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# Dominant Shareholders and Allied Directors: A Simple Model and Evidence from 22 Countries

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# Abstract

We present a simple model in which a dominant shareholder chooses a board composed of independent and allied directors. We test predictions of the model with firms from 22 countries. Consistent with the model, firms have more directors allied with the dominant shareholder in countries with weaker legal protection for minority shareholders and when profitability of the firm is lower, need for external equity financing is higher, the dominant shareholder owns a higher fraction of the firm's voting rights, and a lower fraction of its cash flow rights. Further, a higher fraction of allied directors is associated with lower firm value.

Keywords: Dominant Shareholders, Directors, Governance, Investor Protection

JEL Classifications: F39, G30, G32, G34, K40, K42

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**Dominant Shareholders and Allied Directors:**
**A Simple Model and Evidence from 22 Countries**

Various studies that examine factors associated with the extraction of private benefits of control by a dominant shareholder assume, either implicitly or explicitly, that the dominant shareholder controls the firm's board of directors (La Porta, Lopez, Shleifer, and Vishny (1999, 2000), Claessens, Djankov, and Lang (2000), and Rajan and Zingales (2003) among many others). This assumption is roughly equivalent to an assumption that appointment of a compliant board is costless to the dominant shareholder. A more reasonable starting point would seem to be an assumption that there are costs and benefits to a dominant shareholder of selecting a specific board of directors and that these costs and benefits depend upon characteristics unique to the firm and circumstances specific to the environment in which the firm operates. In this study, we investigate factors associated with board composition and the effect of board composition on corporate value in firms with dominant shareholders from 22 countries.

We begin with a simple model in which the composition of the board is a choice made by a dominant shareholder who can choose a board composed of his/her preferred mix of "independent" and "allied" directors. Directors are assumed to have a primary legal responsibility to maximize firm value for all shareholders. However, allied directors allow the dominant shareholder to divert corporate resources for private consumption and such diversion may reduce firm value. Selecting allied directors (or buying their allegiance) is costly. In particular, the dominant shareholder must share the diverted resources with allied directors. Additionally, the degree of sharing (or the cost to the dominant shareholder) of diverting corporate resources depends upon the effectiveness of the legal regime in which the firm operates; a more effective legal regime

provides stronger shareholder protection and increases the cost of securing the directors' allegiance.

We assume that, at the beginning of the period, the firm is publicly traded and, thus, has shares outstanding, some of which are owned by outside (i.e. "small") shareholders. Given that scenario, a new investment opportunity arises that requires additional external financing. The dominant shareholder must then decide on his/her preferred board composition.

With this model, and under a set of reasonable assumptions, we show that (1) dominant shareholders of firms operating in environments with stronger legal protection for minority shareholders will choose to have fewer allied (and, thereby, more independent) directors; (2) dominant shareholders of firms with more profitable investment opportunities will choose to have fewer allied directors; (3) dominant shareholders of firms with greater demand for external financing will choose to have more allied directors; (4) dominant shareholders who own a higher fraction of the firm's voting rights will choose to have more allied directors; and (5) dominant shareholders who own a lower fraction of the firm's cash flow rights will choose to have more allied directors. Additionally, the model predicts that (6) a higher fraction of allied directors will be associated with lower firm values. The relationships in (2), (3), (4), and (5) become stronger as the protection afforded by the legal environment becomes weaker.

The intuition of predictions (1), (2), (4), (5), and (6) is relatively straightforward: (1) in weaker legal regimes, the cost of securing the allegiance of directors is lower and, all else equal, the dominant shareholder will choose to have more allied directors; (2) when profitability (i.e., rate of return on investment) is higher, the dominant shareholder

will choose to have fewer allied directors and divert fewer resources for private consumption because diversion of resources reduces his/her profits more when the return on investment is higher; (4) when the dominant shareholder has more votes, he/she will choose to have more allied directors because it is less costly to do so; (5) when the dominant shareholder's cash flow rights are lower, he/she will choose to have more allied directors and divert more resources because the opportunity cost of diversion is covered to a greater extent by outside shareholders; and (6) when the dominant shareholder chooses to have more allied directors, he/she will divert more resources and the company's share price will be lower.

The intuition of prediction (3) is less straightforward. That is, it is less intuitively apparent that a dominant shareholder who needs to raise capital in an environment with weak legal protection will choose to have more allied directors and, consequently, a lower share price for his/her firm. This result comes about because, all else equal, a greater amount of external funds raised increases the resources available for diversion by the dominant shareholder which, given our cost function, has a less than corresponding increase in the costs to him/her of diversion.

After establishing these predictions, we test them with data on board composition, share ownership, firm characteristics, and ratings of country-level legal environment from 22 mostly developed countries. Using the recent *Codes of Best Corporate Governance Practice* from a number of countries as a guide, we consider a director to be allied with the dominant shareholder if he/she is an employee in any company in which the dominant shareholder has a major stake, has family ties to the dominant shareholder, is of the same nationality as the dominant shareholder provided they are both foreigners, or is a member

of the firm's home country government, provided the dominant shareholder is a government.

Using the percentage of allied directors as the dependent variable, we estimate cross-sectional regressions with a country-level measure of legal environment and various firm-specific factors as independent variables. Consistent with the primary predictions of the model, firms that have a higher percentage of allied directors are those in weaker legal regimes, with poorer investment opportunities, with greater need for external funds, with higher voting and with lower cash flow rights by the dominant shareholder. Further, firms with a smaller percentage of allied directors have higher market valuations after controlling for other factors. However, interaction terms of legal regime with the firm-specific factors are not significant such that legal regime does not have a reinforcing effect on firm-specific factors as predictors of board composition.

Boards of directors are frequently disparaged as toothless watchdogs that do little to protect shareholders. The results of our study contradict that view. Were boards inconsequential, we would find no systematic factors associated with board characteristics. That is not the case. Even in firms with a dominant shareholder, the costs and benefits of board selection appear to determine board composition. That is not to say that one form of board dominates all others. Our model assumes that the dominant shareholder is a wealth maximizer and chooses a board accordingly. In some circumstances, that will imply a board comprised primarily of allied directors and in other cases, a board made up of more independent directors. Our results do indicate that country-level legal regime plays a major role in determination of board composition. If a country's legal regime changes, wealth maximizing boards, from the perspective of

dominant shareholders, may change as well. From an economy's perspective such changes may or may not lead to greater economic development.

The next section presents our model and empirical predictions. Section II describes our data sources and data. Section III presents our empirical results. Section IV concludes.

## I.     A model of allied directors and private benefits of control

### A.     *Set-up of the model*

A number of theoretical studies have examined the effect of the opportunity for extraction of private benefits of control by a controlling or dominant shareholder on choices made by the firm. These include Jensen and Meckling (1976), Grossman and Hart (1988), Harris and Raviv (1988), Zingales (1995), Burkart, Gromb, and Panunzi (1998), Bebchuk (1999), Gomes (2000), Friedman, Johnson and Mitton (2002), La Porta, Lopez-de-Silanes, Shleifer and Vishny (2002), Shleifer and Wolfenzon (2002), Doidge et al. (2004), and Durnev and Kim (2005) among others. Our analysis owes much to each of these, but the set-ups most closely related to ours are those in La Porta et al. (2002) and Durnev and Kim (2005).

Both of these studies assume that a major shareholder owns a controlling fraction of the shares of a firm and that this fraction has been determined exogenously. They also assume that the controlling shareholder has the ability to divert resources from other (smaller) shareholders to him/herself for private consumption and that such diversion is costly to the dominant shareholder. The costs of diversion act to limit the extent to which the dominant shareholder diverts resources for private consumption. Both models

incorporate the effect on corporate decisions of the quality of protection offered to minority shareholders by the legal environment in which the firm operates.

We consider a one-period model in which a dominant shareholder chooses the fraction, $\delta$, of the board of directors that will be allied with him/her. At the beginning of the period, the firm has outstanding both voting and non-voting shares and both classes share pro rata in the firm's end-of-period liquidating dividend. The dominant shareholder owns an exogenously determined fraction, $0 < \gamma \leq 1$, of the firm's voting shares and an exogenously determined fraction, $0 < \alpha \leq \gamma$, of the firm's total shares (i.e., voting and non-voting). Thus, the dominant shareholder's percentage voting rights may exceed his/her percentage cash flow rights and his/her ownership of all shares entitles him/her to the fraction, $\alpha$, of the firm's end-of-period cash flow.[1] Ownership of $\gamma$ of the firm's voting shares enables the dominant shareholder to divert resources for private consumption subject to the approval (or at least complicity) by the firm's board of directors.

At the beginning of the period, the firm is presented with a profitable investment opportunity that only it can exploit. The maximum amount that can be invested is $I. The dominant shareholder can elect to divert resources for personal consumption. Such diversion reduces the amount of funds available for investment. Thus, depending upon the amount of funds diverted, the amount invested can be less than $I. Investment in the opportunity provides an end-of-period gross profit of $\pi \geq 1$ per dollar invested. A portion of the capital for the investment, $F < I$, is available through internally generated funds.

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[1]The assumption that the firm has outstanding both voting and non-voting shares does not affect the main empirical predictions of our model relative to the case in which only voting shares are outstanding. Nonetheless, this distinction is useful for empirical purposes since many companies around the world are controlled via non-voting shares and/or pyramidal ownership structures.

This amount is exogenous and is determined by the company's historical evolution. The firm can raise external financing of I – F by issuing additional non-voting shares. We assume that investors are risk-neutral and the risk-free rate is zero. Thus, at the end of the period, new investors receive the amount of cash, I – F, they have invested.

Prior to undertaking the investment, but after issuing shares, the dominant shareholder chooses the fraction of funds to divert for his/her personal benefit. If $\pi\alpha < 1$, the dominant shareholder has an incentive to divert resources because each dollar diverted costs the dominant shareholder less than one dollar of foregone cash flow. As we noted, the dominant shareholder can divert corporate resources for private consumption only with complicity of the board of directors. With the allegiance of the fraction of the board $\delta$, the dominant shareholder can divert resources of $c\delta I$ where $0 \leq \delta \leq 1.0$ and $0 < c \leq 1.0$.

