SEPARATION OF CONTROL RIGHTS AND CASH-FLOW RIGHTS IN EMERGING ECONOMIES: THEORY AND MEXICAN EVIDENCE

Richard Fairchild*, Alma Garro Paulin**

Abstract

Researchers have identified that corporate ownership structures appear to be quite different in developed and developing economies. For instance, Castañeda Ramos (1999) provides evidence of considerable separation of cash-flow rights and control rights accruing to inside and outside equity-holders in publicly listed firms in Mexico. Insiders use mechanisms such as dual voting rights, majority rules and pyramids to maximise their control rights while holding minimal cash-flow rights. In contrast, there is a much closer alignment of cash-flow rights and control rights in developed countries such as UK or US. The purpose of this paper is to develop a game-theoretic model that explains these features. We argue that factors in emerging markets, such as large private benefits of control, extreme risk, low investor protection, inefficient capital markets, and governments sympathetic to incumbent management at the expense of outside investors, all contribute to insiders' incentives to create a separation of cash flow and control rights. We present evidence from Mexico that supports our results.

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** Professor, University of Bath, UK, e-mail: mnsrf@management.bath.ac.uk*
*** University of Bath, UK, e-mail: axgp20@bath.ac.uk*

1. Introduction

An emerging area of research in international corporate finance analyses the effects of the various legal and corporate governance systems around the world on capital market development, and firms' financing choices and ownership structures. For example, La Porta and his co-authors have studied the effects of the legal system and shareholder protection on the development of capital markets (1997), dividend policies around the world (2000), the concentration of equity ownership (1999), and the relationship between investor protection and corporate governance (2000).

Some researchers (for example; Bebchuk 1999, Castañeda Ramos 1999, Burkart 2006) have identified that corporate ownership structures appear to be quite different in developed and developing economies. For instance, Silva et al. (2006) and Carvalhal Da Silva and Câmara Leal (2006) agree that an important feature of the ownership structure in emerging markets may be their high concentration of ownership and control. Hence, there is a clear departure of the rule one-share one-vote and an intensive use of indirect ownership mechanisms (e.g. pyramids, cross-holding shares and non-voting shares, among others) to leverage control.

Castañeda Ramos (1999) identifies that there is considerable separation of cash-flow rights and control rights accruing to inside and outside equity-holders in publicly listed firms in Mexico, with a high concentration of control rights in insiders' hands. Insiders use mechanisms such as dual voting rights, majority rules and pyramids to maximise their control rights while holding minimal cash-flow rights. In contrast, there is a much closer relationship between cash-flow and control rights in developed countries such as UK or US.

The main focus of our paper is to analyse this phenomenon in emerging markets, with particular reference to Mexico. According to Bebchuk (1999), "the incidence of concentrated and dispersed ownership varies greatly around the world. This is the case even among countries in a similar stage of economic development. Whereas dispersed ownership is the dominant form in the United States and the United Kingdom, control blocks are dominant in the countries of continental Europe."

Early capital structure research ignored control rights, instead focussing on cash-flow rights associated with securities such as debt and equity. For example, in Jensen and Meckling's (1976) capital structure model, a leverage-increasing change in the financial structure of the firm increases the manager's

equity-stake. This increase in his cash-flow rights reduces his incentives to divert company funds towards his own private benefits, hence aligning his interests with those of outside equity-holders.

Recently, it has been recognised that the financial structure affects both cash-flow rights and control rights. An increase in a manager's equity stake may increase his value-adding incentives as he has more of the cash-flow rights (as in Jensen and Meckling 1976), but it may also enable him to increase his control rights, since equity confers voting rights. This may reduce corporate control, and may enable the manager to become entrenched, which may induce value-reducing behaviour. De Miguel et al. (2004) find a quadratic relation between the performance of Spanish firms and their level of ownership concentration, being its break points 35 and 70 percent. Silva et al. (2006) find in Chilean firms a cubic relationship between ownership concentration, performance and business affiliation[17], with break points at 21 and 76 percent. It is of note that these values are consistent with the critical values of ownership stated by the Chilean law.

A company's corporate charter establishes governance rules, such as the allocation of voting rights to equity-holders and the majority required to oust an incumbent in the face of a take-over threat. In terms of the former, a company may establish a structure in which all share-holders have equal voting rights (a 'one-share one-vote' rule), or they may issue dual classes of shares, with differential voting rights. Indeed, in Mexico, firms are legally allowed to issue at most 25 percent of their total capital as non-voting equity. In terms of majority rules, the charter may establish a simple majority (the rival in a take-over bid simply requires more than 50% of the votes to succeed), or it may establish a super-majority rule (such as the rival requires more than 75% of the votes). Hence, these charter provisions affect the disciplining role of the market for corporate control by determining the ease with which hostile take-overs may be successful.

Seminal theoretic approaches to the differences in cash-flow and control rights have been provided by Grossman and Hart (1988) and Stultz (1988). They consider the effect of dual class of shares and supermajority rules on managerial ownership structure and incentives in the face of takeover threats. Recently, Bebchuk (1999) considers managerial incentives to retain a controlling block of equity in the face of take-over threats.

There has been some theoretical work (e.g; Grossman and Hart 1988, Harris and Raviv 1988, Stultz 1988, Israel 1992, Bebchuk 1999) examining the effects of corporate charter provisions on corporate control and performance. For example, both Grossman and Hart (1988) and Harris and Raviv (1988) consider the optimality of simple majority and one-share one-vote rules. In both papers, a conflict of interest exists because the corporate insiders enjoy both cash-flow and private benefits from running the firm, while the outside equity-holders only enjoy the income benefits. The corporate charter rules affect the bid price that a rival would be willing to pay, which in turn affects the value of corporate securities. Harris and Raviv provide two major results; the simple majority rule plus one share-one vote is an optimal governance scheme since the better management team is always elected. However, this does not generally result in maximum security values. In Grossman and Hart's (1988) analysis, the optimality of simple majority and one-share one-vote rules depends on the relative levels of private benefits enjoyed by the incumbent and the rival from controlling the firm.

Stultz (1988) develops a model that considers the effects of the incumbent's equity stake (and hence his share of the votes) on the premium offered by a bidder in a take-over contest. He establishes a non-monotonic (inverted U-shaped) relationship between the manager's equity stake and firm value. Stultz assumes a simple majority rule, and one-share one-vote.

Bebchuk (1999) considers a risk-averse incumbent's equity-issuance decision at IPO, in the face of a future take-over threat form a rival. Risk-aversion means that the incumbent would wish to issue a large amount of equity, and reduce his equity stake as much as possible. However, placing large amounts of equity in outsiders' hands creates a 'contestable' structure, in which the incumbent is subject to a large take-over threat. Therefore, the incumbent may wish to retain a certain amount of equity to reduce the take-over threat. Throughout most of his analysis, Bebchuk (1999) considers a simple majority rule, together with one-share one-vote. The implication is that, if the incumbent wishes to create a block on control, he retains 50% of the equity.

In this paper, we develop the existing theoretical literature on the differences between financial and ownership structure. We are particularly interested in the effects of a society's legal systems and financial development on the differences between cash-flow rights and control rights. Our analysis is motivated by the work of Castañeda that demonstrates that Mexican corporate structures are characterised by high inside control structure with much lower equity structure. These companies achieve this through dual classes of shares, majority rules, and pyramids. Further, it is argued in general that developing countries appear to have this structure, while cash-flow rights and control rights are much more aligned in developed countries.

We develop a game-theoretic model with the aim of examining the conditions under which there is separation of ownership and control. In particular, we consider 4 main factors, as follows; a) the degree of managerial risk-aversion, b) the level of private benefits of control, c) the alignment of the 'social planner's' interests with the incumbent management

[17] Business affiliation is analysed in terms of family ties and interlocking of directorates.

or the investors, and d) the efficiency or inefficiency of the financial market (or rationality/irrationality of investors). Our model is closest in spirit to Bebchuk's (1999) analysis. However, we provide the following developments. First, in Bebchuk's model, the risk-averse incumbent wishes to sell of his equity, but may have an incentive to maintain the minimum equity stake in order to block control. In contrast, although we also consider a risk-averse incumbent, he may wish to increase his equity stake to commit to the investors that he will exert high effort. We demonstrate that this depends on his degree of risk-aversion. Second, Bebchuk only considers a simple 50/50 voting rule, and, for most of his paper, he focuses on a single-class of shares. Although he discusses the possible effects of dual voting stock, he does not analyse this. A major contribution of our model is that we consider the effects of the voting rule and the duality of stock (in terms of voting and non-voting equity) explicitly.

