlike in DO structures, where controlling management may have little equity but can be displaced, the controllers of CMS companies face neither proxy contests nor hostile takeovers. Moreover, unlike in CS structures, where controlling shareholders are entrenched but internalize most of the value effects of their decisions through their shareholdings, CMS controllers may hold a very small fraction α of the cash-flow rights in their firms. In this section, we demonstrate that, as α declines, the controllers of CMS firms can externalize progressively more of the costs of their moral hazard and that the agency costs of CMS firms can increase at a sharply increasing rate as a result. Whether agency costs do in fact increase at a sharply increasing rate thus depends on whether there are additional constraints on the decisions of CMS controllers besides the tug of ownership structure and private benefits of control.

2.1 Project Choice

Consider first a controller's choice of investment projects. Suppose that a firm has a choice of investing in one of two projects. Project X will produce a total value V_X, which includes cash flow S_X, available to all shareholders, and private benefits of control B_X, available only to the firm's controller. (B_x may come from self-dealing or appropriating opportunities.) Similarly, suppose that project Y will produce a total value of V_Y, which includes the analogous terms S_Y and B_Y. Suppose further that project Y does not give rise to the same private opportunities to the controller, that is, that $B_X > B_Y$. The controller will choose project X if and only if

$$\alpha \ (V_X - B_X) + B_X > \alpha \ (V_Y - B_Y) + B_Y.$$

Thus, depending on α, the controller might choose the project with the lower value V but the larger private benefits of control B. Moreover, as α declines, the difference in value between Y and X will pale in importance in the controller's eyes relative to the difference in the private benefits of control. This relationship can be restated as follows:

PROPOSITION 3: *Given a less valuable project X and a more valuable project Y, a controller of a CSM firm will make the inefficient decision to choose project X if and only if*

$$V_Y - V_X < (\frac{1 - \alpha}{\alpha}) \Delta B$$

where $\Delta B = B_x - B_y > 0$.

Differentiating the term on the right with respect to α yields $-(\alpha^{-2})\Delta B$. This suggests that, for a given distribution of possible project Y's, the likelihood that the controller will inefficiently choose project X rises and the efficiency loss from such a selection rises at a sharply increasing rate, as α decreases.

To take a concrete example, suppose that ΔB has the modest value of $0.03 \ V_X$. If $\alpha = 0.5$, the distortion in project selection will be marginal: a controller will forgo the efficient project Y only if its excess value over X is less than 3 percent of V_X. However, if $\alpha = 0.1$, the

distortion will be large—a controller will reject the efficient project Y unless it exceeds V_X by more than 27 percent.

2.2 Decisions on Scope

Next, consider the agency costs associated with the controller's decision to distribute cash flows or expand the firm under a CMS regime. Conglomerates operating under a DO structure are frequently criticized for inefficiently retaining free cash flows even when they lack profitable investment opportunities. CMS structures are subject to a similar agency problem when their controllers can extract private benefits from unprofitable projects.

Agency costs can arise whenever a CMS controller is called on to decide whether to contract or expand the firm. To see this, suppose that there is an asset that produces value V, which is the sum of cash flows S and private benefits B. If this asset belongs to a CMS firm, the firm's controller may refuse to sell it and distribute the proceeds, P, to all shareholders because doing so would sacrifice a private benefit. Alternatively, if the asset is held by a third party, the CMS controller may cause his company to pay P for the asset, rather than distribute this sum as a dividend, in order to acquire the private benefit B that the asset confers. In terms of the controller's decision, these two situations are equivalent: in both, the controller's incentives are distorted in favor of increasing the private benefits of control by expanding the firm.

More formally, a controller will prefer to expand (or not to contract) a firm if

$$\alpha\ (V - B) + B > \alpha\ P,$$

where α is again the fraction of cash-flow rights held by the firm's controller. This point can be restated:

PROPOSITION 4:   *A controller will prefer to expand the firm if and only if*

$$V > P - (\frac{1-\alpha}{\alpha})\ B.$$

Thus, if P is in the range

$$\left[V, V + \left(\frac{1-\alpha}{\alpha} \right) B \right],$$

a controller will decide to make the enterprise inefficiently large. The magnitude of the inefficiency $(P - V)$ is equal to $(1 - \alpha/\alpha)B$, and the differential with respect to α is equal to $- (\alpha^{-2})B$. Given any distribution of opportunities to expand and contract, the likelihood that a CMS firm will make an inefficient decision (and thus the size of expected agency costs) grows larger as the controller's equity stake α grows smaller. As in the case of project choice, moreover, the potential agency costs increase at a sharply increasing rate as α declines.