We assume that securing the allegiance of directors is costly. In particular, the dominant shareholder must share the private benefits of diverted resources with allied directors. The cost of securing the allegiance of a fraction of the board $\delta$ is $D(\delta) = sL(1 - \gamma)F\delta^2$ where s is a constant, $0 < s \leq 1.0$, and $0 < L$ is a measure of the effectiveness of the legal environment in which the firm operates. This function embeds four assumptions: (1) the marginal cost of securing the allegiance of directors increases as the fraction of allied directors increases; (2) acquiring the allegiance of directors is more difficult and, therefore, more costly, when the legal environment offers more effective protection to outside shareholders (higher L); (3) a higher fraction of voting rights controlled by the dominant shareholder (higher $\gamma$) makes it easier and, therefore, less costly, for the dominant shareholder to secure director allegiance; and (4) securing allegiance of

directors is less costly in smaller firms because there are fewer internal resources for the dominant shareholder to divert (smaller F) and, therefore, less incentive for current shareholders to monitor the board.

Given this set-up, the dominant shareholder chooses a board of directors (and, implicitly, the level of investment) so as to maximize his/her end-of-period wealth.[2] The dominant shareholder's end-of-period wealth is

$$W(\delta) = \alpha[\pi(I - c\delta I) - I + F] + c\delta I - sL(1 - \gamma)\delta^2 F . \tag{1}$$

Let the fraction of external financing be e = (I-F)/I. With this substitution and rearranging terms, maximizing (1) is equivalent to maximizing

$$c\delta(1 - \alpha\pi) - sL(1 - \gamma)\delta^2 (1 - e) . \tag{2}$$

Since (2) is strictly concave, the second order condition for a global maximum is satisfied and the first order condition is

$$W_\delta = c(1 - \pi\alpha) - 2sL(1 - \gamma)\delta(1 - e) = 0 . \tag{3}$$

Solving for the optimal δ gives

$$\delta^* = \frac{c(1 - \pi\alpha)}{2(1 - \gamma)sL(1 - e)} . \tag{4}$$

We now consider the comparative statics of (4). These yield a set of empirical predictions that complement those in La Porta et al. (2002), Doidge et al. (2004) and Durnev and Kim (2005).

**B.    *Hypotheses***

Differentiating (4) with respect to L, gives our first testable hypothesis:

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[2] Given that the diverted resources reduce investment dollar-for-dollar, and given that selection of the board determines the level of diverted resources, ceteris paribus, selection of the board determines investment.

$$\frac{\partial \delta^*}{\partial L} = \frac{c(\pi\alpha - 1)}{2(1-\gamma)sL^2(1-e)} < 0 . \tag{5}$$

*Hypothesis 1:* A better quality of the legal regime reduces the fraction of allied directors.

Dominant shareholders in higher quality legal regimes will choose fewer allied directors and divert fewer resources because the cost of securing the allegiance of directors is greater in higher quality legal regimes.

Differentiating (4) with respect to the profitability of investment opportunities, π, and taking the cross-partial derivative with respect to L, we obtain our second testable hypothesis:

$$\frac{\partial \delta^*}{\partial \pi} = -\frac{\alpha c}{2(1-\gamma)sL(1-e)} < 0 , \tag{6}$$

$$\frac{\partial \delta^*}{\partial \pi \partial L} = \frac{\alpha c}{2(1-\gamma)sL^2(1-e)} > 0 . \tag{7}$$

*Hypothesis 2:* Higher profitability of the firm's investment opportunities reduces the fraction of allied directors chosen by the dominant shareholder, especially in weaker legal regimes.

A higher rate of return on investment increases the gross revenue foregone per dollar of resources diverted from the investment opportunity. Thus, the dominant shareholder's personal net payoff from diverting \$1 is reduced as π increases; the optimal level of diversion and, thereby, the optimal level of allied directors declines. In legal regimes with high levels of investor protection, the marginal cost of diverting resources for private consumption increases faster than in regimes with lower levels of investor protection (i.e., there is an interaction effect). The optimal level of diversion in legal regimes with low levels of investor protection is large to begin with. Thus, a higher

profitability of investment opportunities will have a more pronounced effect on the level of diversion. In comparison, in legal regimes with higher levels of investor protection, diversion will be small to begin with so that a higher profitability will have a less pronounced effect on the level of diversion.

Differentiating (4) with respect to required external financing, e, and taking the cross partial with respect to the quality of the legal regime, L, gives our third testable hypothesis:

$$\frac{\partial \delta^*}{\partial e} = \frac{c(1-\pi\alpha)}{2(1-\gamma)sL(1-e)^2} > 0,$$ (8)

$$\frac{\partial \delta^*}{\partial e \partial L} = -\frac{c(1-\pi\alpha)}{2(1-\gamma)(1-e)^2 sL^2} < 0.$$ (9)

*Hypothesis 3:* A higher level of required external financing increases the fraction of allied directors chosen by the dominant shareholder, especially in weaker legal regimes.

The higher the level of external capital raised, the greater the optimal amount of resources diverted and, therefore, the higher the fraction of allied directors chosen. By assumption, the amount of resources diverted for private consumption, cδI, is proportional to I. However, the associated costs increase less than proportionally with I. The dominant shareholder will, therefore, choose to have more allied directors, especially in weaker legal regimes, where the direct costs of securing the allegiance of directors are smaller.[3]

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[3] This prediction is opposite from that in Durnev and Kim (2005). Durnev and Kim (2005) assume that the dominant shareholder must maintain more then a specified minimum post-investment fraction of the firm's cash flow rights to avoid losing control of the firm. Thus, if this minimum threshold is reached, any increase in the amount of externally raised funds must be matched by a corresponding reduction in the private benefits consumed by the dominant shareholder. This leads to their prediction that an increase in the external financing needs of the company results in a reduction of the private benefits diverted by the dominant shareholder.

Differentiating (4) with respect to $\gamma$ and $\alpha$ and taking the cross partials with respect to L yields our fourth and fifth hypotheses:

$$\frac{\partial \delta^*}{\partial \gamma} = \frac{c(1-\pi\alpha)}{2sL(1-\gamma)^2(1-e)} > 0, \tag{10}$$

$$\frac{\partial \delta^*}{\partial \gamma \partial L} = -\frac{c(1-\pi\alpha)}{2sL^2(1-\gamma)^2(1-e)} < 0, \tag{11}$$

$$\frac{\partial \delta^*}{\partial \alpha} = -\frac{c\pi}{2(1-\gamma)sL(1-e)} < 0, \tag{12}$$

$$\frac{\partial \delta^*}{\partial \alpha \partial L} = \frac{c\pi}{2(1-\gamma)sL^2(1-e)} > 0. \tag{13}$$

*Hypothesis 4:* A higher fraction of voting rights owned by the dominant shareholder increases the fraction of allied directors chosen by the dominant shareholder, especially in weaker legal regimes.

*Hypothesis 5:* A higher fraction of cash flow rights owned by the dominant shareholder reduces the fraction of allied directors chosen by the dominant shareholder, especially in weaker legal regimes.

The first result emerges because it is less costly for the dominant shareholder to secure the allegiance of directors when he/she has more voting rights (i.e., higher $\gamma$). Thus, all else equal, the dominant shareholder will choose to have more allied directors. By comparison, higher cash flow rights (i.e., higher $\alpha$) increase the forgone gross revenue to the dominant shareholder. Thus, all else equal, higher cash flow rights reduce the dominant shareholder's incentive to choose allied directors. Alternatively, the higher his/her cash flow rights, the more independent directors the dominant shareholder will choose. Both results will be more pronounced in weaker legal regimes because a high quality legal environment increases the cost of securing the allegiance of allied directors.

At the beginning of the period, the market-to-book value of the firm, M/B, is

$$M/B = \pi(I - c\delta I)/I. \tag{15}$$

The numerator is the present value of the funds available for distribution at the end of the period. The denominator is the total amount of funds raised to start the project. The simple equality in (15) immediately presents us with our final testable hypothesis.

*Hypothesis 6:* A higher fraction of allied directors, $\delta$, results in higher level of private consumption by the dominant shareholder and, therefore, reduced corporate value.

## C.    Commentary

In developing our model, we assume that the firm is publicly traded as of the date that the dominant shareholder decides upon the composition of the firm's board of directors ((Durnev and Kim (2005), La Porta et al. (2002), and Shleifer and Wolfenzon (2002)). In adopting this framework, we bypass questions having to do with board composition at the date of the company's IPO. This approach allows us to focus on choices made by publicly traded companies like those that will comprise our sample for empirical investigation. However, the questions that have been bypassed are not easily dismissed. In particular, at the time of the seasoned equity offering, the dominant shareholder indicates his/her level of intended diversion with his/her choice of independent and allied directors. Seeing this, new shareholders price shares accordingly and receive a fair return for their investment.

If new shareholders receive a fair return, the question arises as to whose resources the dominant shareholder is diverting for private consumption. It must be that he/she is diverting resources from shareholders who invested at the (earlier) IPO stage of the company. But those initial shareholders must also receive a fair return on their invested

capital. If so, then, fundamentally, the dominant shareholder must be diverting resources from him/herself. That is, if all outside shareholders take into account future diversion of resources for private consumption and price shares accordingly, it is the dominant shareholder (often called the entrepreneur) who must be paying for the diverted resources ex ante. He/she pays for them through lower share prices at the IPO. Presumably, if the dominant shareholder (or entrepreneur) could have committed costlessly to not diverting future resources at the IPO, he could have received a higher price at that time. One way that he/she might have committed to refraining from future diversion is by selecting a board with a higher fraction of independent directors at the IPO. And, assuming this is costless, it is easy to envision that all publicly traded firms would have boards made up of independent directors.