The rest of the paper is organised as follows. In the next section, we present the model. In section 3, we provide a numerical example. In section 4, we present evidence from Mexico that supports our analysis. Section 5 concludes.

2. The Model

We consider a game with the following players; a risk-averse incumbent manager who initially runs a firm and wishes to take his firm public in an IPO, a rival manager who launches a hostile take-over bid, a social planner, and a large number of atomistic, price-taking outside investors. Corporate governance relating to the corporation is affected in two ways in our model. First, the corporate charter specifies an exogenously given majority rule required for outside equity holders to win in a voting contest against the incumbent. Second, the social planner allows the incumbent to issue a certain proportion of outside equity as the non-voting variety.

The incumbent initially owns all of the equity[18]. At IPO, he decides how much of the equity to retain, and how much voting and non-voting equity to issue to outsiders. Subsequently, a rival appears who instigates a hostile takeover battle. The incumbent is interested in the firm due to both the cash flow rights and the private benefits of control.

The timeline of the game is as follows:

***Date 0*:** The policy-maker sets a proportion $\theta \in [0,1]$ that the incumbent is allowed to issue as non-voting equity to outside equity-holders (the balance must be issued as voting equity). The corporate charter contains an exogenously given majority rule, specifying the proportion of votes[19] $\phi \in [0,1]$ that a rival would require in order to capture the firm. We assume that the voting equity held by the incumbent and the outside equity-holders have the same votes per share (the *single-class* assumption).

***Date 1*:** The incumbent decides how much of the equity $1-\alpha$ to issue at IPO, and how much α to retain.

***Date 2*:** The incumbent exerts effort in running the business. The effort level affects the probability of success as follows; $p = \frac{1}{2} + \gamma e \in [0,1]$. In the case of success, the project achieves income $R > 0$. In the case of failure, the project achieves income of zero.

***Date 3*:** A rival appears and launches a hostile take-over battle. This consists of a voting contest where the incumbent votes against the outside equity-holders regarding the take-over. If the rival wins the take-over battle, he will subsequently generate an expected cash-flow $R_r > R$. Therefore, if the structure is such that the rival can win the vote, he will win, and the incumbent will be ousted, regardless of the success or failure of the incumbent's project.

***Date 4*:** Payoffs occur, and the manager who is in charge at date 3 receives private benefits of control equal to B.

2.1 Contestable versus Non-Contestable Structure

The social planner's choice of non-voting equity $\theta \in [0,1]$, the exogenously given majority rule $\phi \in [0,1]$, and the incumbent's choice of equity to retain α and issue $1-\alpha$, combine to determine the contestability of the structure. Following Bebchuk (1999), we define a non-contestable structure (NCS) as one where the incumbent cannot be ousted by the rival. We define a contestable structure (CS) as one where the incumbent can be ousted by the rival.

The incumbent votes for himself. Outsiders vote for the rival regardless of whether the project succeeds or fails (since $R_r > R$). Given $\theta \in [0,1]$, and $\phi \in [0,1]$, we define a critical value $\alpha' \in [0,1]$ such that the following holds;

Lemma 1:

If $\alpha \in [0, \alpha']$, *the structure is contestable (CS). If* $\alpha \in [\alpha', 1]$, *the structure is non-contestable (NCS).*

[18] For simplicity, we assume that there is no debt; that is, the firm is all-equity. Hence, we abstract from capital structure decisions.

[19] We initially take the exogenously given majority rule as a general, unspecified proportion between zero and unity, with the social planner choosing the proportion of non-voting equity allowed. In section 2.1 and in our numerical section, we discuss why we have analysed it in this way. Furthermore, in the numerical section, we 'pin down' the majority rule at 50%.

Lemma 1 states that, given the majority rule and the non-voting equity allowance, if the incumbent holds a low level of equity (and hence issues a high level to outsiders), he faces a contestable structure (and therefore will be ousted). If he holds sufficiently high equity, the structure is non-contestable, and he cannot be voted out. We analyse α' in more detail later.

At this point, it is worth analysing why we have chosen to model the majority rule as exogenously given, with the social planner choosing the non-voting equity allowance. Further, we will discuss the social planner's incentives.

Our idea is that the majority rule may be clear, transparent and highly visible to investors. On the other hand, other aspects of corporate control structures, such as duality of voting stock, non-voting equity, pyramids, and cross-holdings, are much more complex and opaque.

Furthermore, most corporate control structures around the world use either a simple majority rule ($\phi = 0.5$; that is, the investors require more than 50% of the votes to capture the firm) or a super-majority rule ($\phi = 0.75$; that is, the investors require more than 75% of the votes to capture the firm). We argue that this suggests that there may be some focal point, or societal norm, associated with the choice of the highly-visible majority rule. In particular, the simple majority rule ($\phi = 0.5$) may be viewed by society as a *fair* rule.

In our model, we consider the incentives of the planner when deciding on the corporate control structure. We assume that she[20] balances the wealth of the incumbent and the outside investors when making her decision. In particular, we consider a case where she may favour the incumbent over the investors, such that she would like to set an NCS structure to enable the incumbent to retain control.

In modelling the social planner's choices, we assume that the observable majority rule is set by societal norms (throughout the formal model, we consider a general majority rule $\phi \in [0,1]$, but in the numerical example, we assume that the societal norm has set the majority rule at $\phi = 0.5$.). On the other hand, she has leeway over the choice of the more opaque non-voting equity, due to investor irrationality.

2.2 Solution of the Game

We now proceed to solve the game by backward induction. First, we take as given the contestability of the corporate structure (NCS or CS; as described in lemma 1), which is determined by the exogenously given majority rule, the non-voting equity allowance chosen by the social planner at date 0, and the incumbent's date 1 equity choice, and we solve for the incumbent's optimal date 2 effort level. Then we move back to solve for the incumbent's optimal date 1 equity issuance, given the contestability of the structure. Finally, we solve for the social planner's choice of the non-voting equity allowance.

2.2.1. The Incumbent's Date 2 Effort Stage

First, we take as given that $\alpha \geq \alpha'$; that is, the risk-averse incumbent has issued equity such that the structure is NCS, given the majority rule and non-voting equity allowance. Under the NCS structure, the incumbent's expected payoff is

$$\prod_{M1} = \alpha PR - \beta e^2 - \mu Var(X) + B + (1-\alpha)\overline{V}, \qquad (1)$$

where the first term is the incumbent's equity stake in the expected firm value, the second term is his cost of effort, the third term represents his risk-aversion, the fourth term is his private benefits, and the last term is the cash received from outside equity holders for their stake in the firm, given that they expect the firm to be worth $\overline{V}$. In an efficient market, investors pay a fair price, and $\overline{V} = PR$.

Since the date 3 outcome has a binomial distribution, $Var(X) = \alpha^2 R^2 P(1-P)$. Therefore, substituting for P and $Var(X)$, the incumbent's payoff becomes

$$\prod_{M1} = \alpha R\left(\tfrac{1}{2} + \gamma e\right) - \beta e^2 + \mu\alpha^2 R^2\left(-\tfrac{1}{4} + \gamma^2 e^2\right) + B + (1-\alpha)\overline{V}. \quad (2)$$

Solving $\frac{\partial \prod_{M1}}{\partial e} = 0$, we obtain the incumbent's optimal effort level, given his equity stake;

$$e^* = \frac{\alpha\gamma R}{2\beta - 2\mu\alpha^2\gamma^2 R^2}. \qquad (3)$$

For example, if $\mu = 0$, the incumbent is risk-neutral, and we have the standard optimal effort level under risk-neutrality[21] $e^* = \alpha\gamma R / 2\beta$.

Next, take as given that $\alpha < \alpha'$; that is, the incumbent has issued equity such that the structure is contestable. Since the incumbent is voted out for sure, it is optimal for him to exert zero effort.

2.2.2. The Incumbent's Date 1 Equity Issue Stage

Consider the NCS structure ($\alpha \geq \alpha'$). Having solved for the incumbent's optimal date 2 effort level for given equity stake, we now move back to date 1 to

[20] We refer to the social planner using the female gender throughout the paper.