Consider, for example, a decrease in α from $\alpha = 0.5$ to $\alpha = 0.1$. For $\alpha = 0.5$, the range over which a controller will make inefficient decisions is $(V, V + B)$; for $\alpha = 0.1$, the range is $(V, V + 9B)$. This is a very large difference. Suppose that B is a modest 5 percent of V. In this case, if $\alpha = 0.5$ the controller will make mildly distorted decisions but will agree to sell the asset for a price that exceeds its value by 5 percent. However, for $\alpha = 0.1$, the controller will refuse to sell the asset unless the firm receives a price 45 percent higher than the value of the asset to the firm. A reduction in α deteriorates incentives in two ways: (*a*) it increases the number of inefficient decisions, and (*b*) the inefficient decisions added are especially bad.

Thus, we predict that CMS firms have a very strong tendency, all else equal, to expand rather than contract, to retain free cash flows, and to hold back distributions. It follows that CMS structures are more likely to evolve into conglomerates than are either DO or CS structures, unless their tendency to expand is contained by governance mechanisms other than the immediate incentives of their controllers.

2.3 Control Transfers

A third set of decisions that can impose significant agency costs on CMS firms is represented by transfers of control. Suppose that the initial controller, I, has a fraction α of the cash-flow rights. Under I, the firm's value is V_I, which consists of cash flow S_I and private control benefits B_I. Under a potential new controller, N, the corresponding values would be V_N, S_N, and B_N. A transfer of control to N will be efficient if and only if $V_I = S_I + B_I < V_N = S_N$

$+ B_\text{N}$. However, if α is small, the decision of controller I to sell the firm will depend much less on V_I and V_N, the values of the firm in the hands of I and N, than on the relative sizes of B_I and B_N, the private benefits of I and N. To demonstrate this point clearly, we must first specify the nature of the legal regime governing control transfers.

CMS Control Transfers under The Market Rule

Bebchuk (1994) has previously identified two paradigmatic legal regimes governing control transactions: the "market rule," under which the transferor of control (in our case, I) may retain a control premium, and the "equal opportunity rule," under which noncontrolling shareholders are entitled to participate in a transfer of control on the same terms as the controller. Consider first how transfers of control over CMS firms are likely to be affected by the size of α under the market rule.

Under the market rule, it can be shown (see Bebchuk 1994) that control will be transferred if and only if

$$\alpha \, S_N + B_N > \alpha \, S_I + B_I.$$

The intuition is that the value of a control block of shares in a company is $\alpha S + B$, which is the controller's fractional claim on the company's cash flows plus the private benefit of control. It follows that, when the above condition holds, the control block will be worth more to N than to I. Since $V_\text{I} = S_\text{I} + B_\text{I}$ and $V_\text{N} = S_\text{N} + V_\text{N}$, we can rearrange the above relation to establish that, even if $V_\text{I} > V_\text{N}$, control *will be* transferred as long as

$$B_N - B_I > (\frac{\alpha}{1-\alpha})(V_I - V_N).$$

Conversely, even if $V_\text{N} > V_\text{I}$, control *will not be* transferred as long as

$$B_I - B_N < \frac{1-\alpha}{\alpha} (V_N - V_I).$$

In the first case, transfer of control is inefficient; in the second, failure to transfer control is

inefficient. In both cases, moreover, it is clear that the magnitude of the inefficiency costs as well as the range of inefficient outcomes increase exponentially as α declines.