As we show in Appendix A, if, at the IPO, the dominant shareholder (or entrepreneur) can commit, at a cost, not to divert future resources for private consumption, certain of the predictions of our analysis become indeterminate. Rather, they depend upon the values assigned to the cost functions for board allegiance and for commitment not to divert. If, however, we assume that it is impossible or prohibitively expensive to commit to non-diversion at the IPO, our predictions remain. In our model, we are, thus, implicitly assuming that it is impossible or prohibitively costly to commit not to divert when initial outside shareholders invest. Given that the dominant shareholder (or entrepreneur) cannot pre-commit to not divert, shares will be priced (downward) as if diversion will take place in the future. Given that such "underpricing" occurs, the dominant shareholder must divert resources in the future, otherwise he/she would be expropriating him/herself. This observation points out an interesting side issue:

Often the literature describes diversion of resources by a dominant shareholder as "expropriation" of minority shareholders. In fact, if prices are "fair" at the IPO, the dominant shareholder must divert in the future so as not to expropriate him/herself.

Other caveats about the predictions of our model should be made. First, our model assumes that the quality of the legal environment L is an exogenous factor affecting the decisions of the dominant shareholder. We do not consider the possibility that controlling shareholders or small investors can lobby with the government for changes in the legal regime. Clearly such a possibility exists and, depending on the costs of lobbying, has the potential for overturning our hypotheses. For example, Rajan and Zingales (2003) offer a theory in which the legal environment can be molded by large shareholders, or as they call them, incumbent managers.

Their theory suggests that dominant shareholders of larger and more-established companies will oppose the development of stronger laws for shareholder protection because they have already paid the price of diverting resources for personal consumption and stand to lose wealth if they cannot divert these resources. Shleifer and Wolfenzon (2002) argue that this effect is stronger in countries with less developed financial systems. Contrarily, entrepreneurs who have not yet taken their firms public may have an interest in strong shareholder protection so as to reap higher share prices when they do undertake an IPO. Thus, the legal environment may be shaped by both incumbent dominant shareholders of already publicly-traded firms and entrepreneurs who may wish to go public in the future. We do not consider those questions here. We take the environment as given and examine already publicly-traded companies.

Second, we assume that only the dominant shareholder can divert resources for private consumption.[4] It is possible to envision a scenario in which anyone could extract resources for private consumption by paying off (i.e., buying the allegiance of) directors. The justification for our assumption is that in a multi-period model, only the dominant shareholder has the ability to elect future directors. Thus, we can think of the existence of a dominant shareholder as being a necessary but not sufficient condition to extract corporate resources for private benefit.

Third, we assume that the opportunity to divert resources arises before the investment is made as in Durnev and Kim (2005). However, our set-up allows for the incorporation of diversion of resources from the realized profits as well, as in Shleifer and Wolfenzon (2002), La Porta et al. (2002), and Doidge et al. (2004). Were we to modify our assumption, all of our testable implications would remain.

## II.    Sample and data

### A.    *Firms and dominant shareholders*

To test the hypotheses of Section I.B, we assemble data on large shareholders and boards of directors for firms from the 22 countries listed in Appendix B. These are the countries for which have been able to locate data on ownership and boards of directors.[5] The countries are mostly economically developed. To the extent that shareholder protection and rule of law foster economic development, the countries in our sample will

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[4] The alternative is to assume that other shareholders can acquire the right to control benefits. This situation is considered by Bebchuk (1999) who allows control to be contestable by other large shareholders.
[5] The key factor limiting our analysis to companies from 22 countries (identified in Appendix B) is data on board members. In 14 additional countries (not presented in Appendix B), we are able to locate ownership data for the 70 largest companies but are unable to identify information on board membership.

have less dispersion than a broader sample and, as such, the tests may be biased against rejection of the null hypotheses.

Our first task is to identify firms with a dominant shareholder where, in this instance, a dominant shareholder is one who can significantly influence selection of the firm's board of directors. While it is possible, and perhaps likely, that in some cases, more than one large shareholder can influence the composition of the board, our model presumes that the firm has a single influential or dominant shareholder. Thus, we search for the largest single owner of voting rights in each firm provided that the shareholder controls at least 10% of the firm's votes.

Further, we are interested in the firm's "ultimate" shareholder so as to be able to identify directors allied with this ultimate owner. As has been widely documented, many publicly-traded firms are controlled through pyramidal ownership structures (La Porta, Lopez and Shleifer (1999); Claessens, Djankov and Lang (2000)). For that reason, we trace the ownership of voting rights through an ownership "tree" to identify an ultimate owner. We consider a shareholder of Company A to be an ultimate owner when the shareholder is an individual or a family, a privately-held operating company, a privately-held financial firm, or a government. Additionally, when the shares of Company A are owned by a publicly-traded corporation Company B that has a shareholder with 10% or more of voting rights in one of these categories, that shareholder is considered to be the dominant shareholder of Companies A and B. If the shares in Company A are held by Company B and Company B has no dominant shareholder, then Company A is also considered to have no dominant shareholder. Once an ultimate dominant shareholder has

been identified, we search to identify affiliations between that shareholder and members of the firm's board of directors.

To begin, for each country listed in table I, we identify the largest publicly-traded industrial companies in terms of equity market capitalization as of December 2003 included in *Worldscope* with up to a maximum of 70 companies in any one country.[6] *Worldscope* does not list 70 such companies for Korea, Mexico and South Africa. For these countries, we have 29, 40 and 56 firms, respectively, resulting in an initial sample of 1,455 firms.

For each firm for which data are available as of year-end 2003, we extract the identity and percentage voting rights of each shareholder who holds more than 10% of the voting rights outstanding from the sources listed in Appendix B. Certain of the data sources are country-specific. The sources are listed in the order in which they have been used to collate ownership information. That is, if data for a firm are available in the first source listed in Appendix B, we use that source. If not, we move to the next source, and so on, until we gather data on each firm in the sample. If data are not available for year-end 2003, we move to year-end 2002. In all, we are able to find ownership data for all but 23 firms.

As we noted, in the first step of our search algorithm, we identified all shareholders with ownership of at least 10% of the firm's voting rights. In firms with more than one such shareholder, we checked to determine whether two or more of these blocks were affiliated such that their combined ownership of voting rights exceeded that

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[6] We exclude financial institutions and utilities, specifically SIC codes 49, 60, 61, 62, 63, 65, 67.

of the largest single shareholder. If so, these blocks were combined to comprise the single largest shareholder.[7]

Using our search procedure and traveling up the ownership tree, we determined that 1,055 of the firms in our initial sample have an ultimate dominant shareholder who controls at least 10% of the firm's voting rights. Of these ultimate owners, 216 are widely-held firms and, thus, the corresponding sample firms are also considered to be widely-held. These are removed from the sample such that our sample for analysis includes 839 firms with an ultimate dominant shareholder. Of these, 368 are individuals or families, 247 are privately-held operating or holding companies, 109 are privately-held financial institutions, such as investment funds, and 115 are governments.

For each of the 839 firms, we also determined the fraction of cash flow rights owned by the ultimate shareholder by taking the fraction of cash flow rights held by the ultimate shareholder in the sample firm and multiplying that fraction by the fraction of shares owned in each firm in the ownership tree. Thus, if the ultimate shareholder is the Smythe family that owns 50% of the shares in Company C and Company C owns 12% of the shares in Company B who owns 18% of the cash flow rights and 30% of the voting rights of Company A, the Smythe family is designated as controlling 30% of the voting rights of Company A and owning (0.50 x 0.12 x 0.18) x (100) = 1.08% of the cash flow rights.

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[7] In addition, there are three instances in which we identify at least one dominant shareholder, but for the purposes of our analyses we deem these firms to be widely held. First, in the case of a tie between the ultimate voting rights of two different ultimate owners, we consider the firm to be widely held. Second, if, because of cross-holdings, a firm is its own largest holder, we consider the firm to be widely held. Third, we consider a firm to be widely held if a financial institution holds a significant percentage of the equity of the firm as a trustee for its employees' 401K plan. These three situations occur in six firms.

## B.    *Allied directors*

Having identified firms with dominant shareholders, we use Bloomberg, Reuters, EDGAR International, corporate websites, and direct contact with the companies to identify directors and gather their profiles.  From this effort, we are able to find board data for all but 39 firms leaving a set of 799 firms.

Determination of whether a director is allied with or independent of the dominant shareholder involves some subjectivity on our part and will necessarily embed errors.  As a guide for this determination, we draw upon recent corporate governance mandates and/or *Codes of Best Governance Practice* from various of the countries in our sample. Such codes urge that publicly-traded firms have more independent directors and provide some general guidance as to scenarios under which a director's independence might be compromised.[8]  Using the *Codes* as a guide, we consider a director to be allied with the dominant shareholder when (1) he/she is the dominant shareholder, (2) he/she is an employee of the firm,[9] (2) he/she is a director or employee in any company or subsidiary of any company that is positioned above the sample firm in the ownership tree (if there is one), (3) he/she has the same family name as the dominant shareholder,[10] (4) he/she is of the same nationality as the dominant shareholder when the dominant shareholder is a

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[8] The *Belgian Commission of Corporate Governance* (1998) recommendations call for more directors that do not serve on boards of related firms and who have no family ties to executives.  In Greece, the *Principles of Corporate Governance* (1999) prescribe more independent directors, defined as unrelated to the majority owner and having no conflicts of interest.  The report prepared by the *OECD on Corporate Governance: Improving Competitiveness and Access to Capital in Global Markets (1998),* advises "board independence usually requires that a sufficient number of board members not be employed by the company and not be related to the company or its management through significant economic, family or other ties."

[9] We should note that, by far, the vast majority of employee directors are managers.  The exception is Germany wherein boards are required to include labor representatives.

[10] Lins (2003) also identifies family members of dominant shareholders by overlapping family names of individual board members.

foreigner, or (5) he/she is a politician or employee of a government agency when the dominant shareholder is a government.