[21] See, for example, Fairchild (2004, 2006).

solve for the incumbent's optimal equity retention and issuance. We substitute the optimal effort level (3) into equation (2). Noting that, in an efficient market with competitive rational investors, the investors pay a fair price for their investment (i.e. they invest at zero NPV), we obtain the incumbent's expected indirect payoff under the NCS;

$$\hat{\Pi}_{M1} = \frac{R}{2}\left(1 - \frac{\mu\alpha^2 R}{2}\right) + B + (1 - \frac{1}{2}\alpha)\frac{(\alpha\gamma^2 R^2)}{2\beta - 2\mu\alpha^2\gamma^2 R^2)}. \quad (4)$$

Note that, when $\mu = 0,$ the incumbent is risk-neutral, and the first-term of (4) equals the standard result, under risk-neutrality, that $\hat{\Pi}_{M1} = \frac{\alpha^2\gamma^2 R^2}{4\beta}.$ Hence, when $\mu = 0,$ $\frac{\partial \hat{\Pi}_{M1}}{\partial \alpha} > 0, \ \forall \alpha.$ Therefore, when $\mu = 0,$ the incumbent maximises his payoff by selecting $\alpha^* = 1.$ The intuition is as follows. The incumbent issues equity, and then exerts effort. Hence, there is a *moral hazard* problem, due to the incumbent's incentives to shirk (i.e. exert low effort). Further, since the outside investors pay a fair price, the incumbent suffers from his own moral hazard, since, if the investors expect shirking, they will not pay very much for the equity. This is termed *the incumbent's commitment problem*. He would like to commit to exert a high effort, since then investors would pay more for their equity. However, he cannot commit to this, since he issues equity first, and *then* exerts effort.

The incumbent's retention of equity forms a type of commitment device to exert high effort, and therefore the outside holders pay more for their equity. When the incumbent is risk-neutral, the commitment problem implies that the incumbent's payoff is unambiguously increasing in his equity stake, and therefore, he maximises his payoff by holding all of the equity; $\alpha^* = 1.$

Therefore, under the NCS, the commitment problem drives the incumbent to increase his equity stake. However, as identified by Bebchuk (1999), risk-aversion drives the incumbent to reduce his equity stake, and issue more outside equity (Bebchuk does not consider the commitment problem). Therefore, when considering the incumbent's equity decision, we may analyse a trade-off between managerial commitment and risk-aversion. We consider this in lemma 2.

Examination of equation (4) enables us to define two critical values of the risk-aversion parameter, μ', and $\mu'' > \mu'$, such that the following holds:

Lemma 2: *Under the NCS structure, the incumbent's payoff (4) has the following properties;*

a) Low Risk Aversion: When $\mu \in [0, \mu']$,

$\frac{\partial \hat{\Pi}_{M1}}{\partial \alpha} > 0, \ \forall \alpha \in [0,1].$ *That is, the incumbent's payoff is increasing in his equity stake. Therefore, the incumbent optimally chooses* $\alpha^* = 1.$

b) Medium Risk Aversion: When $\mu \in [\mu', \mu'']$,

$\frac{\partial \hat{\Pi}_{M1}}{\partial \alpha} > 0, \ \forall \alpha \in [0, \hat{\alpha} < 1],$ *while*

$\frac{\partial \hat{\Pi}_{M1}}{\partial \alpha} < 0, \ \forall \alpha \in [\hat{\alpha} < 1, 1].$ *That is, the incumbent's payoff is an inverted-U shape, increasing in his equity stake initially, reaching a maximum at* $\hat{\alpha},$ *and then decreasing.*

c) High Risk Aversion: When $\mu > \mu''$,

$\frac{\partial \hat{\Pi}_{M1}}{\partial \alpha} < 0, \ \forall \alpha \in [0,1].$ *That is, the incumbent's payoff is decreasing in his equity stake. If the incumbent prefers the NCS structure, he will optimally choose* $\alpha^* = \alpha'.$ *If the incumbent prefers the CS structure, he will choose* $\alpha^* = 0.$

Lemma 2a) states that the incumbent's payoff under the NCS structure is unambiguously increasing in the incumbent's equity stake, for all equity levels between 0% and 100%, for low levels of risk aversion (including risk neutrality). This is because the commitment effect dominates; the higher the incumbent's equity stake, the more effort that he commits to exert, and the higher the share price that outside shareholders are prepared to pay. This drives the incumbent to maximise his equity stake. In *lemma 2b)*, there is a trade-off between the commitment effect and risk-aversion. In *lemma 2c),* high risk aversion dominates, and the incumbent's payoff under the NCS structure is unambiguously decreasing in the incumbent's equity stake.

We will be analysing the incumbent's incentives to choose a CS or NCS structure. We note that, when $\mu \in [0, \mu']$, the solution is trivial. Since the incumbent is mildly risk-averse, the commitment effect dominates, and the incumbent optimally chooses $\alpha^* = 1.$ Therefore, the structure is NCS. When $\mu \in [\mu', \mu'']$, (i.e. medium risk aversion) the analysis of the model is very complex. From this point on, we focus on the case of high risk-aversion, that is, we assume;

A.1: $\mu > \mu''.$

At this point, is worth recalling that we are particularly interested in analysing why corporate structures in some capital markets are characterised by a separation of cash-flow rights and control rights, while in other regimes, cash-flow rights and control rights are much more aligned. *Lemma 1* reveals that one ingredient may be the degree of risk-aversion. In low-risk markets, the incumbent may be prepared to

hold more equity (and therefore control rights and cash-flow rights may be closely aligned), while in highly volatile markets, the incumbent may wish to minimise his equity stake, while remaining in control (inducing a separation of control rights and cash-flow rights). Hence, this may be the case why emerging markets are characterised by this separation.

By focussing on extreme risk aversion, our analysis is similar to Bebchuk's (1999) model. That is, because risk-aversion dominates, the incumbent wishes to minimise his equity stake. If he prefers the CS structure, he will set $\alpha^* = 0$. If he prefers the NCS structure, he will minimise his equity stake to $\alpha^* = \alpha'$, such that he has just enough voting equity for the structure to be non-contestable, as defined in lemma 1. We proceed to analyse his choice between NCS and CS.

Next, take as given that the incumbent has set the CS structure ($\alpha < \alpha'$). Hence, he is voted out for sure. Therefore, we have already established that his optimal date 1 effort level is zero effort. Therefore, the incumbent's date 0 expected payoff is

$$\prod_{M1} = \alpha R_r + (1-\alpha)\overline{V} - \alpha\mu Var(X). \qquad (5)$$

We assume that, if the incumbent is voted out, he retains any equity that he has. Therefore, since he exerts zero effort, and since his equity stake is risky, his optimal equity stake, under the CS structure will be $\alpha^* = 0$. Given that risk-neutral outside equity-holders pay a fair price for their equity, we may state the following.

Lemma 3:

Under the CS structure $(\alpha < \alpha')$, *the incumbent's optimal equity stake is* $\alpha^* = 0$. *Since risk-neutral outside equity-holders pay a fair price for their equity, the incumbent's payoff under the CS structure becomes*

$$\prod_{M1} = R_r. \qquad (6)$$

Given the majority rule and the non-voting equity allowance (which determines α'), the incumbent's date 1 equity choice determines whether the structure is contestable $(\alpha < \alpha')$ or non-contestable $(\alpha \geq \alpha')$. In order to decide between the CS and NCS structure, the incumbent compares (4) and (6). Appendix diagram 1 presents a comparison of the incumbent's payoffs under the NCS and CS structures.

The diagram reveals that the incumbent's private benefits from running the company have a crucial effect on the incumbent's optimal choice control structure, and his optimal equity stake, as follows.

The incumbent's payoff under the CS structure is horizontal at R_r. Since we are focussing on the case where risk-aversion dominates $(\mu > \mu'')$, the incumbent's NCS payoff is downward sloping. Further, examination of equation (4) reveals that, when $\alpha = 0$, $\prod_{M1}(NCS; \alpha = 0) = \frac{R}{2} + B.$

Therefore, we may state the following;

Proposition 1: *The Effect of Private Benefits on the Incumbent's Equity Issuance Choice:*

a) If $\frac{R}{2} + B < R_r$, $\prod_{M1}(NCS) < \prod_{M1}(CS)$ $\forall \alpha \in [0,1]$. *(that is, the payoff under the NCS structure starts below the payoff under the CS structure, and, since it is downward sloping, remains below for the entire equity interval). Therefore, the incumbent chooses* $\alpha^* = 0$, *and the structure is contestable (CS).*

b) If $\frac{R}{2} + B \geq R_r$, $\prod_{M1}(NCS) > \prod_{M1}(CS)$ *when* $\alpha = 0$. *Since* $\mu > \mu''$, *and therefore* $\frac{\partial \hat{\prod}_{M1}(NCS)}{\partial \alpha} < 0$, *there exists a critical equity stake,* $\alpha^C > 0$, *where* $\prod_{M1}(NCS) = \prod_{M1}(CS)$. *Hence, when* $\alpha \in [0, \alpha^C)$, $\prod_{M1}(NCS) > \prod_{M1}(CS)$, *and when* $\alpha \geq \alpha^C$, $\prod_{M1}(NCS) \leq \prod_{M1}(CS)$. *(that is, the lines cross at* α^C*). Therefore,*

i.) If $\alpha^C > \alpha'$, *the incumbent optimally chooses* $\alpha^* = \alpha'$, *and the structure is NCS.*

ii.) If $\alpha' > \alpha^C$, *the incumbent optimally chooses* $\alpha^* = 0$, *and the structure is CS.*

Note that the incumbent's incentives are driven by his private benefits. When private benefits are small $(\frac{R}{2} + B < R_r)$, he prefers to set the CS structure. When private benefits are large $(\frac{R}{2} + B \geq R_r)$, he prefers to set the NCS structure. Further, from the diagram, we observe that, as private benefits increase, such that $\prod_{M1}(NCS)$ shifts upwards, α^C shifts to the right.