CMS Control Transfers Under The Equal Opportunity Rule

Under the equal opportunity rule, an initial controller will sell her control stake if and only if

$$\alpha \, S_I + B_I < \alpha \, V_N,$$

that is, when the sum of her cash-flow rights and private benefits is less than the proportionate share of the firm's total value acquired by the new controller. Rearranging terms, a sale will not take place if and only if

$$B_I < \frac{\alpha}{1-\alpha} \, (V_N - V_I)$$

even if $V_N > V_I$. Thus, as $\alpha/(1-\alpha)$ declines (and it declines much faster than α), the equal opportunity rule blocks a wider range of efficient transactions. Indeed, when the initial controller enjoys significant private benefits, even transfers with large potential efficiency gains are unlikely to occur. Consider the example of a pyramid in which $B_I = 0.501 V_I$ and $\alpha = 0.2$. In this case, a transfer will not occur even if V_N is twice the size of V_I.

2.4 Factors Limiting the Agency Costs of CMS Structures

The discussion of agency costs thus far has implicitly assumed that a CMS controller has no significant constraints on her ability to extract private benefits. In fact, however, there are at least two potential constraints that may limit CMS agency costs and protect the interests of noncontrolling shareholders.

Reputation as a Constraint on Agency Costs

The first potential constraint on agency costs is reputation. The fact that CMS structures can impose significant agency costs is well known, even if the magnitude of these

costs is not. It follows that CMS controllers who return to the equity market must pay a price for the expected agency cost of CMS structures unless they can establish a reputation for sound management.

There is some evidence that reputational concerns constrain CMS controllers. On one hand, a good reputation appears to facilitate CMS structures. For example, Barr, Gerson and Kantor (1997) find that South African controlling shareholders with better reputations tend to maintain smaller stakes in CMS firms. Conversely, a reputation for exploiting minority shareholders sharply increases the cost of capital for a CMS firm. Thus, after the Russian firm Menatep was accused of stripping profits from the subsidiaries of AO Yukos, a closely held oil company that is controls, its acquisition of another oil company (Eastern Oil) raised new fears of asset stripping and sharply decreased the share price of Eastern's subsidiary Tomskneft (Cullison 1998).

A further clue about the role of reputation in controlling agency costs is that families— frequently regarded as repositories for reputation—are the most common controlling shareholders in CMS structures (La Porta, Lopez-de-Silanes, and Shleifer 1999). Since family pyramids and cross-holding structures tend to grow gradually through the generation of internal capital and the issuance of minority stock, one might expect family controllers to limit their appropriation of private benefits in order to assure continued growth for the benefit of their offspring. Moreover, the pressure on CMS controllers to maintain a good reputation appears to have increased in countries such as Sweden and South Africa that have recently reduced barriers to the inflow of foreign investment capital ("Storming the Citadel" 1990; Barr, Gerson and Kantor 1997).

Legal Constraints on Agency Costs

A second potential constraint on CMS agency costs are the legal protections accorded to minority shareholders. The analysis of this part has suggested the agency costs of CMS structures tend to grow as the private benefits of control increase. Thus, the agency costs of CMS structures will tend to be comparatively larger in countries in which legal rules are lax

and private benefits of control are consequently large.

Note that this point presents a puzzle. It might suggest that CMS structures will tend to be *less* common in countries with a lax corporate law system. Yet, the opposite seems to be the case: CMS structures are in fact *more* common in countries with a lax corporate law system. We will remark on how this puzzle might be explained in section 10.4 below.

3. Comparison With A Leveraged CS Structure

In the broader capital structure decision, cash flows are divided not only among shareholders but also between shareholders and debtholders. Thus, control may be separated from cash-flow rights, not only by allocating control rights to a minority shareholders, but also by taking on substantial debt. In what we term a *leveraged controlling-shareholder* (LCS) structure, the controller holds most or all of the equity tickets with their attached control rights, but most of the firm's cash flow must be paid out to debtholders. Debt investors are typically nonvoting stakeholders, and, in this limited sense, they resemble minority shareholders. The comparison is reflected in the contrast between the means by which two of the most prominent business families in Canada secured control over large empires. The Reichmanns financed their Olympia and York through private and public debt; the Bronfmans drew more on equity investment to build the Hees-Edper-Brascan web of interlocking companies.

Despite the superficial similarity between CMS and LSC structures, however, two important differences suggest that these structures have a qualitatively different range of agency costs. These distinctions turn on the priority rights and the covenant protections enjoyed by debtholders.