## C.    *Legal system and financial data*

The quality of legal protection afforded to minority shareholder is often viewed as comprising two elements: (1) statutory provisions (often termed de jure protection) and (2) the degree to which the statutes are enforced (often called de facto protection).  As our primary proxy for the quality of legal environment, we use the product of two indices.  The first is the anti-director rights index of La Porta et al. (1998) that ranges from 0 to 6.  The second is the Law and Order enforcement index taken from the International Country Risk Guide and rebalanced to range from 0 to 10.[11]  The use of this measure has become somewhat customary in testing hypotheses involving standards of corporate governance.[12]  Nevertheless, we should note that this index is still only a proxy for the difficult-to-capture idea of "quality" of legal shareholder protection.

*Worldscope* and *Thompson Research* are used to collect financial data including firm SIC codes, total assets, annual revenue (or sales), earnings before interest, taxes depreciation and amortization (EBITDA), and book value of equity from year-end 2001, 2002, and 2003.  We are not able to find data for every variable for every company, but we do have some data for 799 companies.  In each test, we give the number of firms included.

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[11] Anti-director and enforcement index values are taken for year-end 2003.
[12] Durnev and Kim (2005), Almeida and Wolfenzon (2005), and Wurgler (2000), among others, use a similar multiplicative index.

### D.    Sample description

Table I presents descriptive information for the 799 firms by country of incorporation. Panel A contains information on share ownership and directors. Panel B gives descriptive financial information.

Because of the method used to gather data, we have the largest firms (by market capitalization) in each country, but we do not have an equal number of firms from each country. For example, the U.S. is vastly under-represented. This occurs because, among the 70 largest US firms, there are few with a dominant shareholder. Similarly, Japan is under-represented because its largest corporations are owned in a Keiretsu structure whereby the dominant shareholder is widely-held. The number of firms by country ranges from 10 in Japan to 61 in Hong Kong. The index for the quality of legal environment (PROTECT) ranges from 3.3 in Mexico to 50 in the U.S. and the U.K. The average percentage of allied directors ranges from 25.4% in the US to 63.6% in Hong Kong and 62.0% in Japan. The remaining columns of panel A give the mean percentage voting rights and cash flow rights of the dominant shareholder. In each country, the percentage voting rights of the dominant shareholder, on average, exceeds his/her percentage cash flow rights with a spread between the two of 0.5% in Mexico increasing to a spread of 18.6% in Italy.

Panel B gives financial data for the firms in the sample by country including mean market value of equity, sales/assets, cash flow margin (EBITDA/sales), cash flow return of assets (EBITDA/assets), growth in sales from 2002 to 2003, and average 2002 – 2003 market value assets/book value assets.

**III.    Analysis and results**

*A.    Univariate analysis*

Table II presents univariate analysis of the average percentage of allied directors when countries are sorted according to the quality of legal regime.  As shown in panel A, for the 7 countries with the highest scores on the investor protection index (PROTECT), on average, 39.6% of directors are allied with the dominant shareholder; for the 7 countries with the lowest scores, on average, 49.5% of directors are allied.   The difference between the two is significant at the 0.03 level.  However, the (approximately) middle-third of the countries has 52.3% allied directors so that the major disparity is between the highest scoring countries and all others.  Panel B sorts according to the level of the index with splits at the index > 30 and < 16.7.  The results are basically the same as in panel A with those countries with an index score > 30 having a mean percentage allied directors of 38.9 and those with an index < 16.7 having a mean percentage of 49.5 with the difference between the two being significant at the 0.04 level.

Given that the model does not predict a specific quantity for the fraction of allied directors, it merely predicts the direction of the relationship, we calculated the simple correlation between the index of investor protection and the mean percentage of allied directors by country.   That correlation is a highly significant -47.2% (p-value 0.00). Thus, on the basis of simple univariate analysis, "quality" of legal environment has a significant effect on the composition of a company's board of directors.

Table III gives the percentage of allied directors when firms are sorted according to various firm-specific characteristics.  One of the firm-specific characteristics that is hypothesized to influence the composition of the board is the potential profitability of the

firm's investment opportunities. Dominant shareholders of more profitable firms are hypothesized to divert fewer resources and to appoint boards with fewer allied directors. Presumably diversion, if there is any, will show up as lower profits in firms that would have been expected to be poor performers to begin with. That is, the greater diversion of resources will reinforce the initial weakness of the firm. This weakness and diversion could show up in the efficiency with which assets are employed, in lower rates of growth, in higher costs incurred, and in the lower profits generated per dollar of assets employed.

Columns (1) through (4) of table III examine the percentage of allied directors when firms are sorted by various measures of efficiency and profitability. These columns give the mean percentage of allied directors for the top and bottom quartiles when firms are sorted according to asset efficiency (sales/assets), cash flow profit margin (EBITDA/sales), cash flow return on assets (EBITDA/assets), and sales growth where the first three variables are measured as of year-end 2003 and sales growth is measured over the interval 2002–2003. Consistent with the model, firms with higher profitability and higher sales growth have a statistically significantly lower fraction of allied directors (p-values < 0.04). The only "profit" measure for which the top and bottom quartiles are not significantly different from each other is asset turnover. The sign of the difference is "correct" but the difference in the percentage of allied directors between the top and bottom quartiles in terms of asset turnover is not significant (p-value = 0.44).

A second firm-specific characteristic that is hypothesized to influence the composition of the board is the firm's need for external financing. Here we use the proxy proposed by Demirguc-Kunt and Maksimovich (1998) and used by Durnev and Kim (2005). This measure is calculated as the difference between historical growth of assets

measured over 2002–2003 and sustainable growth of assets. The sustainable growth is measured as ROE/(1-ROE) where ROE is average return on equity over 2002–2003. This measure attempts to gauge the maximum growth that the firm can sustain with no external equity capital and no dividends. Column (5) gives the average percentage of allied directors for the top and bottom quartiles when firms are sorted according to this variable which we label FUNDSNEED. As predicted, firms with a greater need for external equity have a higher percentage of allied directors, but the difference is not significant and is relatively modest at 1.30%. That is the top quartile of firms ranked according to FUNDSNEED, on average, have 1.30% more allied directors than those in the bottom quartile.

Columns (6) and (7) give the mean percentage of allied directors when firms are sorted according to the voting and cash flow rights of the dominant shareholder. As predicted by the model, the greater the voting rights of the dominant shareholder, the higher the fraction of allied directors and the difference between the top and bottom quartiles is statistically significant (p-value < 0.01).

The model also predicts that dominant shareholders will appoint fewer allied directors the higher their cash flow rights. However, the data in column (7) are not consistent with that prediction. Indeed, for the top quartile of firms ranked according to the cash flow rights of the dominant shareholder, the fraction of allied directors is significantly higher than is the fraction for the bottom quartile of firms. Part of the explanation for this outcome may be that the ceteris paribus conditions of the model are not met in the univariate analysis. That is, the prediction is that, holding everything else constant, lower cash flow rights will be associated with higher allied directors. In

particular, given that the percentage of voting rights and percentage of cash flow rights are highly correlated (correlation = 0.78), a positive correlation between each variable and the fraction of allied directors is not incompatible with the model. In the next section, among other things, we explore the relationship between voting and cash flow rights of the dominant shareholder and the percentage of allied directors in a multivariate regression framework that controls for other factors. To anticipate the results, in the multivariate analysis, the coefficient of voting rights of the dominant shareholder is positive while the coefficient of cash flow rights is negative; consistent with the model, controlling for other factors, the higher the cash flow rights of the dominant shareholder, the lower the fraction of allied directors.

The final column of table III gives the fraction of allied directors when firms are sorted according to the 2002–2003 average fiscal year-end market-to-book value of assets. The market value of assets is calculated as the book value of assets minus the book value of equity plus the market value of equity. With this ratio as the measure of firm value, the lower the fraction of allied directors, the higher the market-to-book value of the firm. The difference between the top and bottom quartiles is statistically significant (p-value < 0.01).

### B.       *Multivariate analysis of board composition: Primary tests*

The univariate analysis gives results that are broadly consistent with the predictions of the model. We now conduct various regression analyses to determine whether the results hold up in a multivariate setting. In brief, the results are robustly consistent with the primary predictions of the model that stem from the partial derivatives

of Section I.B. However, the results are, at best, weakly consistent with the predictions that stem from the cross-partials.

The first column of table IV presents the OLS regression results when the dependent variable is the percentage of allied directors and the independent variables are the index of investor protection for the country in which the firm is domiciled (PROTECT), the firm's cash flow profit margin (EBITDA/sales), the firm's measure of the need for external financing (FUNDSNEED), the percentage of the firm's voting rights held by the dominant shareholder (DOMVOTE), and the percentage of the firm's cash flow rights held by the dominant shareholder (DOMCF). Also included are the control variables of the log (board size), log (sales), and intangible assets/total assets all measured as of fiscal year-end 2003 along with country and industry indicator variables where industry is identified by the firm's 1-digit SIC code. Each of the variables has the predicted sign and all but cash flow rights of the dominant shareholder have p-values < 0.01. The p-value of the fraction of cash flow rights owned by the dominant shareholder is 0.12. Thus, firms in countries with weaker shareholder protection and firms with lower profitability, higher need for external equity funding, higher voting rights owned by the dominant shareholder, and a lower fraction of cash flow going to the dominant shareholder have a higher fraction of directors allied with the dominant shareholder.

To capture the predictions from the cross-partials, that each of the effects associated with firm-specific characteristics will be more pronounced in weaker legal regimes, we iteratively insert the interaction terms (PROTECT x EBITDA/Sales), (PROTECT x FUNDSNEED), (PROTECT x the percentage voting rights of the dominant shareholder), and (PROTECT x the cash flow rights of the dominant

shareholder). The results of these regressions are given in columns (2) – (5) of table IV. The first two interactions have the predicted signs, but their p-values are only 0.56 and 0.41, respectively, while the latter two interactions have signs opposite those predicted. These results do not support the prediction that a lower quality legal regime reinforces the primary effect associated with the firm-specific factors.