We have already noted that high risk-aversion may be one factor that drives a separation of cash-flow rights and control rights. Proposition 1 highlights a second factor; high private benefits.

2.2.3. Social Planner's Date 0 Choice of Governance Rules

Finally, we move back to date 0 to determine the social planner's optimal choice of non-voting equity $\theta \in [0,1]$. Given the majority rule[22] $\phi \in [0,1]$, the social planner's choice determines α'.

Thus far, we have identified two factors that drive the separation of cashflow rights and control rights; a) the incumbent's high risk-aversion, and b) high private benefits of control. In this section, we add our two final ingredients; c) alignment of social planner's and incumbent's incentives, and d) investor irrationality.

We need to specify the social planner's objectives. First, we consider whether she is aligned with investors (she focuses on maximisation of firm value) or the incumbent (she focuses on the incumbent's wealth).

Second, we consider the effect of investor rationality/irrationality on the social planner's choice of non-voting equity $\theta \in [0,1]$. We consider two cases. In the first case, investors are fully rational, in that they understand the effects of the majority rule and the non-voting equity. In the second case, they exhibit a level of irrationality. They can observe the majority rule, but they do not understand the effect of non-voting equity.

We focus on the case where $\frac{R}{2} + B \geq R_r$. Therefore, proposition 1b) applies. Therefore, the social planner's choice of $\theta \in [0,1]$ determines whether the structure is NCS or CS, and therefore affects the incumbent's optimal choice of equity.

Denote the total number of shares in the company as N, the number of shares held by the incumbent manager as N_M, and the number of shares held by the outsiders as N_E. Therefore, the total number of shares are $N = N_M + N_E$. Hence, the cash-flow rights are given by $\alpha = \frac{N_M}{N}$, and $1-\alpha = \frac{N_E}{N}$.

Denote the total number of votes as v. Hence, $v = N_M + N_E(1-\theta)$. The outsiders win the vote if

$$N_E(1-\theta) \geq \phi[N_M + N_E(1-\theta)]. \quad (7)$$

Since $\alpha = \frac{N_M}{N}$, and $1-\alpha = \frac{N_E}{N}$, this may be re-written as

$$(1-\alpha)(1-\theta) \geq \phi[\alpha + (1-\alpha)(1-\theta)]. \quad (8)$$

[22] In the numerical example, we fix the majority rule at $\phi = 0.5$.

Lemma 1 defined a critical level of managerial equity α' such that the structure switches from CS to NCS. Hence, α' is such that (8) becomes an equality. That is,

$$(1-\alpha')(1-\theta) = \phi[\alpha' + (1-\alpha')(1-\theta)]. \quad (9)$$

Hence, the social planner's choice of θ affects α'. *Proposition 1* (and diagram 1) reveals that, if $\alpha_C > \alpha'$, the incumbent chooses $\alpha^* = \alpha'$, and the structure is NCS. If $\alpha_C < \alpha'$, the incumbent chooses $\alpha^* = 0$, and the structure is CS.

2.2.3.1 Investors are fully rational

In order to consider the social planner's optimal choice of θ, we define the social planner's payoffs under the NCS and CS structures respectively;

$$\prod_{SP}(NCS) = \gamma V(\alpha) + (1-\gamma)Y, \quad (10)$$

$$\prod_{SP}(CS) = \gamma R_r. \quad (11)$$

Hence, we have defined the social planner's payoff as a weighted average of the value of the firm and the incumbent's private benefits under the NCS and CS systems. A justification for this formulation is that the social planner may be 'under pressure' from investors and from the incumbent. For high γ, the social planner favours the investors, while for low γ, the social planner favours the incumbent.

The social planner prefers the NCS structure if (10) > (11); that is if the weight γ that she places on firm value is less than a critical value γ_C, where

$$\gamma_C = \frac{Y}{V(\alpha) - Y - R_r}. \quad (12)$$

Given that she prefers NCS, we state two objectives for the social planner, as follows. She wishes to a) minimise the non-voting equity θ such that the structure remains NCS, and b) maximize firm value given the NCS.

We justify these assumptions as follows. Firstly, we assume that the pressure placed on the social planner by outside investors is increasing in the non-voting equity, driving her to minimise the level of this parameter. Secondly, the pressure placed by outside investors is reducing in the value of the firm under the NCS, driving her to maximise firm value under the NCS.

If the social planner prefers the NCS structure, she will choose θ such that (9) is an equality (this minimises the non-voting equity θ required to

provide an NCS structure, provided that the incumbent has chosen $\alpha = \alpha'$). Further, we set $\alpha' = \alpha_C$ in (9). This ensures that the incumbent optimally chooses $\alpha^* = \alpha_C$, therefore ensuring that the structure is NCS while maximising the firm value under NCS.

Therefore, setting $\alpha' = \alpha_C$ in (9), and solving for θ^*, we obtain

$$\theta^* = \max\{\frac{1-\alpha_C-\phi}{(1-\alpha_C)(1-\phi)}, 0\}. \qquad (13)$$

Note that $\frac{\partial \theta^*}{\partial \alpha_C} < 0$. Since $\frac{\partial \alpha_C}{\partial B} > 0$, then $\frac{\partial \theta^*}{\partial B} < 0$.

That is, as the incumbent's private benefits increase (shifting the NCS payoff in diagram 1 upwards), α_C shifts to the right, and the non-voting equity θ required is reduced. The intuition is that, as the incumbent's private benefits increase, he is prepared to hold more equity in order to retain control (in spite of his risk-aversion). Therefore, the social planner does not need to provide so much protection in the form of non-voting equity.

2.2.3.2 Investors are irrational (that is, investors understand ϕ, but do not understand non-voting equity).

As a final ingredient in the separation of control rights and cash-flow rights, we consider investor irrationality[23]. In our model, irrational investors do not understand the effects of non-voting equity (or do not realise that non-voting equity can be issued by the incumbent) Therefore, they view that $\theta = 0$ in equation (9). Therefore, they view the critical equity level at which the structure switches from CS to NCS as α'', satisfying $(1-\alpha'') = \phi$. However, since $\theta^* > 0$ (from equation 13), the true critical value is $\alpha' < \alpha''$. Therefore, if the social planner chooses $\theta^* > 0$ according to (13), the incumbent chooses $\alpha^* = \alpha' = \alpha_C < \alpha''$. Therefore, the structure is NCS, but the outside investors believe it to be CS. Therefore, the social planner's payoffs under NCS and CS are

$$\prod_{SP}(NCS) = \gamma R_r + (1-\gamma)Y. \qquad (14)$$

$$\prod_{SP}(CS) = \gamma R_r. \qquad (15)$$

Therefore, the social planner always chooses $\theta^* > 0$ according to (13). That is, due to investor irrationality, the social planner is not afraid to provide a defence mechanism (non-voting equity) for the incumbent.

Our model has identified several factors that might induce a separation of cash-flow and control rights, as follows;

a) *High risk aversion/ high volatility*. This induces the manager to reduce his equity stake. Since he wishes to retain control, he wishes to use devices such as non-voting equity (modelled here), and dual class of shares, pyramids, cross-holdings (not modelled here).
b) *High private benefits.* In societies where the legal system enables managers to take high private benefits from the firm, we may observe separation of ownership and control. This may tie in with weak investor protection.
c) *Social planner sympathetic towards incumbents*. In such systems, the social planner may facilitate devices to allow the separation of ownership and control (such as non-voting equity). Again, this may tie in with weak investor protection.
d) *Irrational investors*. If investors do not understand the separation of ownership and control, it becomes easier for the social planner to facilitate it.

We may argue that a) – d) reflect the features of emerging, civil law countries, such as Mexico. We now turn to the evidence that demonstrates that Mexico is characterised by separation of ownership and control, and that a) – d) are indeed a feature of Mexican markets.

3. Numerical Example

In order to clarify the factors, identified by our model, that drive the separation of cash flow and control rights, we now present a numerical example. Examination of appendix diagram 1 will facilitate this analysis.