3.1 The Priority Rights of Debt

The fact that debtholders generally enjoy a fixed entitlement with priority over the claims of shareholders alters the nature of the agency problem. Take as an example the effect of leveraging on project choice—the problem analyzed in the CMS context in Section 10.2.1

above. Suppose that a firm's controller owns all of its equity and issues debt with face value D. In the simple case in which there is no probability of insolvency, no agency costs arise under this LCS structure because the controlling shareholder, as residual claimant, internalizes all the costs and benefits of her decisions.

But, if there is a significant probability of insolvency, the problem is more complex. Assume for the moment that the probability of insolven y is a function of the amount of debt, D, but not of the choice between the projects: that is, $P(V_X < D) = P(V_Y < D) = \pi$ for projects X and Y. Assume also that the controller can extract private benefits before the firm becomes insolvent. The controller would choose project X if and only if

$$(1 - \pi)(V_X - D - B_X) + B_X > (1 - \pi)(V_Y - D - B_Y) + B_Y.$$

If we let $\Delta B = B_X - B_Y$, the controller will make an inefficient decision to choose project X over project Y if and only if

$$0 < V_Y - V_X < [\pi/(1 - \pi)]\Delta B$$

Differentiating the right side with respect to π gives us $(1 - \pi)^{-2}\Delta B$.

This result suggests that agency costs are as sensitive to the probability of insolvency in LCS firms (which increases with leverage) as they are to α in the CMS case. Like α, $1 - \pi$ represents the degree to which the controller can externalize the costs of appropriating private benefits through the selection of projects—or, by extension, through distribution policy. And, just as it appears to be in the interest of a CMS controller to reduce α as much as possible, it may seem to be in the interest of a LCS controller to minimize $1 - \pi$ by issuing as much debt as possible.

Yet, the LCS controller's preference for Project X is more complex if we relax one or both of the assumptions of (*a*) the independence of insolvency risk from project choice and (*b*) the priority of private benefits over debt claims. After relaxing these assumptions, we must reexamine the effect of insolvency risk on a controller's variable interest (her residual claim as a shareholder) and her fixed interest (her "claim" on private benefits of control).

If we relax the assumption that π is independent of the project selected, project choice is tilted in a manner that is well known as the agency problem of risk alteration or

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overinvestment: equityholders, including the controller, will come to prefer more to less risky projects. This may compound or offset the distortion described above. In particular, if the inefficient project X is also the riskier project, the controller will be even more favorably inclined toward it. If, conversely, the efficient project Y is the riskier project, the controller's incentive to choose project X may be tempered somewhat by the attractiveness of the riskiness of project Y to the controller qua shareholder.

However, to the extent that we also relax the second assumption that the controller appropriates private benefits prior to insolvency, benefits effectively become subordinate in priority to the claims of the debtholders. If project X is the riskier choice, its expected private benefits must be discounted by the probability of insolvency and may turn out to be lower than the expected benefits of project Y. If, however, project Y is the riskier choice, the controller's expected private benefits are even more favorable to project X than in the simple case demonstrated above, and this offsets the benefit to the controller (qua shareholder) from risk taking. In sum, the most severe agency problem arises when project X is the riskier alternative and the controller can take her private benefits before insolvency occurs. If either project X is the less risky alternative or the controller's private benefits are threatened by insolvency, then the inefficiency of the controller's incentives (in favor of projects that are either risky or yield large private benefits) may be modest and almost certainly less than the controller's counterpart in the CMS firm.

Indeed, an LCS controller's incentive qua shareholder to prefer risky projects and high leverage is easily overstated. The interest of equityholders in a leveraged firm is often summarized in corporate finance by observing that they effectively hold a call option: they have the right, but not obligation, to buy the firm's assets by paying off the firm's indebtedness. Since the value of a call option is an increasing function of the riskiness of the underlying asset, it follows that raising the riskiness of firm assets can increase its share value. This conventional account, however, neglects the fact that option values are a function of the time to maturity as well as volatility. In the case of traded financial options, an increase in the risk of the underlying asset does not change the maturity of the option. But in the case of the

leveraged firm, the maturity of the shareholder's option is the firm's default on its debt obligations, which in turn may be accelerated by an increase in the riskiness of the firm's projects. Therefore, an LCS controller's incentive to enhance her option value by increasing the riskiness of the firm is at least partially offset by the resulting abbreviation of the expected life of the option.