The regressions in columns (6), (7), and (8) are the same as those in column (1) except that the profit measure EBITDA/sales is replaced by sales/assets in column (6), replaced by EBITDA/assets in column (7), and replaced by sales growth in column (8). In each regression, the coefficient of the profit variable is negative with p-values of 0.01, 0.09, and 0.04, respectively. The signs of the other variables and their levels of statistical significance are unchanged in comparison with column (1).

Regarding the control variables, the coefficient of log (board size) is always negative and significant (p-values < 0.01) and the coefficient of log (sales) is always positive and significant (p-values < 0.01): firms with larger boards have fewer allied directors and, holding the size of the board constant, firms with higher sales (i.e., "bigger" firms) have a higher fraction of allied directors.

## C.    *Multivariate analysis of board composition: Robustness tests*

In the regressions of table IV, the profitability and funds need variables are trimmed at the 1st and 99th percentiles. We also estimate each of the regressions using these variables untrimmed and winsorized at the 1% level.[13] With the exception of FUNDSNEED, the coefficients of the independent variables are robust to these changes. The coefficient of FUNDSNEED continues to be positive, but all p-values are greater

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[13] The results of all unreported tests are available from the authors upon request.

than 0.30. The sensitivity of FUNDSNEED to these alternative specifications weakens support for the hypothesis that dominant shareholders of firms in need of external equity will be more inclined to pack the board with cronies.

We estimated each of the regressions of table IV using a country fixed-effects specification. We also estimated each regression using a country random-effects specification and using specification with no country effects. With each specification the signs and significance levels of the coefficients are essentially the same as those reported for the parallel regression in table IV.

The proxy for the "quality" of shareholder protection is the product of two indices, one of which is designed to capture de jure legal protection and the other of which is designed to capture de facto protection. It is interesting to determine whether one of these components plays a more critical role than the other as a determinant of board composition. We, therefore, separately estimate regression (1) of table IV using successively the two constituent components of PROTECT in place of the index itself. Interestingly, in each case, the coefficient of the measure of shareholder protection is negative and statistically significant (p-values < 0.01). This suggests that each of the two components captures a different aspect of shareholder protection and that the two reinforce one another. All other coefficients continue to have their respective significance levels as in regression (1).

As we noted, our classification scheme for identifying directors allied with the dominant shareholder undoubtedly misclassifies some directors. Presumably such errors reduce the likelihood of rejecting the various null hypotheses. Nevertheless, we perform two variations of regression (1) to check the sensitivity of the results to certain director

classifications. First, we exclude German companies because German firms have two-tiered board structures that make them less representative of the broader sample. Second, we delete Hong Kong firms because it has been suggested to us that there is little variation in the family names of Hong Kong directors such that our classification scheme will identify as allied by family directors who are not related, thereby, inflating the number of allied directors in that country. In each specification, the signs and significance of the coefficients of independent variables are essentially unchanged except that when German firms are deleted, the percentage cash flow rights of the dominant shareholder becomes more significant (p-value = 0.04).

As a further test of our classification scheme, we raise the hurdle for classifying a shareholder as being a dominant shareholder to 15% of the firm's voting rights and re-estimate regression (1). The sample size declines to 681 firms. Perhaps surprisingly, the significance level of PROTECT declines to 0.063. An explanation for this result may be the fact that most companies with low levels of voting rights held by the dominant shareholder hail from countries with higher levels of the investor protection index. Removing these companies reduces the variation in the index and partially obscures its relationship with the percentage of allied directors.

In sum, the results of our tests are generally consistent with the primary effects predicted in hypotheses 1 through 5 of Section I.B, but only modestly consistent with the predictions that arise from the cross-partials.

## D. *Firm value and board composition*

The final hypothesis that comes from the model is that, holding all else constant, a higher fraction of allied directors will lead to a lower firm value. The univariate results

of table III are consistent with this hypothesis in that the mean percentage of allied directors in the top quartile of firms ranked by market-to-book ratio is 45.1% while the mean percentage for the bottom quartile is 51.4% and the difference is statistically significant (p-value <0.01). We test the hypothesis further by estimating OLS regressions with the market-to-book asset ratio as the dependent variable and the percentage of allied directors as an independent variable along with the index of investor protection, percentages of voting and cash flow rights held by the dominant shareholder, log (board size), log (sales), intangible assets/total assets, and country and industry indicator variables. The dependent variable is trimmed at the 1$^{st}$ and 99$^{th}$ percentiles. The results are given in column (1) of table V. Consistent with the prediction of the model, the coefficient of the percentage of allied directors is negative and significant with a p-value of 0.02 - - more allied directors are associated with lower firm value. Additionally, consistent with LaPorta et al (2002) the index of investor rights is positive and significant - - stronger investor protection at the country level is associated with higher firm value.

An immediate concern with the results in column (1) of table V is the likely endogeneity between corporate value and the composition of the board (Hermalin and Weisbach (1991, 1998); Bhagat and Black (2002)). We employ the common approach to addressing this concern by estimating instrumental variable regressions. In particular, we use 2SLS to estimate two linear equations, the dependent variables being the percentage of allied directors and the industry-adjusted market-to-book ratio of assets. The industry-adjusted market-to-book asset ratio for each firm is calculated by subtracting from the

firm's market-to-book ratio the median market-to-book ratio of all other firms in the sample with the same 1-digit SIC code.

In the regression with the percentage of allied directors as the dependent variable, the independent variables are the industry-adjusted market-to-book asset ratio along with the independent variables in column (1) of table IV. In the regression with the industry-adjusted market-to-book ratio as the dependent variable, the independent variables are the same as in column (1) of table V. The instrumental variable for the industry-adjusted market-to-book asset ratio is the same variable lagged by one year. The instruments for the percentage of allied directors are the industry-median percentage of allied directors and the industry-median log (board size). These instruments meet the requirement of being correlated with the percentage of allied directors, but not with the market-to-book asset ratio relative to the industry median (Campa and Kedia (1999)).

In the first stage of the 2SLS estimation procedure, we replace the endogenous variable that appears on the right-hand side of each equation with its corresponding instrumental variable(s) and use OLS to derive the predicted values of the left-hand variable. In the second stage, we replace the endogenous variable that appears on the right-hand side of each equation with the predicted values from the first stage regression and again use OLS estimation. This two-stage procedure produces unbiased and consistent estimates of the coefficients.

The results of the 2SLS estimation are reported in columns (2) and (3) of table V. In the market-to-book value regression (column (2)), the coefficient of the percentage of allied directors continues to be negative and becomes even more statistically significant (p-value < 0.01) than in column (1). In the board composition regression (column (3)),

the market-to-book ratio of assets is not significant.   These results suggest that board composition is a significant determinant of the "value" of a firm, but the "value" does not determine board composition.

## IV.     Conclusion

We present a simple model of the determinants of a dominant shareholder's choice of a board of directors where the dominant shareholder can choose any combination of allied directors or independent directors.  In this model, allied directors allow the dominant shareholder to divert resources from the firm for personal consumption at a cost.  The cost depends on the quality of protection provided to outside shareholders by the legal regime in which the firm operates.  We test predictions that derive from the model with data on 799 firms from 22 countries.

The results are largely consistent with the predictions of the simple model of board composition.   In general, the percentage of allied directors is significantly negatively related with proxies for the "quality" of legal protection for shareholders.  The percentage of allied directors is significantly positively related with the percentage of voting rights held by the dominant shareholder and negatively related with the firm's profitability and the percentage of his/her cash flow rights.  These three findings appear to be robust.  That is, the evidence is reasonably strong that dominant shareholders tend to appoint more allied directors when the legal environment provides weak support for outside shareholders, when the firm has worse profit potential, and when the dominant

shareholder has stronger control of votes but a lower vested interest in the distribution of net cash flow.[14]

There is some evidence that the percentage of allied directors is positively related with the firm's need for external equity financing but this relationship loses significance in some specifications. The weakness of this result has associated with it a certain level of reassurance in that, as we noted in the introduction and Appendix A, this prediction is somewhat counter-intuitive. That is, the prediction is that firms in need of capital will have greater opportunity for diversion of capital provided by outside investors.

The model also predicts that each of the firm-specific factors that are useful in predicting board composition will be stronger when the legal environment provides weaker investor protection. In none of the analyses do we find the cross product of the index of investor protection and the firm-specific factors to be significant. Thus, legal regime has a strong first-order effect on board composition, but no spillover or interaction effect with other factors. Either there is no reinforcing effect of legal environment on the key firm-specific factors that determine board composition or the power of our tests is not sufficient to detect whatever effect there is.

Finally, the model predicts that a higher fraction of allied directors on the board will reduce corporate value. After controlling for likely endogeneity between board composition and corporate value, the analysis suggests that board composition is a key determinant of corporate value, but not the reverse. The evidence appears to support

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[14] The result that lower profitable investment opportunities lead to increased diversion of private control benefits is consistent with Johnson, Boone, Breach and Friedman (2000). They report that dominant shareholders stepped up expropriation of outside investors, when investment opportunities dried up, during the 1997 Asian financial crisis.

causality running from an increase in allied directors leading to a reduction in corporate value.

In those tests where our results are not significant, it is possible that they are dampened by our imprecise identification of allied directors. They may also be weakened because our sample includes mostly developed countries in which quality of legal regime is relatively high on average. Finally, they may be weakened because, of the 22 countries in our sample, between 1993 and 2003, 15 witnessed publication of mandates urging publicly-traded firms to increase their number of independent directors. To the extent these mandates have been effective, the firms in our sample will show less dispersion in board composition than would have been observed a decade ago or than would be the case if the availability of data would permit inclusion of a broader sample of countries.