Let us assume that, due to societal norms of fairness, the majority rule is $\theta = 0.5$. We introduce the 4 factors, one by one. First, the incumbent is *highly risk averse*. Therefore, his NCS payoff is downward sloping, as in appendix diagram 1. Hence, he wishes to minimise his equity stake.

Second, he has *high private benefits of control*, such that $\frac{R}{2} + B > R_r$. Therefore the NCS and CS payoffs cross at α_C. Let these payoffs be such that $\alpha_C = 0.3$.

[23] In order to focus our analysis, the investor irrationality is purely in terms of the date 0 control structure. The 'pressure' that they exert on the social planner (in relation to equations 14 and 15) occurs at date 0, when the planner establishes the structure. At date 1, the investors become rational, understand the structure (NCS or CSD) and pay a fair price for their shares.

Third, the social planner's weights in equations (10) and (11) are such that she prefers the NCS, even when investors are fully rational. That is, *the planner favours the incumbent over the investors*. From equation (13), her optimal choice of the non-voting equity proportion allowed is $\theta^* = 0.57$.

Therefore, the incumbent's optimal equity stake is $\alpha^* = \alpha_C = 0.3$. He issues outside equity of $1-\alpha^* = 0.7$. The non-voting equity is $\theta^*(0.7) = 0.4$. The voting equity is $(1-\theta^*)(0.7) = 0.3$. Hence, the incumbent's proportion of votes equals the outside equity holders' proportion of votes, and the structure is NCS.

Finally, we introduce *irrational investors.* They observe the majority rule $\theta = 0.5$. However, they do not understand the non-voting equity allowance. Since the incumbent holds $\alpha_C = 0.3$, they believe that the structure is CS. Hence, the social planner can choose the non-voting equity proportion $\theta^* = 0.57$ in order to generate an NCS structure, without fear of investor pressure (comparing equations 14 and 15).

4. Evidence from Mexico

4.1 Corporate Governance in Mexico

To understand the practices of corporate governance of any nation it is necessary to be aware of its underlying legal and enforcement framework, as well as any discretionary document or guideline issued for that purpose, such as codes of best practice. In the case of Mexico, the Mercantile Companies Law (LGSM)[24] and the Stock Market Law (LMV)[25] address most of the legal framework in this regard. In addition, there is a Code of Best Corporate Practices (CMPC)[26] issued by the Board of Mexican Leading Entrepreneurs and memorandums issued by the National Banking and Securities Commission (CNBV)[27], which also deal with important aspects of the corporate governance of Mexican companies.

The LGSM[28] has the highest hierarchy to rule trading companies; thus this law is the most general and governs all types of trading companies. In general, this law copes with the incorporation, operation, dissolution and liquidation of companies; *the establishment of the property rights of investors*; the management and the surveillance organs; and the disclosure of the financial information. The LMV[29] governs only publicly traded companies (PTC) in Mexico, in terms of obligations and legal requirements needed to be fulfilled to register, update, suspend and cancel any issuance of stock in Mexican stock markets. The LMV aims to encourage *an efficient, fair and clear Mexican stock market*, which consolidates the current regime applicable to PTCs to improve their corporate governance practices. This law also aims to promote the access of medium-sized companies to Mexican stock markets. The CMPC provides some guidance to enhance corporate governance practices. The objectives of this code are to attain transparent management practices by improving the function of the Board of Directors and making corporate information more useful, prompt and reliable. It is worth mentioning that compliance with this code is voluntary, although PTCs must declare their degree of adherence to these practices.

Core principles of the LGSM establish that shares are freely transferable; *grant equal cash flow and voting rights*; and state that *each share entitles its holder to one vote*. Nevertheless, this law also mentions that it is possible for companies to specify in their corporate charter different classes of shares with particular rights per class, such as *"shares of limited voting rights"*[30] or *"privileged shares"*[31] (Mexico 2006, Arts.112-113). It is of note that the LMV, as an amendment to the LGSM, states in its core principles that PTCs can only issue common shares. *However, this law points out that the CNBV, at its own discretion, can allow the issuance of non-common shares as long as the Commission considers that these shares do not exceed 25 percent of the total capital that is publicly held at the time of the public offer*. Further, the CNVB could increase this percentage when the shares issued are part of a scheme of convertible shares that will become common shares in a period of 5 years at most. Finally, it is also established that shares with no voting rights will not account for the quorum required to hold a shareholders' meeting, whereas shares with limited or restricted voting rights account only for the meetings in which their holders are allowed to participate (Mexico 2005, Art.54).

The LGSM recognises the Assembly of Shareholders (ASH) as the highest corporate governance organ of any company (Mexico 2006, Art.178). This Assembly has the authority to approve and ratify all the acts and operations of the company in its meetings[32], which can be ordinary or extraordinary. Ordinary shareholders' meetings might be held at least once per year within the four months

[24] By its Spanish acronym.
[25] By its Spanish acronym.
[26] By its Spanish acronym.
[27] By its Spanish acronym.
[28] This text refers to the amendments to this law enforced from the 28th of July 2006.
[29] This text refers to the amendments to this law enforced from the 28th of June 2006.

[30] Shares of *"limited voting rights"* are not allowed to vote in ordinary shareholders' meetings, rather they can vote in the extraordinary shareholders' meetings that discuss the particular matters specified in the corporate provisions.
[31] These shares are usually limited voting shares with preferred dividends.
[32] The LGSM also permits corporate charters to specify that when shareholders agree on any resolution with the totality of the votes, it would not be necessary to hold any meeting as long as the resolution is ratified in writing (Mexico, 2006; Art. 178).

following the ending of each fiscal year. In general, these meetings will deal with issues regarding the operation of the company, i.e. its management, surveillance and financial results (Mexico 2006, Art.181). Alternatively, extraordinary shareholders' meetings can be held at any time of the year and will tackle issues affecting *the corporate structure*. Some examples of these issues are: increasing or reducing the capital of the company*; merger or takeover*; issuing preferred shares; and amending their bylaws among others (Mexico 2006, Art.182). To be legally allowed to hold an ordinary meeting, at least half of the total capital needs to be present at the meeting. To validate a resolution, the agreement of the majority of votes present in that meeting is necessary. Extraordinary meetings require the presence of three quarters of the total capital[33] and their resolutions are validated with the agreement of the majority of the total capital (Mexico 2006, Arts.189-190). In other words, Mexican law establishes that to deliberate takeover issues the 75 percent of the shareholders need to be present, and at least the 50 percent of the voting capital needs to agree any resolution to be valid (that is a majority rule).

Furthermore, the LMV allows entering into shareholders agreements issues dealing with: non-compete provisions, option rights, sale and transfer of shares, exercise of pre-emptive rights and pooling vote provisions. Finally, this law permits PTCs to include *takeover defence provisions* as long as they are approved in an extraordinary shareholders' meeting with at least 95 percent of the votes; they do not exclude any shareholders from their economical benefits; and the possibility of takeover is not completely eliminated (Mexico 2005, Art.48).

As an amendment of the LGSM, the LMV states that the management of PTCs and their controlling companies, when this is the case, is the duty of both the BOD and the CEO (Mexico 2005, Art.23). Moreover, the LMV highlights the fact that the BOD's performance should encourage the *creation of the value of the company*. Therefore, it is expected that the members of the board will provide a diligent, honest, confidential and loyal service to the company. Additionally, it is required that any member of the board experiencing a situation of conflict of interests will reveal it and avoid participating, deliberating and voting on that issue (Mexico 2005, Art.34).

Finally, the LMV states that overall rights of shareholders are: to have free access to information and documents related to the items in the shareholders' meeting agenda at least 15 days in advance of the day of such a meeting; to prevent the discussion of different issues under the same category in the agenda; and to be represented by someone else in the shareholders' meetings (Mexico 2005, Art.49). Shareholders possessing voting shares[34] that represent 10 percent of the capital of the company or more are allowed to appoint or revoke a director to the BOD; to ask the chairman of the BOD or the chairman of the auditing or the inter-corporate practices committees to call for a shareholders' meeting; and to postpone a shareholders' meeting for three days when they consider that there is not enough information to cast a vote on an item of the agenda. Further, shareholders possessing voting shares that represent 20 percent of the capital of the company or more can judicially oppose the resolutions of a shareholders' meeting where they have the right to vote (Mexico 2005, Arts.50-51).

Some obligations for the investor/group of investors who wants directly or indirectly to acquire at least 30 percent of the common shares of a company must do so through a tender offer (Mexico 2005, Art.98). This offer might last for at least 20 working days, be extended to all classes of shares and grant the same payment without regard to the sort of shares acquired. Moreover, the investor/group of investors, who directly or indirectly acquires at least 10 percent but at most 30 percent of the shares of a company, is required to publicise this situation on the next working day following the acquisition. Further, in the case of a group of investors, they must to disclose the individual ownership percentages (Mexico 2005, Art.109).