The incentive to make distributions to shareholders (e.g., dividends, share repurchases) is more straightforward. The CMS controller receives only a fraction of the corporate distributions but extracts the full private benefit from assets left in the firm. In contrast, the LCS controller receives all the distributions to shareholders, and its claim on private benefits is subject to the risk of losing them in the event of insolvency. Therefore, the incentive to distribute is much higher in the LCS case. While CMS firms may grow inefficiently large, LCS firms may shrink inefficiently small, at least if distributions to shareholders are unconstrained.

Finally, controllers of CMS and LCS firms also differ with respect to sales of their controlling stakes. Where a CMS controller may refuse an efficient sale or accept an inefficient one, depending on the legal regime, a LCS controller will always deal with a higher-valuing purchaser. The reason is that all potential purchasers of the equity in an LCS firm can extract the same value from creditors by leveraging. Moreover, all returns to LCS shareholders with 100 percent of the equity in their firms are shareholder returns, whether they are paid out as dividends or as perks. Thus, there is no danger that differences in private returns will deter the sale of LCS equity. Any purchaser who values the equity of a leveraged firm more than the incumbent controlling shareholder should be able to buy it.

3.2 The Contractual Protection of Creditors

The second important distinction between the governance of CMS and LCS structures is that creditors typically enjoy far-reaching contractual safeguards in addition to their priority rights. The shareholder's control of a LCS firm is contingent on satisfying the conditions and promises contained in the contract between the firm and its debtholders. For example, where

the controllers of firms might otherwise reinvest free cash flows to increase their private control benefits, they are legally bound to make interest payments to their debtholders. This constrains their ability to take private control benefits (see Jensen 1986). Moreover, given their enforcement rights, debtholders generally contract for a much richer set of protections than minority shareholders do. That is, a leveraged firm must promise to observe numerous constraints and forego specific forms of misbehavior, and, all else equal, these restrictions become more severe as the firm becomes more leveraged. The sanction for breach, moreover, is the acceleration of the debt and the exercise of creditor rights against firm assets, which exposes the controller of a LCS firm to the risk of removal.

One indication of the importance of contractual protections in reducing the agency costs of debt is the paucity in the United States of preferred stock without conversion or redemption rights (see Houston and Houston 1990, 45). Such stock resembles debt with particularly weak contractual protection.

3.3 Combining CMS and LCS Structures

Given that corporate debtholders generally impose detailed contractual restrictions on controlling shareholders—and given that debt creates incentives different from, and sometimes opposed to, those that arise under CMS structures—leverage might serve as a commitment device for CMS controllers who wish to refrain from exploiting their opportunities to take private benefits. Thus, debt financing can limit controller latitude to invest in negative net-present-value projects by forcing firms to distribute free cash to investors (Jensen 1986). Moreover, a skilled creditor-monitor, such as a bank, enhances the discipline of debt: to some extent, such a monitor can confer a public good on all corporate stakeholders by deterring the inefficient appropriation of private-control benefits by a firm's controller. Therefore, we might predict that sophisticated shareholders would prefer to invest in leveraged CMS firms, especially if a significant debt were concentrated in the hands of a skilled monitor, such as a bank.

Yet whether CMS controllers actually use the LCS structure as a commitment device is

an open question. As we have discussed in this section, the incentives of lenders also diverge from those of noncontrolling shareholders, and the latter group cannot count on the former to protect its interests. Moreover, the discipline of monitoring by lenders is easily frustrated by the managerial, investment, and political links between firms and institutional lenders that are common in countries with CMS structures. Commentators have noted the inadequate supervision of lending relationships among connected parties within family or business groups in many of the troubled Asian economies (e.g. South Korea). Even in the more developed economies, conglomerate borrowers may attract less than rigorous screening and monitoring from their institutional lenders than smaller, stand-alone firms.[3]