This study adds to the literature on corporate boards (Bhagat and Black (2002), Hermalin and Weisbach (1991, 2003), Rosenstein and Wyatt (1990), Dahya, McConnell and Travlos (2002)) and complements studies of the effect of country-level and firm-specific factors on the quality of an individual firm's "quality' of corporate governance. In particular, Durnev and Kim (D&K) (2005) and Doidge et al. (2004) present theoretical models in which an owner/entrepreneur chooses the "quality" of his/her firm's corporate governance. They use the models to explore the effect of legal regime on the quality of corporate governance chosen. In these models, the quality of corporate governance represents a general characterization of the degree to which a controlling shareholder grants protection against exploitation to outside shareholders. The outcome of the models is that the quality of governance chosen depends upon the quality of legal

environment in which the firm operates and upon certain firm-specific characteristics. The authors then test certain predictions of their models by estimating cross-sectional multivariate regressions in which the dependent variable is a firm-specific indicator of the quality of corporate governance as assessed by Credit Lyonnais Securities Asia (CLSA) and/or Standard and Poors (S&P).

Interestingly, D&K and Doidge et al. arrive at different conclusions with respect to the effect of country-level legal regime and firm-specific factors on firms' levels of governance. D&K conclude that individual firm attributes are important in shaping firms' corporate governance. In comparison, Doidge et al. conclude that almost all of the variation in governance ratings across firms is attributable to country characteristics rather than firm-specific characteristics.

Among our various results, the factor that has the greatest explanatory power is country-level quality of legal regime. That does not mean that firm-specific characteristics are not important, but their effect appears to be of second order importance. D&K argue that standards of shareholder protection are evolving across countries such that country-level protection is converging across nations. If so, they predict that firm-specific factors will soon be the primary determinant of firm quality of corporate governance. If that is true and if the country-level mandates for increased independent directors are effective, both the variation in cross-country and cross-firm board composition is likely to decease. The net result might be that neither country nor firm-specific factors will have much influence on corporate board composition. Whether that is good news or bad for economies and shareholders is yet to be determined. For those who believe that a one-size-fits-all solution is optimal, that might come as good

news.  For those who view diversity as allowing firms to adapt and thrive, that will be viewed as bad news.

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# Table I
## Descriptive statistics on firms with a dominant shareholder by country

This table lists, by country, mean statistics for the primary variables used in the statistical analysis. A dominant shareholder is an individual, family, privately-held firm, or government who controls the most voting rights in a listed company. PROTECT is an index measuring the quality of investor protection that is the product of the anti-director rights index from La Porta et al. (1998) and the Law and Order index from icrgonline.com as of 2003. A director is considered allied if that director either (1) is the dominant owner, (2) is an employee of the firm, (3) serves on the board in any other company or its subsidiary in a control chain, (4) has the same family name as the dominant shareholder, (5) has the same nationality as the dominant owner provided they are both foreigners, or (6) is a member of government provided the dominant shareholder is a government. EBITDA is earnings before interest, taxes, depreciation and amortization as of 2003. Return on assets (ROA) is computed as EBITDA / total assets as of 2003. Sales growth is the average growth rate in sales for 2002-2003. FUNDSNEED is calculated for 2002-2003 as the growth of assets minus the sustainable growth rate (equal to ROE/(1-ROE), where ROE is the earnings after taxes divided by the book value of equity). M/B is the average market-to-book ratio of the firm's assets for 2002-2003. The market value of assets is calculated as (book value of assets – book value of equity + market value of equity). Percentage cash flow and voting rights of the dominant shareholder are computed as per Appendix B. Sales/Assets, EBITDA/Sales, ROA, sales growth, and FUNDSNEED are trimmed of outliers at $1^{st}$ and $99^{th}$ percentile. Financial and utility companies are excluded from the sample (SIC = 49, 60, 61, 62, 63, 65, 67).

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Country | Firms with dominant shareholder | Inv. protection index (PROTECT) | Anti-director rights index | Law and order index | Percentage allied directors | Board size | Percentage voting rights of dominant shareholder | Percentage cash flow rights of dom. shareholder |
| Australia | 21 | 40 | 4 | 10 | 35.5 | 8.5 | 35.3 | 26.4 |
| Belgium | 52 | 15 | 2 | 7.5 | 51.3 | 8.8 | 46.6 | 29.9 |
| Brazil | 50 | 7.5 | 3 | 2.5 | 43.0 | 8.4 | 54.0 | 49.8 |
| Canada | 36 | 50 | 5 | 10 | 33.3 | 11.8 | 46.2 | 33.7 |
| Denmark | 53 | 20 | 2 | 10 | 56.9 | 7.9 | 34.2 | 32.2 |
| Finland | 39 | 40 | 4 | 10 | 33.7 | 6.6 | 37.7 | 29.9 |
| France | 39 | 22.5 | 3 | 7.5 | 43.1 | 11.6 | 44.5 | 32.5 |
| Germany | 30 | 16.7 | 2 | 8.3 | 43.4 | 14.8 | 49.8 | 37.4 |
| Greece | 52 | 10 | 2 | 5 | 48.2 | 8.2 | 48.1 | 42.7 |
| Hong Kong | 61 | 15 | 2 | 7.5 | 63.6 | 10.1 | 44.0 | 39.7 |
| India | 46 | 20 | 3 | 6.7 | 54.7 | 11 | 50.5 | 46.8 |
| Italy | 56 | 10 | 2 | 5 | 42.9 | 10.8 | 53.5 | 34.9 |
| Japan | 10 | 25 | 3 | 8.3 | 62.0 | 14 | 40.1 | 26.0 |
| Korea | 20 | 16.7 | 2 | 8.3 | 54.1 | 8.9 | 36.6 | 23.3 |
| Malaysia | 56 | 15 | 3 | 5 | 53.0 | 8.4 | 42.5 | 39.2 |
| Mexico | 26 | 3.3 | 1 | 3.3 | 44.7 | 11.7 | 54.0 | 53.5 |
| Netherlands | 27 | 20 | 2 | 10 | 51.8 | 10.1 | 30.6 | 27.9 |
| S. Africa | 23 | 33.3 | 4 | 8.3 | 56.5 | 9.6 | 37.7 | 35.7 |
| Spain | 26 | 30 | 4 | 7.5 | 44.1 | 11.8 | 38.5 | 30.7 |
| Sweden | 40 | 30 | 3 | 10 | 52.9 | 10.2 | 30.1 | 26.6 |
| UK | 20 | 50 | 5 | 10 | 42.1 | 11.9 | 20.3 | 16.7 |
| US | 16 | 50 | 5 | 10 | 25.4 | 12 | 21.0 | 17.3 |

*Panel A: Investor protection, ownership and board characteristics*

| | *(1)* | *(2)* | *(3)* | *(4)* | *(5)* | *(6)* | *(7)* | *(8)* |
|---|---|---|---|---|---|---|---|---|
| *Country* | *Shareholder protection index (PROTECT)* | *Market value of equity ($m)* | *Sales/Assets* | *EBITDA /Sales* | *Return on assets (ROA)* | *Growth of sales* | *Need for funds (FUNDS NEED)* | *Market value to book assets (M/B)* |
| Australia | 40 | 4,143 | 1.04 | 0.22 | 0.14 | 0.12 | -2.3 | 2.07 |
| Belgium | 15 | 639 | 1.11 | 0.06 | 0.13 | 0.21 | 3.8 | 1.47 |
| Brazil | 7.5 | 867 | 0.98 | 0.32 | 0.19 | 0.09 | 24.6 | 0.99 |
| Canada | 50 | 3,082 | 0.95 | 0.19 | 0.13 | 0.26 | 2.9 | 1.90 |
| Denmark | 20 | 813 | 1.15 | 0.16 | 0.10 | 0.09 | -2.0 | 1.64 |
| Finland | 40 | 982 | 1.18 | 0.13 | 0.13 | 0.16 | -5.4 | 1.47 |
| France | 22.5 | 8,459 | 0.87 | 0.15 | 0.13 | 0.18 | 2.0 | 1.70 |
| Germany | 16.7 | 7,935 | 1.18 | 0.13 | 0.14 | 0.15 | -14.3 | 1.66 |
| Greece | 10 | 484 | 1.02 | 0.22 | 0.17 | 0.18 | 16.5 | 1.88 |
| Hong Kong | 15 | 2,193 | 0.64 | 0.04 | 0.01 | 0.15 | 1.1 | 0.88 |
| India | 20 | 1,121 | 0.85 | 0.25 | 0.15 | 0.16 | 6.0 | 1.98 |
| Italy | 10 | 4,464 | 0.78 | 0.19 | 0.12 | 0.38 | 10.2 | 1.54 |
| Japan | 25 | 15,714 | 0.74 | 0.27 | 0.14 | 0.04 | -14.1 | 1.96 |
| Korea | 16.7 | 2,699 | 0.76 | 0.13 | 0.10 | 0.31 | 19.9 | 0.95 |
| Malaysia | 15 | 959 | 0.64 | 0.29 | 0.12 | 0.08 | -1.6 | 1.71 |
| Mexico | 3.3 | 2,549 | 0.87 | 0.21 | 0.12 | 0.07 | -4.9 | 1.12 |
| Netherlands | 20 | 1,628 | 1.64 | 0.16 | 0.14 | 0.17 | -1.6 | 1.50 |
| S. Africa | 33.3 | 214 | 1.65 | 0.22 | 0.14 | 0.22 | -0.7 | 2.11 |
| Spain | 30 | 1,537 | 0.69 | 0.13 | 0.11 | 0.22 | 0.7 | 1.54 |
| Sweden | 30 | 2,409 | 1.05 | 0.25 | 0.10 | 0.12 | 15.3 | 1.66 |
| UK | 50 | 11,578 | 0.92 | 0.07 | 0.10 | 0.18 | 8.4 | 1.82 |
| US | 50 | 72,589 | 1.15 | 0.24 | 0.15 | 0.16 | -10.5 | 1.07 |

*Panel B:  Accounting and market information*

## Table II
## Percentage of the board comprising allied directors and dominant shareholder characteristics classified according to index of shareholder protection