In conclusion, notwithstanding Mexico is a country whose legislation is framed under the French civil-code patterns (thus it has lax laws and weak enforcement levels); Mexican government aims to enhance the economic development of the country by diversifying the current financing sources. This economic development is thought to be achieved by achieving better corporate governance practices; facilitating the access for medium Mexican companies to the Mexican stock markets; strengthening the investor's rights, and improving provisions related to violations and sanctions, among others. However, although some deficiencies have been resolved, there are still others to be overcome; e.g. even though statutes proscribe equal cash-flow and voting rights, with one-share-one-vote, there is provision for up to 25% of non-voting equity (consistent with our model).

4.2 Our Empirical Evidence

In this section, we present empirical evidence of ownership structure from our pilot sample of Mexican publicly traded companies.

We collected and analysed some corporate information regarding corporate charter provisions

[33] However, it is possible for companies to establish a higher quorum to hold an extraordinary meeting. This will be specified in their corporate charter.

[34] Voting shares are those that allow shareholders to participate in the decision-making process of the publicly traded companies by casting votes. Examples of these shares are ordinary shares, shares of limited voting rights and special shares.

and ownership structure from 4[35] out of the 35 companies that form the Mexican Stock Exchange Index that is the Prices and Quotations Index (IPC). This information was mainly obtained from the Bylaws and the Annual Report (2005) submitted to the Mexican Banking and Securities Commission (CNBV) and to the American Stock Exchange Commission (SEC). The evidence from this sample suggests that these publicly traded companies are large business groups built into complex networks with multiple subsidiaries around the world. These companies are not only managed but also owned and controlled by their founder families. Furthermore, there is an extensive use of dual classes of shares which allows majority-voting rights to be reached while investing minimal amounts of capital. This is consistent with our model, and suggests that the incumbents in Mexican companies exhibit extreme risk aversion in the face of high economic volatility.

The main findings of this analysis are similar to those presented by Castaneda-Ramos (1999) regarding the business network structure used by large publicly traded companies. The importance of business networks structures may be, for ownership purposes, the facilitation of the use of pyramids which encourage achieving controlling positions by investing moderate amounts of capital. In this sample, companies B and C start their network with two main subsidiaries, while company D begins with ten. However, both cases finish with an endless number of sub-subsidiaries located around the world.

Regarding the management and control of these companies, the evidence suggests that the founders and their families are actively involved in the management and control of these companies. That is to say, in most companies their founders became the honorary lifetime chairman of the Board of Directors (BOD), while one of their direct descendent acts as the Chief Executive Officer (CEO) of the same company. Thus, the controlling decisions remain within the families of the founders. Moreover, because of the structure of business groups of these companies, the directors of the board can sit in the board of most of the companies of the business group; besides having cross-holding shares in all of them. These facts help the members of the founder families to have a privileged participation in the decision-making process of the whole group, even though they could not be deemed as main holders because of their capital invested, but how this could happen? It seems to be the case that the aim of using dual classes of shares is to reduce the capital invested into companies while maintaining a controlling position, consistent with the highly risk-averse incumbents in our model.

In this sample, companies issue diverse classes of shares granting particular rights to their investors. However, despite the variety of shares, all of them can be categorised into three different groups defined as common shares, shares of limited voting rights and shares with no voting rights. In general, common shares are the only sort of shares that entitle equal cash-flow rights and voting rights per share. In contrast, shares of limited voting rights grant their holders preferred dividends but diminished voting rights, and shares with no voting rights only entitle cash-flow rights. It is noteworthy that common shares are, most of the time, reserved for the founders and their families.

For example, company A issues two different capital instruments which are common shares and Certificates of Ordinary Participation[36] (CPO), and has as main groups of investors the founder families, foreign investors, and domestic investors. In this case, the founder families could be considered as the controlling shareholders of the company. This is because although these families only own 47.70 percent of the total capital, the percentage of their voting rights rises to 73.71 as the rights of CPOs, which account for the 25.47 percent, are added to their threshold since foreign investors are not allowed to exercise their right to vote.

Company B issues three series of shares, of which 2 are common shares (series A and Series AA) and the other one are shares of limited voting rights. Company B also has three main investors, and they are represented by a domestic company, a foreign company and other Mexican investors. Some founders of company B control *the domestic company*, which owns 40.46 percent of the total capital of Company B. This means that those founders indirectly control company B, as they own 40.46 percent of the total capital that actually represents 66.29 percent of the total votes. A noteworthy fact is that shares of limited voting rights accounts for 67.74 percent of the total capital, which might significantly reduce the quantity of common shares needed to achieve majority positions.

Company C also has its capital issued in three different series of shares of which only one series represents common shares and the other two are shares of limited voting rights. Besides the fact that shares of limited voting rights[37] increase the absolute value of votes per common shares, the founder families of this company decided to put their shares altogether into a trust and vote them as a block. As result of these two facts, these founder families became the controlling holders of this company with only 37.08 percent of the capital, representing 71.75 percent of the total votes.

[35] The detailed information relating to these companies is included in appendix 2 at the end of this article.

[36] CPO can be considered as a variety of shares of limited voting rights as they only allow their holders to vote as a block in the same way of the majority shareholders of their class.

[37] Holders of shares of limited voting rights are not allowed to vote in ordinary shareholders' meeting, rather in extraordinary meetings that deal with the particular issues described in the corporate charter of each company.

Finally, it seems that company D presents the extreme case in discrepancy between cash-flow rights and voting rights. Company D has its capital issued in two different classes of shares: common shares and shares of limited voting rights. Each of these two classes is divided into two different series of shares, and each class represents around the half of the capital. However, it could be argued that there is only one potential controlling owner in this company. This is because first, the main founders of the company established a trust for their shares, allowing other investors to buy shares from this trust. Second, most of the common shares are sold as CPOs instruments. Third, there are outstanding shares of limited voting rights. All these make it plausible that the investor who owns the majority of the common shares of this trust will benefit from the votes corresponding to the thresholds of the other investors of the trust. Further, he/she will also add the votes of the thresholds of the investors of CPOs of common shares. In other words, investor "A", owning around 15 percent of the total capital, is the beneficiary of almost 72 percent of the total votes of Company D. This is because investor "A" owns the majority of the common shares of the trust, which gives him/her the votes of the rest of the investors of this trust, and the votes of the thresholds of the CPOs' investors of A shares, which account for an additional 40 percent of votes.

In conclusion, this evidence proposes that the business group structure used by these large Mexican publicly traded companies offers them two main advantages, to participate (with a privileged role) in the management and decision-making process of all the business group, and to benefit from the use of dual classes of shares. Dual classes of shares can be considered as a financial strategy which helps the founders and their families to have the majority of the voting rights with moderate capital investments. Finally, as expected, dual classes of shares might benefit major owners at expense of minority investors.

5. Conclusions and Future Research

We have analysed the factors that may be responsible for inducing a separation of cash flow rights and control rights in developing economies. Employing a game-theoretic model, we have focused on two control mechanisms (the majority rule and non-voting equity). We demonstrate that a) high risk-aversion induces an incumbent manager to wish to minimise his equity stake, b) high private benefits imply that the incumbent would wish to retain control (therefore, he wishes to maximise his control rights while minimising his equity stake), c) A social planner sympathetic to the incumbent will facilitate the NCS structure by allowing him to issue non-voting equity, and d) investor irrationality (whereby investors do not understand the control structure) makes the NCS structure even easier to achieve.

We argued that the emerging Mexican financial market may be characterised by these factors. Indeed, our empirical evidence agrees with the findings of Castañeda Ramos (1999) that shows that the corporate structure of large Mexican companies features a large discrepancy between cash flow and control rights. Common practices that can be considered as characteristic features of corporate governance of these firms are as follows; there is an extensive use of pyramids and dual classes of shares by inside investors, which may produce the pronounced discrepancy of control and cash-flow rights. Further, large Mexican companies also issue American Depository Receipts (ADRs) and neutral funds, since they entitle cash flow rights rather than voting rights[38]. Finally, cross shareholding and exchange of positions in the boards of directors among associated entrepreneurs are also frequent practices.

Our model provides a basis for future research. First, we need to develop the analysis to consider other defensive control mechanisms, such as multi-classes of voting equity, stock pyramids, rings, and anti-takeover amendments. Second, we need to develop our analysis of the social planner's incentives further (for example, we may consider why the social planner may be more aligned with the incumbent than the investors. What are the political motivations?) Finally, we should extend our empirical analysis of Mexican companies to further understand their corporate control and ownership practices.