4. Concluding Remarks: An Agenda for Research

We have sought to attract attention in this paper to the incentive problems of CMS structures. CMS firms deserve close scrutiny because they are pervasive outside the handful of developed countries with highly developed equity markets and a tradition of dispersed-share ownership. Our principal contribution here has been to analyze their agency costs. In particular, CMS structures can distort the incentives of corporate controllers to make efficient decisions with respect to project selection, firm size, and roles of control. We have demonstrated that, all else equal, the agency costs associated with CMS firms increase very rapidly as the fraction of equity cash-flow rights held by CMS controllers declines. Moreover, although the agency costs of CMS structures resemble in some respects those of debt, they are not limited by the contractual protections and incentive characteristics that constrain the opportunism of controlling equityholders in leveraged firms. Thus, CMS agency costs can bulk even larger than those of highly leveraged LCS firms.

Our analytic conclusions in this paper, however, are only a first step in the

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[3]Daniels and MacIntosh (1991, 885) suggest that, in Canada, "institutional shareholders, like banks, insurance and trust companies, may justifiably fear loss of business or loss of access to preferential information flows should they oppose wealth-reducing management initiatives." Sweden's biggest commercial bank has been viewed as the Wallenberg bank even though the family owns only 8 percent of it ("Storming the Citadel" 1990).

investigation of CMS firms. Our discussion suggests a number of additional questions that together constitute an agenda for research on these structures.

4.1 Understanding the Choice Among Alternative CMS Structures

We have shown that CMS structures can assume three principal forms of dual class share issues, pyramids, and cross-shareholding structures. Of these, La Porta, Lopez-de-Silanes, and Shleifer (1998) find that pyramid structures are the most common. An obvious but important question is, What factors determine the choice by controllers among CMS forms? Contributing factors are likely to include transaction costs, legal restrictions (e.g., on the use of multiclass equity), and political and reputational constraints (encourage more opaque structures of cross-ownership). Although we have shown that any of the mechanisms alone or in combination can reduce α to almost zero, the evidence suggests that controllers refrain from exploiting fully this potential.   This question may also be addressed by examining the economic, legal and political factors limiting the use of the various mechanisms.

4.2 Empirically Investigating the Agency Costs of CMS Structures

Given the magnitude of the *potential* agency costs associated with CMS structures, a second important question concerns the *actual* costs associated with these firms.   These costs turn on how far legal protections and reputational considerations limit the opportunism of CMS controllers: for example, the extent to which agency costs are reduced by borrowing heavily from sophisticated monitors such as banks. The magnitude of CMS agency costs bears importantly on understanding the incidence and consequences of CMS structures. Some important empirical work in this direction is already underway. Holmen and Hogfeldt (1999) put forward findings on agency costs in Swedish pyramids, and Bianco (1998) presents findings on such costs in Italian pyramids. Claessens et al. (1999) document that firms in a pyramid structure have lower Q-values than similar stand-alone firms.

4.3 Explaining How CMS Structures Arise

Our results indicating the large size of potential agency costs under CMS structures suggest a puzzle that calls for an explanation. What explains the common existence of these structures notwithstanding their large agency costs?

One line of research in search of an answer to this puzzle might be to search for countervailing efficiency benefits associated with CMS structures that offset their agency costs (see Khanna and Palepu 1999,2000, in press). Such factors, if they could be identified, might naturally explain the existence of CMS structures. One thing that makes this approach difficult is that CMS structures are common in countries with lax corporate rules, even though the agency costs of such structures tend to be larger in such countries. This implies that, to be able to explain the observed patterns of ownership, the considered line of research would have to identify some countervailing efficiency benefits that are likely to be large in countries with lax rules.

Bebchuk (1999a, 1999b) develops an alternative approach to explaining why CMS structures arise. These papers suggest that, even when CMS structures do not have redeeming efficiency benefits, they might nonetheless arise when private benefits of control are large.

Bebchuk (1999b) analyzes how the initial owner of a company who takes it public decides whether to create a structure in which he will maintain a lock on corporate control. This decision is shown to depend heavily on size of private benefits of control. When these benefits are large—and when control is thus valuable enough—leaving control up for grabs invites attempts to seize control. In such circumstances, an initial owner might elect to maintain a lock on control to prevent rivals from attempting to grab it merely to gain the private benefits of control. Furthermore, when private benefits of control are large, choosing a controlling-shareholder structure would enable the company's initial shareholders to capture a larger fraction of the surplus from value-producing transfers of control. Both results suggest that, in countries in which lax legal rules allow large private benefits of control, corporate founders will elect to retain a lock on control when taking their companies public. And, if these founders prefer to hold just a limited fraction of the cash-flow rights to avoid risk or

conserve funds, they will look to CMS structures to lock in their control.