This table reports the percentage of the board composed of allied directors, and the voting and cash flow rights of the dominant shareholder by quality of investor protection. A dominant shareholder is an individual, family, privately-held firm, or government who controls the most voting rights in a listed company. PROTECT is an index measuring the quality of investor protection that is the product of the anti-director rights index from La Porta et al. (1998) and the Law and Order index from icrgonline.com as of 2003. A director is considered allied if that director either (1) is the dominant owner, (2) is an employee of the firm, (3) serves on the board in any other company or its subsidiary in a control chain, (4) has the same family name as the dominant shareholder, (5) has the same nationality as the dominant owner provided they are both foreigners, or (6) is a member of government provided the dominant shareholder is a government. Cash flow and voting rights are computed as per Appendix B. Significance of one-sided t-tests reported in parentheses assumes equal variance.

| | *Sample size* | *Percentage of board comprising allied directors* | *Percentage voting rights of dominant shareholder (DOMVOTE)* | *Percentage cash flow rights of dominant shareholder (DOMCF)* |
|---|---|---|---|---|
| *Panel A: Top 7, middle 8 and bottom 7 Countries by PROTECT* | | | | |
| Top 7 countries ranked by PROTECT | 7 | 39.6 | 33.8 | 27.2 |
| Middle 8 countries ranked by PROTECT | 8 | 52.3 | 39.5 | 31.8 |
| Bottom 7 countries ranked by PROTECT | 7 | 49.5 | 49.0 | 41.4 |
| *Difference between top 7 and bottom 7 countries ranked by PROTECT* | | -9.90 (0.034) | -15.20 (0.001) | -14.20 (0.003) |
| *Panel B: Greater than 30, between 16.7 and 30, and less than 16.7 by PROTECT* | | | | |
| PROTECT > 30 | 6 | 38.9 | 33.0 | 26.6 |
| $16.7 \leq$ PROTECT $\leq 30$ | 9 | 51.4 | 39.4 | 31.7 |
| PROTECT < 16.7 | 7 | 49.5 | 49.4 | 40.5 |
| *Difference between PROTECT >30 and < 16.7* | | -10.6 (0.035) | -16.40 (0.001) | -13.90 (0.006) |

## Table III
## Accounting and market characteristics by the percentage of the board comprising allied directors

This table reports the mean percentage of the board composed of allied directors for companies in the top and bottom quartile by different firm-specific characteristics. A dominant shareholder is an individual, family, privately-held firm, or government who controls the most voting rights in a listed company. A director is considered allied if that director either (1) is the dominant owner, (2) is an employee of the firm, (3) serves on the board in any other company or its subsidiary in a control chain, (4) has the same family name as the dominant shareholder, (5) has the same nationality as the dominant owner provided they are both foreigners, or (6) is a member of government provided the dominant shareholder is a government. EBITDA is earnings before interest, taxes, depreciation and amortization. Return on assets (ROA) is computed by scaling EBITDA by total value of assets. Sales growth is the average growth rate in sales for 2002-2003. FUNDSNEED is the average 2002-2003 growth of assets minus the sustainable growth rate (equal to ROE/(1-ROE), where ROE is the earnings after taxes divided by the book value of equity). M/B is the average market-to-book ratio of the firm's assets for 2002-2003. The market value of assets is calculated as (book value of assets – book value of equity + market value of equity). Cash flow and voting rights are computed as per Appendix B. Financial and utility companies are excluded from the sample (SIC = 49, 60, 61, 62, 63, 65, 67).

### Percentage of board comprising allied directors

|  | Sample size | (1) Sales/ Assets | (2) EBITDA/ Sales | (3) Return on assets (EBITDA / Assets) | (4) Sales Growth | (5) FUNDS NEED | (6) Voting rights of dominant shareholder (DOMVOTE) | (7) Cash flow rights of dominant shareholder (DOMCF) | (8) Market value to book value of assets (M/B) |
|---|---|---|---|---|---|---|---|---|---|
| Percent of allied directors for top quartile of firms by column heading | 200 | 48.5 | 45.0 | 44.7 | 45.8 | 48.7 | 52.8 | 50.5 | 45.1 |
| Percent allied directors for bottom quartile of firms by column heading | 200 | 48.8 | 52.0 | 49.8 | 49.6 | 47.4 | 43.7 | 44.6 | 51.4 |
| *Difference between top and bottom quartiles in % allied directors* | | -0.3 (0.444) | -7.0 (0.000) | -5.1 (0.009) | -3.8 (0.040) | 1.3 (0.269) | 9.1 (0.000) | 5.9 (0.004) | -6.3 (0.001) |

**Table IV**
**Determinants of the percentage of the board comprising allied directors**

This table reports the coefficients of linear regression models estimated by OLS. The dependent variable is the percentage of the board composed of allied directors. A dominant shareholder is an individual, family, privately-held firm, or government who controls the most voting rights in a listed company. A director is considered allied if that director either (1) is the dominant owner, (2) is an employee of the firm, (3) serves on the board in any other company or its subsidiary in a control chain, (4) has the same family name as the dominant shareholder, (5) has the same nationality as the dominant owner provided they are both foreigners, or (6) is a member of government provided the dominant shareholder is a government. PROTECT is an index measuring the quality of investor protection that is the product of the anti-director rights index from La Porta et al. (1998) and the Law and Order index from icrgonline.com as of 2003. Sales growth is the average growth rate in sales for 2002-2003. FUNDSNEED is the growth of assets minus the sustainable growth rate (equal to ROE/(1-ROE), where ROE is the earnings after taxes divided by the book value of equity). DOMVOTE and DOMCF are the voting and cash flow rights of the dominant shareholder. These are computed as per Appendix B. EBITDA/Sales, ROA, sales growth, and FUNDSNEED are trimmed of outliers at $1^{st}$ and $99^{th}$ percentile. Financial and utility companies are excluded from the sample (SIC = 49, 60, 61, 62, 63, 65, 67). The coefficients of country and industry dummy variables are included in both models, but for brevity are omitted in the table. P-values are in brackets.

| Independent Variables | Dependent variable: Percentage of board comprising allied directors | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | *(1)* | *(2)* | *(3)* | *(4)* | *(5)* | *(6)* | *(7)* | *(8)* |
| Intercept | 60.83 (0.00) | 61.05 (0.00) | 60.88 (0.00) | 63.26 (0.00) | 60.18 (0.00) | 57.30 (0.00) | 56.69 (0.00) | 56.24 (0.00) |
| PROTECT | -0.55 (0.01) | -0.58 (0.01) | -0.55 (0.01) | -0.63 (0.01) | -0.52 (0.01) | -0.66 (0.00) | -0.59 (0.00) | -0.61 (0.00) |
| EBITDA/Sales | -15.6 (0.00) | -19.7 (0.02) | -15.7 (0.00) | -15.6 (0.00) | -15.7 (0.00) | | | |
| Sales/Assets | | | | | | -3.96 (0.00) | | |
| EBITDA/Assets | | | | | | | -14.1 (0.09) | |
| Growth of sales | | | | | | | | -0.06 (0.04) |
| FUNDSNEED | 0.046 (0.01) | 0.046 (0.01) | 0.069 (0.04) | 0.045 (0.01) | 0.046 (0.01) | 0.049 (0.00) | 0.044 (0.02) | 0.053 (0.00) |
| DOMVOTE | 0.212 (0.00) | 0.212 (0.00) | 0.215 (0.00) | 0.163 (0.04) | 0.212 (0.00) | 0.221 (0.00) | 0.221 (0.00) | 0.222 (0.00) |
| DOMCF | -0.08 (0.12) | -0.08 (0.12) | -0.09 (0.11) | -0.08 (0.12) | -0.07 (0.38) | -0.08 (0.14) | -0.09 (0.11) | -0.09 (0.09) |
| PROTECT*EBITDA/Sales | | 0.188 (0.56) | | | | | | |
| PROTECT*FUNDSNEED | | | -0.00 (0.41) | | | | | |
| PROTECT*DOMVOTE | | | | 0.002 (0.41) | | | | |
| PROTECT*DOMCF | | | | | -0.00 (0.76) | | | |
| Ln (Board size) | -8.86 (0.00) | -8.83 (0.00) | -8.86 (0.00) | -8.98 (0.00) | -8.80 (0.00) | -9.99 (0.00) | -9.18 (0.00) | -9.08 (0.00) |
| Ln ($000 Sales) | 1.099 (0.04) | 1.117 (0.04) | 1.082 (0.04) | 1.084 (0.04) | 1.104 (0.04) | 1.709 (0.00) | 1.409 (0.01) | 1.400 (0.01) |
| Intangible/Total Assets | -1.27 (0.95) | -1.05 (0.96) | -1.82 (0.92) | -0.84 (0.96) | -1.46 (0.94) | 8.945 (0.63) | 2.977 (0.87) | 1.264 (0.95) |
| Sample size | 773 | 773 | 773 | 773 | 773 | 775 | 776 | 776 |
| Adjusted $R^2$ | 0.220 | 0.220 | 0.220 | 0.220 | 0.219 | 0.222 | 0.212 | 0.209 |