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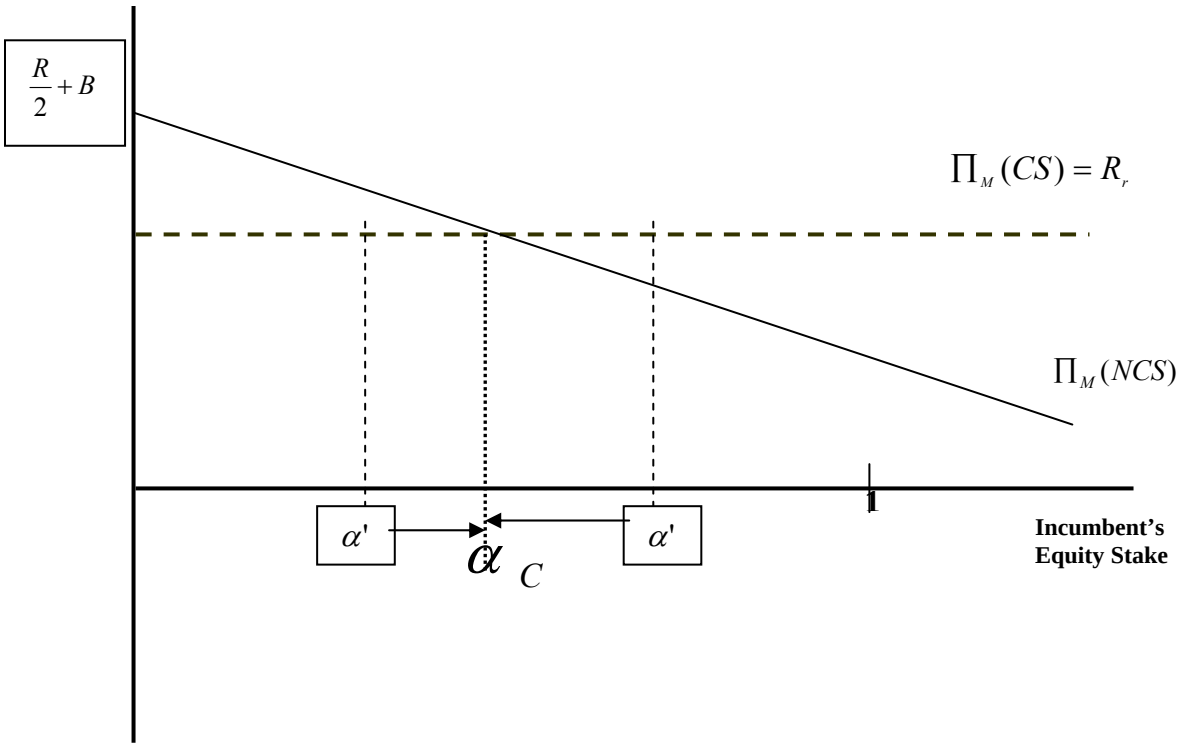
Appendix 1

GRAPHICAL ANALYSIS OF PROPOSITION 1

Payoffs



Notes to diagram 1: Due to high risk aversion, the incumbent's payoff under the NCS structure is downward-sloping. Therefore, under NCS, the incumbent would like to minimise his equity stake. If the incumbent holds less than α', the structure is CS, in which case the incumbent prefers to sell all of his equity, $\alpha^* = 0$. If the incumbent holds more than α', the structure is NCS. The exogenously given majority rule, plus the social planner's choice of the non-voting equity allowance, determines α'. Assume that the planner prefers the NCS structure. If $\alpha' > \alpha^C$, then the incumbent will not choose the NCS structure (that is, by holding equity at least equal to α'), since his payoff under the NCS structure is lower than under the CS structure. The incumbent will prefer to sell all of his equity. If $\alpha' < \alpha^C$, the incumbent maximises his payoff by minimising his equity stake such that the structure remains NCS, that is, he optimally chooses $\alpha^* = \alpha'$.

Under the assumptions that the social planner a) prefers the NCS structure, and b) aims to maximise the firm value under the NCS structure (which implies that she wishes to force the incumbent to maximise his equity stake under the NCS structure), the planner optimally chooses the non-voting equity such that $\alpha' = \alpha^C$.

In our numerical example, $\alpha' = \alpha^C = 0.3$. With a majority rule of 50%, the social planner optimally allows the incumbent to issue 57% of outside equity as non-voting equity. The incumbent then optimally retains 30% of the equity, and issues 70% to outsiders . The incumbent and the outsiders then have equal votes, and the incumbent wins the voting contest.

Appendix 2

Company A

TABLE A1. TYPES OF SHARES

Corporate Charter provisions regarding the types of shares that can be issued.	
Class I	Shares that constitute the fixed amount of capital, which cannot be withdrawn.
Class II	Shares that constitute the variable amount of capital, which can be withdrawn.
Series A	***Common Shares:*** They will represent at least 75% of the total capital and will grant one vote per share, except in special assemblies
Series L	***Voting shares of limited rights:*** These shares in conjunction with the class C shares cannot represent more than 25% of the total capital. These shares can only vote in the special meetings held for this sort of shares and in the extraordinary shareholders meetings.
Series C	***Shares without voting rights:*** Holders of these shares cannot vote in the shareholders' meeting, but in the special meetings held for this sort of shares.
CPOs	Titles representative of provisional rights on profits or specified assets. The fiduciary institution in charge of these titles will vote all the titles in the same way as the majority shareholders.

This table has been drawn up with information from the company Bylaws.

TABLE A2. OWNERSHIP STRUCTURE

	SHARE OWNERSHIP STRUCTURE			
Class of Shares	*No. of shares*	*Percentage Capital*	*Percentage Voting*	Real % Voting
Class I Series A Shares (no par value)	580,549,200	100.00%	100.00%	
TOTAL SHARES	580,549,200	100.00%	100.00	
Founder Families	276,927,496	47.70%	47.70%	73.17%
CPOs	147,878,765	25.47%	25.47%	0.00%
Others domestic Investors	155,742,939	26.83%	26.83%	26.83%
TOTAL	580,549,200	100.00%	100.00%	100.00%

The table above reflects the ownership structure of Company A as of April 2006.

Company B

TABLE B1. TYPES OF SHARES

Corporate Charter provisions regarding the types of shares that can be issued.	
Series AA	*Common Shares:* These shares will represent at least 20 percent and at most 51 percent of the total capital. These shares will not represent less than 51 percent of the total common shares. Only Mexican investors can buy this class of shares. These shareholders are allowed to vote in ordinary and extraordinary shareholders' meetings, granting one vote per share.
Series A	*Common Shares:* These shares will represent no more than 19.6 percent of the total capital and no more of 49 percent of the total common shares. These sorts of shares are of free subscription and holders are allowed to vote in ordinary and extraordinary shareholders' meetings, granting one vote per share.
Series L	*Shares of limited voting rights:* These shares in conjunction with the shares Series A cannot represent more than the 80 percent of the total capital. This kind of shares are of free subscription, which means that Mexican investors, companies or foreign entities can posses them. These shareholders can only vote in the special meetings held for this sort of shares and will grant a preferred dividend.

This table has been drawn up with information from the company Bylaws.

TABLE B2. OWNERSHIP STRUCTURE (SUMMARY)

SHARE OWNERSHIP STRUCTURE			
		Percentage	*Percentage*
Class of Shares	*No. of shares*	*Capital*	*Voting*
Series AA	10,910,000,000	30.18%	93.55%
Series A	752,000,000	2.08%	6.45%
Series L Except on limited matters for which L shares have vote*	24,491,000,000	67.74%	0.00%
TOTAL SHARES	36,153,000,000	100.00%	100.00%

The table above presents a summary of the ownership structure of Company B as of April 2006.

Company B

	AA SHARES			A SHARES			L SHARES				
Shareholders	Shares owned	% shares / total capital	% votes per total capital	Shares owned	% shares / total capital	% votes per total capital	Shares owned	% shares / total capital	% votes per total capital	% TOTAL SHARES	% TOTAL VOTES
Domestic Company	7,587,000,000	20.99%	65.06%	144,000,000	0.40%	1.23%	6,898,000,000	19.08%	0.00%	40.46%	66.29%
Foreign Company	2,870,000,000	7.94%	24.61%	0	0.00%	0.00%	0	0.00%	0.00%	7.94%	24.61%
Other Mexican holders	453,000,000	1.25%	3.88%	608,000,000	1.68%	5.21%	17,593,000,000	48.66%	0.00%	51.60%	09.10%
TOTAL	10,910,000,000	30.18%	93.55%	752,000,000	2.08%	6.45%	24,491,000,000	67.74%	0.00%	100.00%	100.00%
		30.18%			2.08%			67.74%		100.00%	100.00%

TABLE B2.1 OWNERSHIP STRUCTURE

The table above depicts the ownership structure of Company B as of April 2006.