Bebchuk (1999a) adds an additional element to the explanation by modeling choices of ownership structure made after the initial public offering stage. Following an initial public offering, companies will often have a controlling shareholder who must decide whether to retain its initial lock on control when the company must raise new outside capital. This decision, which shapes the ultimate structure of publicly traded companies in the economy, is again shown to be very much influenced by the levels of private benefits of control. When the corporate law system is lax and private benefits of control are consequently large, controlling shareholders will be more reluctant to relinquish their grip on control. Consequently, they will be more likely to raise additional capital by selling cash-flow rights without voting rights— that is, by creating an CMS structure—even if this structure would impose larger tax and agency costs. The reason is that, while the controller will fully bear the reduction of private benefits from forgoing his lock on control, the efficiency gains from eschewing a CMS structure would be partly shared by the existing public investors. Consequently, in countries in which private benefits of control are large, controllers seeking extra capital for their publicly traded companies will have a strong incentive to sell cash-flow rights with no or disproportionately small voting rights.[4]

Note that the two explanations described above are complementary in that they both suggest that CMS structures will arise when the level of private benefits of control is large. These explanations sit well with the observed patterns of ownership around the world. Many of the examples of well-known CMS structures that we have noted are from countries that seem to be characterized by relatively large private benefits of control. These explanations are also consistent with the findings of La Porta, Lopez-de-Silanes, and Shleifer (1999), who observe that CMS structures are more common in countries where the legal protection of

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[4]Wolfenzon (1999) develops an explanation of why pyramids arise that is also based on post-initial public offering decisions. In his model, controllers resort to a pyramid in order to make an additional investment that would increase their private benefits but would have a negative effect on cash flows. Note that, unlike the model in Bebchuk (1999a), this model is limited to circumstances in which firms make poor investments.

investors, as measured by their index, is low. Finally, these explanations are consistent with the results of Claessens et al. (1999), who find that pyramids are common in Asian countries with little investor protection and, within any given country, in lines of business in which private benefits are large.

4.4 Public Policy toward CMS Structures

Finally, there is a question of how—and whether—CMS structures should be regulated. CMS structures have come under increasing political and market pressure in recent years. For example, in May of 1997, Taiwan's legislature passed a law on connected enterprises that mandates disclosures of cross-holding or pyramid linkages. Last year, a new companies bill was introduced in India that contains a provision stipulating that holding companies cannot be subsidiaries: parents of existing subsidiary holding companies would either have to dilute their stake or have to dissolve them. In South Africa, there has been unbundling of conglomerates, partly under economic and political pressure to foster the emergence of black-controlled business. At the same time, pyramid structures are viewed as the means by which black business groups can control businesses. In Sweden, the Wallenberg family is selectively increasing its stakes in some firms and divesting itself of its stake in others, apparently in order to attract foreign capital ("Whither the Wallenbergs?" 1993). In Canada, the privatizing and consolidation of entities in the Hees-Edper-Brascan group since 1993 have significantly simplified its corporate structure. These transactions have collapsed cross-holdings and eliminated public companies, apparently in response to investor demands in the early 1990s ("Bronfman Companies" 1993).

A continuing investigation of the agency costs and efficiency characteristics of CSM structures clearly bears on how we evaluate the incipient pressures worldwide to dismantle these structures. On one hand, the case for regulation is made if the agency costs of these structures are large and there is strong evidence of a divergence between private and social benefits in their creation. In this case, the only issue is how to regulate: for example, by explicit prohibitions such as a one-share one-vote rule and a ban on pyramiding or by tax

policies such as intercorporate income taxation to discourage pyramids. On the other hand, if further research shows significant constraints on the agency costs of CMS firms and important offsetting efficiencies, then it is the pressures to unravel these structures that deserve closer scrutiny.

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