**Table V**
**Valuation effects of the percentage of the board comprising allied directors**

This table reports the coefficients of a linear regression model estimated by OLS and a simultaneous equations linear model estimated by 2SLS. The dependent variable in column (1) is the average M/B, the market-to-book ratio of the firm's assets for 2002 – 2003 trimmed at the 1st and 99th percentile. The dependent variable in column (2) is the percentage of allied directors. And in column (3) the industry-adjusted M/B is M/B minus the sample single digit SIC industry median M/B. The market value of assets is calculated as (book value of assets – book value of equity + market value of equity). Instruments for industry-adjusted M/B are the lagged value of the same variable, and for the percentage of allied directors are the sample-based industry-median percentage of allied directors and industry-median log (board size). A dominant shareholder is an individual, family, privately-held firm, or government who controls the most voting rights in a listed company. PROTECT is an index measuring the quality of investor protection that is the product of the anti-director rights index from La Porta et al. (1998) and the Law and Order index from icrgonline.com as of 2003. A director is considered allied if that director either (1) is the dominant owner, (2) is an employee of the firm, (3) serves on the board in any other company or its subsidiary in a control chain, (4) has the same family name as the dominant shareholder, (5) has the same nationality as the dominant owner provided they are both foreigners, or (6) is a member of government provided the dominant shareholder is a government. EBITDA is earnings before interest, taxes, depreciation and amortization. FUNDSNEED is the average 2002-2003 growth of assets minus the sustainable growth rate (equal to ROE/(1-ROE), where ROE is the earnings after taxes divided by the book value of equity). DOMCF and DOMVOTE, the cash flow and voting rights of the dominant shareholder, are computed as per Appendix B. EBITDA/Sales and FUNDSNEED are trimmed of outliers at the 1st and 99th percentile. Financial and utility companies are excluded from the sample (SIC = 49, 60, 61, 62, 63, 65, 67). The coefficients of country and industry dummy variables, also included in both models are omitted. P-values are reported in parentheses.

| Independent Variables | OLS Dependent variable Market-to-book value of assets (M/B) | 2SLS Dependent variables Industry-adjusted M/B | Percentage of allied directors |
|---|---|---|---|
| | (1) | (2) | (3) |
| Intercept | 2.939 (0.000) | 3.499 (0.000) | 61.63 (0.000) |
| PROTECT | 0.030 (0.001) | 0.015 (0.245) | -0.55 (0.008) |
| M/B-Median M/B | | | 0.090 (0.951) |
| Percentage of allied directors | -0.01 (0.024) | -0.03 (0.007) | |
| EBITDA/Sales | | | -13.6 (0.003) |
| FUNDSNEED | | | 0.047 (0.010) |
| DOMVOTE | 0.002 (0.470) | 0.007 (0.047) | 0.212 (0.000) |
| DOMCF | -0.00 (0.742) | -0.003 (0.353) | -0.08 (0.122) |
| Ln (Board size) | -0.19 (0.047) | -0.46 (0.005) | -9.11 (0.000) |
| Ln ($000 Sales) | -0.12 (0.000) | -0.10 (0.002) | 1.079 (0.062) |
| Intangible/Total Assets | 0.653 (0.427) | 0.635 (0.520) | -2.26 (0.903) |
| Sample size | 781 | 758 | 758 |
| Adjusted R$^2$ | 0.169 | 0.105 | 0.213 |

## Appendix A

## Two-stage model of board composition, shareholder protection, and benefits of control

In Section I, our simple model assumes away the possibility that an entrepreneur can commit to refrain from diverting private benefits, before issuing shares. We argue that it is either impossible or prohibitively expensive to commit to non-diversion at the IPO. In actual fact, what limits the level of entrepreneurial commitment is the cost associated with that very commitment (Jensen and Meckling, 1976, Doidge et al., 2004). To explore this possibility, we extend our simple model to two stages comprising an IPO and SEO. At the IPO stage, the entrepreneur can commit to a higher level of investor protection through corporate charter provisions that will increase the costs associated with appointing allied directors at the SEO stage. We show certain of the predictions of our simple model (in Section I) become indeterminate if, at the IPO, the entrepreneur can commit, at a cost, not to divert future resources for private consumption.

To begin, let $q > 0$ represent corporate charter provisions that increase the cost of securing the allegiance of directors. A higher $q$ corresponds to charter provisions that are more protective of minority investors' rights. The personal cost borne by the entrepreneur of adopting protective provisions is $mq^2$, where $m$ is a constant. As before we assume that securing the allegiance of directors is costly. The cost of securing the allegiance of a fraction of the board $\delta$, in the second stage at the SEO, is $D(\delta) = s(L + q)(1 - \gamma)F\delta^2$, where $s$ is a constant, $0 < s < 1.0$, and $0 < L + q$ is the aggregate measure of the level of investor protection deriving from the legal environment and the self-imposed charter provisions.

Given this modified set-up, the dominant shareholder chooses a board of directors at the SEO so as to maximize his/her end-of-period wealth. The dominant shareholder's end-of-period wealth is

$$W_2(\delta) = \alpha[\pi(I - c\delta I) - I + F] + c\delta I - s(L + q)(1 - \gamma)\delta^2 F \qquad (A1)$$

Let the fraction of external financing be e = (I-F)/I. With this substitution, the dominant shareholder's optimal fraction of allied directors is

$$\delta^* = \frac{c(1 - \pi\alpha)}{2(1 - \gamma)s(L + q)(1 - e)} \qquad (A2)$$

We now consider the wealth function that the entrepreneur maximizes in the first stage, at the IPO, by choosing charter provisions that increase the cost of securing the allegiance of directors

$$W_1(q) = \pi(I - c\delta^* I) - I + F + c\delta^* I - s(L + q)(1 - \gamma)(\delta^*)^2 F - mq^2, \qquad (A3)$$

Or equivalently

$$W_1(q) = c\frac{a}{L + q}I(1 - \pi) - \frac{b}{L + q} - mq^2, \qquad (A4)$$

Where

$$a = \frac{c(1 - \pi\alpha)}{2(1 - \gamma)s(1 - e)},$$

$$b = s(1 - \gamma)F\left(\frac{c(1 - \pi\alpha)}{2(1 - \gamma)s(1 - e)}\right)^2. \qquad (A5)$$

Since (A4) is strictly concave, the second order condition for a global maximum is fulfilled and the first order condition is

$$\frac{ca(\pi - 1) + b}{(L + q)^2} - 2mq = 0 \qquad (A6)$$

If we let

w = ca(π-1) + b

Then,

$$L + q = \sqrt{\frac{w}{2mq}} \qquad (A7)$$

The equation in (A7) shows that L is strictly decreasing in q and so the level of pre-commitment by the dominant shareholder to refrain from diverting private benefits of control increases as L decreases. As L declines and q increases, the right-hand side of (A7) decreases and so L + q decreases. Thus, due to its costly nature, when L decreases the entrepreneur's commitment is insufficient to recoup the loss in the overall quality of legal investor protection. Expanding equation (A7) further reveals that the entrepreneur has a higher incentive to commit (higher q) when he/she has lower cash flow rights α, higher voting rights γ, and higher need for external funds e. The profitability of investment opportunities, π, has an uncertain effect on the level of commitment. Thus, our two-stage model predicts that a lower level of investor protection would result in a higher fraction of allied directors. The effect of the company-specific variables, however, cannot be determined as it will vary with the parameters of the cost functions of the entrepreneur for pre-commitment and board allegiance.

# Appendix B
## Data sources on the percentage of equity voting and cash flow rights

This table reports the sources in the order they have been used to collate ownership information. For each of the initial 1,455 sample firms we extract the identity and percentage voting rights of each shareholder who holds >10% of the outstanding voting rights. If such data are available in the first source listed, we use that source. If not, we move along until we gather data on each sample firm. If data are unavailable for year-end 2003, we move to year-end 2002. If firms had two or more large shareholders, we examine block affiliation to determine whether combined ownership of voting rights exceeds the single largest stockholder. If so, these ownership stakes were combined to comprise the single largest shareholder. Using this procedure and traversing the ownership tree we determined the presence of an ultimate dominant shareholder in 1,055 firms. The fraction of cash flow rights held by the ultimate owner is determined by taking the fraction of cash flow rights held by the dominant shareholder in the sample firm and multiplying this fraction by the fraction owned in each firm in the ownership tree.

| | *Equity ownership data sources* |
|---|---|
| *Australia* | Company WEB sites; Worldscope; Bloomberg; Major Companies of the Far East and Australasia, http://www.ibisworld.com.au. |
| *Belgium* | www.euronext.com; Major Companies of Europe; Mergent International Manuals; Bloomberg. |
| *Brazil* | Edgar international; Reuters; Bloomberg; Bovespa; Company WEB sites. |
| *Canada* | FP Survey of Industrials; www.sedar.com; Mergent International Manuals. |
| *Denmark* | Edgar International; Reuters; Bloomberg; Copenhagen Stock Exchange; Major Companies of Europe. |
| *Finland* | www.huginonline.com; Major Companies of Europe; Mergent International Manuals; Company WEB sites. |
| *France* | www.euronext.com; Major Companies of Europe; Company WEB sites; French Company Handbook. |
| *Germany* | Major Companies of Europe; Bundesaufsichtsamt für den Wertpapierhandel and Germany's Top 500; Company WEB sites; Bloomberg. |
| *Greece* | www.capitallink.com; Major Companies of Europe; Mergent International Manuals; Company WEB sites. |
| *Hong Kong* | Edgar International; Reuters; Bloomberg; Company WEB sites. |
| *India* | Edgar International; Reuters; Bloomberg; National Stock Exchange of India; Stock Exchange Board of India |
| *Italy* | www.consob.it; Bloomberg; Major Companies of Europe. |
| *Japan* | Japan Company Handbook; Company WEB sites; Bloomberg. |
| *Korea* | Stock Market Division of the KRX; Reuters; Bloomberg; Company WEB sites. |
| *Malaysia* | Bursa Malaysia; Kuala Lumpar Stock Exchange; Reuters; Bloomberg; Edgar International; Company WEB sites. |
| *Mexico* | Bolsa Mexicana de Valores; Reuters; Bloomberg; Edgar International; Company WEB sites. |
| *Netherlands* | Reuters; Bloomberg; Edgar International; Major Companies of Europe, Company WEB sites |
| *Spain* | www.cnmv.es; Major Companies of Europe, Mergent International, Company WEB sites; Bloomberg. |
| *S. Africa* | Edgar International; Reuters; Bloomberg; Johannesburg Stock Exchange. |
| *Sweden* | Reuters; Bloomberg; Edgar International; Company WEB sites. |
| *UK* | www.hemscott.co.uk; Bloomberg; Worldscope; Mergent International; http://www.itruffle.com. |
| *USA* | SEC filings. |

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