Company C

TABLE C1. TYPES OF SHARES

Corporate Charter provisions regarding the types of shares that can be issued.

Series B	*Common Shares:* These shares will represent at least 51 percent of the total capital. Holders of these shares are allowed to vote in ordinary and extraordinary shareholders' meetings, granting one vote per share.
Series L	*Shares of limited voting rights:* These shares can represent up to 25 percent of the total capital. Holders of these shares are allowed to vote in extraordinary shareholders' meetings that discuss the limited matters described below *.
Series D	*Shares of limited voting rights:* These shares can represent, individually or with L shares, up to 49 percent of the total capital. These shares will have a non-accumulative dividend equivalent to 125 percent of the decreed dividends to B Shares. Holders of these shares are allowed to vote in extraordinary shareholders' meetings that discuss the matters described below *.
Sub-series DB	*Shares of limited voting rights:* These shares can represent the rest of the series D.
Sub-series DL	*Shares of limited voting rights:* These shares can represent up to 25 percent of the series D shares.

* D shares have the right to vote in the following matters: a transformation of the Company; any merger when Company C would not survive or when the business purpose of the other company would differ from that of Company C; change of the nationality; dissolution and liquidation; and cancellation of the register of these shares. Furthermore, this class of shares has the right to appoint two directors, and their alternates, to the BOD.

This table has been drawn up with information from the company Bylaws.

TABLE C2. OWNERSHIP STRUCTURE (SUMMARY)

SHARE OWNERSHIP STRUCTURE			
Class of Shares	*No. of shares*	*% Capital*	*% Votes*
Series B	3,082,140,090	51.68%	100.00%
Sub-series DB	1,440,785,180	24.16%	0.00%
Sub-series DL	1,440,785,180	24.16%	0.00%
TOTAL SHARES	5,963,710,450	100.00%	100.00%

The table above presents a summary of the ownership structure of Company C as of April 2006

Company C

*Table C2.*1 Ownership structure

	B SHARES			DB SHARES			DL SHARES				
Shareholders	Shares owned	% shares / total capital	% votes per total capital	Shares owned	% shares / total capital	% votes per total capital	Shares owned	% shares / total capital	% votes per total capital	% TOTAL SHARES	% TOTAL VOTES
Trust "Voto"	2,211,344,965	37.08%	71.75%	0	0.00%	0.00%	0	0.00%	0.00%	37.08%	71.75%
Co. C Employees	13,488,169	0.23%	0.44%	7,226,098	0.12%	0.00%	7,226,098	0.12%	0.00%	0.47%	0.44%
Other Investors	823,412,903	13.81%	26.72%	1,407,876,286	23.61%	0.00%	1,407,876,286	23.61%	0.00%	61.02%	26.72%
Executive Manager A	4,480,268	0.08%	0.15%	8,884,936	0.15%	0.00%	8,884,936	0.15%	0.00%	0.37%	0.15%
Executive Manager B	2,497,034	0.04%	0.08%	4,992,068	0.08%	0.00%	4,992,068	0.08%	0.00%	0.21%	0.08%
Executive Manager C	23,133,925	0.39%	0.75%	4,251,650	0.07%	0.00%	4,251,650	0.07%	0.00%	0.53%	0.75%
Executive Manager D	1,717,115	0.03%	0.06%	3,434,230	0.06%	0.00%	3,434,230	0.06%	0.00%	0.14%	0.06%
Executive Manager E	2,065,711	0.03%	0.07%	4,119,912	0.07%	0.00%	4,119,912	0.07%	0.00%	0.17%	0.07%
TOTAL	3,082,140,090	51.68%	100.00%	1,440,785,180	24.16%	0.00%	1,440,785,180	24.16%	0.00%	100.00%	100.00%
		51.68%			24.16%			24.16%		100.00%	

The table above depicts the ownership structure of Company C as of April 2006.

Company D

Table D1. Types of shares

Corporate Charter provisions regarding the types of shares that can be issued.	
Series A	*Common Shares:* Holders of A Shares have the right to vote on all matters subject to shareholder approval at any general shareholders' meeting. Besides requiring approval by a majority of all Shares entitled to vote together on a particular corporate matter, certain corporate matters must be approved *by a majority of the holders of A Shares voting separately*. These matters include *mergers, dividend payments, spin-offs, changes in corporate purpose, changes of nationality and amendments to the anti-takeover provisions of our bylaws*.
Series B	*Common Shares:* Holders of B Shares have the right to vote on all matters subject to shareholder approval at *any* general shareholders' meeting. B shareholders have the right to vote at special meetings of B Shares, on any matter subject to approval at such a meeting. Under Mexican law, non-Mexicans may not own B Shares directly or exercise any voting rights in respect of B Shares, *but they may hold B Shares indirectly through the CPO Trust*, *which will control the voting of the B Shares*.
Series D	*Shares of limited voting rights:* Holders of D Shares are entitled to receive a cumulative fixed preferred annual dividend. They are also entitled to vote on the following matters at extraordinary general meetings: transformation from one type of company to another; any merger (even if we are the surviving entity); extension of the business life of the company; dissolution before the prescribed duration; any change in the corporate purpose; a change in the nationality; and the cancellation from registration of the D Shares with any Mexican or foreign stock exchange in which such shares or securities are registered.
Series L	*Shares of limited voting rights:* Holders of L Shares are entitled to vote at extraordinary general meetings on the following matters: transformation from one type of company to another; any merger in which *the company* is not the surviving entity; and the cancellation from registration of the L Shares or the securities that represent the L Shares with the special section of the NRS.

This table has been drawn up with information from the company Bylaws.

Table D2. Ownership structure (Summary)

SHARE OWNERSHIP STRUCTURE

Class of Shares	*No. of shares*	*% Capital*	*% Votes*
Series A	123,478,023,925	33.98%	67.61%
Series B	59,162,448,976	16.28%	32.39%
Series D	90,372,213,365	24.87%	0.00%
Series L	90,372,213,365	24.87%	0.00%
TOTAL SHARES	363,384,899,631	100.00%	100.00%

The table above presents a summary of the ownership structure of Company D as of May2006.

Company D

TABLE D2.1 OWNERSHIP STRUCTURE

	A SHARES			B SHARES			D SHARES			L Shares					
Shareholders	Shares owned	% shares / total capital	% votes per total capital	Shares owned	% shares / total capital	% votes per total capital	Shares owned	% shares / total capital	% votes per total capital	Shares owned	% shares / total capital	% votes per total capital	% TOTAL CAPITAL	TOTAL VOTES	REAL % VOTES
TRUST	54,649,375,593	15.04%	29.92%	1,526,458,516	0.42%	0.84%	2,428,456,730	0.67%	0.00%	2,428,456,730	0.67%	0.00%	16.80%	30.76%	71.67%
Foreign Company A	3,435,215,250	0.95%	1.88%	3,022,989,420	0.83%	1.66%	4,809,301,350	1.32%	0.00%	4,809,301,350	1.32%	0.00%	4.42%	3.54%	0.00%
Foreign Company B	3,266,224,500	0.90%	1.79%	2,874,277,560	0.79%	1.57%	4,572,714,300	1.26%	0.00%	4,572,714,300	1.26%	0.00%	4.21%	3.36%	0.00%
Other CPOs Investors	62,127,208,582	17.10%	34.02%	51,738,723,480	14.24%	28.33%	78,561,740,985	21.62%	0.00%	78,561,740,985	21.62%	0.00%	74.57%	62.34%	28.33%
TOTAL	123,478,023,925	33.98%	67.61%	59,162,448,976	16.28%	32.39%	90,372,213,365	24.87%	0.00%	90,372,213,365	24.87%	0.00%	100.00%	100.00%	100.00%
		33.98%			16.28%			24.87%			24.87%		100.00%		
TRUST															
Investor A	52,991,825,693	14.58%	29.01%	67,814,604	0.02%	0.04%	107,886,870	0.03%	0.00%	107,886,870	0.03%	0.00%	14.66%	29.05%	
Other investors	1,657,549,900	0.46%	0.91%	1,458,643,912	0.40%	0.80%	2,320,569,860	0.64%	0.00%	2,320,569,860	0.64%	0.00%	2.13%	1.71%	
Total	54,649,375,593	15.04%	29.92%	1,526,458,516	0.42%	0.84%	2,428,456,730	0.67%	0.00%	2,428,456,730	0.67%	0.00%	16.80%	30.76%	

The table above depicts the ownership structure of Company D as of May 2006.