

Investor protection and corporate valuation¹

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Abstract

We present a model of the effects of legal protection of minority shareholders and of cash flow ownership by a controlling shareholder on the valuation of firms. We then test this model using a sample of 539 large firms from 27 wealthy economies. Consistent with the model, we find evidence of higher valuation of firms in countries with better protection of minority shareholders and in firms with higher cash flow ownership by the controlling shareholder.

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1. Introduction.

Recent research suggests that the extent of legal protection of investors in a country is an important determinant of the development of its financial markets. Where laws are protective of outside investors and well enforced, investors are willing to finance firms, and financial markets are both broader and more valuable. In contrast, where laws are unprotective of investors, the development of financial markets is stunted. Moreover, systematic differences among countries in the structure of laws and their enforcement, such as the historical origin of their laws, account for the differences in financial development (La Porta et al. or LLSV 1997, 1998).

How does better protection of outside investors (both shareholders and creditors) promote financial market development? When their rights are better protected by the law, outside investors are willing to pay more for financial assets such as equity and debt. They pay more because they recognize that, with better legal protection, more of the firm's profits would come back to them as interest or dividends as opposed to being expropriated by the entrepreneur who controls the firm. By limiting expropriation, the law raises the price that securities fetch in the marketplace. In turn, this enables more entrepreneurs to finance their investments externally, leading to the expansion of financial markets.

Although the ultimate benefit of legal investor protection for financial development has now been well documented, the effect of protection on valuation has received less attention. In this paper, we present a theoretical and empirical analysis of this effect.

In this context, it is important to recognize the differences in the structure of ownership and control among firms both within and across countries, since these differences influence the power as well as the incentives of the controlling shareholders to expropriate minority

shareholders. In most countries, large publicly traded firms are generally not widely held, but rather have controlling shareholders (La Porta, Lopez-de-Silanes and Shleifer or LLS, 1999), who are entrenched at the helm and have the ability to designate and monitor corporate managers. These shareholders have the power to expropriate minority shareholders, as well as creditors, within the constraints imposed by the law. The central agency problem in such firms is not the failure of the Berle and Means (1932) professional managers to serve minority shareholders, but rather the -- often legal -- expropriation of such minorities, as well as of the creditors, by controlling shareholders (Shleifer and Vishny 1997).

The power of the controlling shareholders to expropriate outside investors is moderated by their financial incentives not to do so. An important source of such incentives is equity or cash flow ownership by the controlling shareholder. In general, expropriation is costly (Burkart, Gromb, Panunzi 1998), and therefore higher cash flow ownership should lead to lower expropriation, other things equal. This is exactly the incentive effect of managerial cash flow ownership emphasized by Jensen and Meckling (1976) and modeled in this paper.

Using company data from 27 wealthy economies, we then evaluate the influence of investor protection and ownership by the controlling shareholder on corporate valuation. We use Tobin's q to measure valuation. We use the origin of a country's laws and the index of specific legal rules as indicators of shareholder protection. To assess the incentive effects of ownership, we focus on companies which have controlling shareholders, thereby hoping to keep the power to expropriate relatively constant. We consider cash flow ownership by the controlling shareholder as a measure of incentives. This empirical strategy is designed to allow us to assess the effect of investor protection on corporate valuation holding both the power and the incentives to

expropriate constant, as well as to shed light on the Jensen-Meckling effect in a new context.

Consistent with theory, better shareholder protection is empirically associated with higher valuation of corporate assets. This finding provides support for the quantitative importance of the expropriation of minority shareholders in many countries, as well as for the role of the law in limiting such expropriation. We also find evidence that higher incentives from cash flow ownership are associated with higher valuations.

This research continues a number of strands in corporate finance. First, this paper relates to the “law and finance” literature, summarized recently in LLSV (2000b). In addition to identifying the effects of investor protection on financial market development, this literature also shows how law influences corporate ownership structures (LLSV 1998, LLS 1999, and Claessens et al. 2000), dividend policies (LLSV 2000a), size of firms (Kumar, Rajan, and Zingales 1999), the efficiency of investment allocation (Rajan and Zingales 1998, Wurgler 2000), economic growth (Demirguc-Kunt and Maksimovic 1998, Beck, Levine, and Loayza 2000), and even the susceptibility of a country’s financial markets to a crash (Johnson et al. 2000). Our study of valuation also relates to the work that examines the voting premium in different countries, and tends to find higher voting premia in countries with inferior shareholder protection (e.g., Lease, McConnell, and Mikkelsen 1983, DeAngelo and DeAngelo 1985, Zingales 1994, Nenova 2000).

This paper also continues a large literature on the effects of corporate ownership structures on valuation. Demsetz and Lehn (1985), Morck, Shleifer and Vishny (1988), McConnell and Servaes (1990), Holderness, Kroszner and Sheehan (1999), among others, study the effect of managerial ownership on the profitability and valuation of firms in the United States. Morck, Shleifer and Vishny (1988) distinguish the negative control effects (which they

call entrenchment) from the positive incentive effects of higher ownership. These studies of U.S. data generally find that valuation is both positively affected by incentives, and negatively affected by entrenchment. More recently, Gorton and Schmid (2000) find evidence of positive effects of bank ownership on the valuation of German firms. In a study closely related to ours, Claessens et al. (1999) separate the effects of entrepreneurial control and cash flow ownership on the valuation of firms in several East Asian countries. They find that stronger entrepreneurial control adversely affects valuation, while cash flow ownership affects it positively.

Section 2 of the paper presents our model. Section 3 describes the data. Section 4 presents a preliminary analysis of the data and section 5 the more complete regression analysis. Section 6 discusses the robustness of the results and section 7 concludes.

2. A simple model.

In this section, we present a model of a firm fully controlled by a single shareholder, called the entrepreneur. A sizable theoretical literature deals with optimal ownership structures of firms depending on the levels of “private benefits of control” (Grossman and Hart 1988, Harris and Raviv 1988, Bebchuk 1999, Bennedsen and Wolfenzon 2000, Wolfenzon 1999). High private benefits of control, which typically accompany low levels of shareholder protection, lead to heavy consolidation of control in equilibrium (Grossman and Hart 1988, Zingales 1995, LLS 1999, Bebchuk 1999). Expropriating outside investors -- even legally -- may require secrecy, which mediates against shared control (LLS 1999). Alternatively, an entrepreneur who gives up control invites hostile takeover bids from raiders who themselves wish to expropriate minority shareholders (Zingales 1995, Bebchuk 1999). LLS show that, in most countries, control is

indeed heavily concentrated, usually in the hands of a founding family. Our assumption that there is one controlling shareholder is thus consistent with the available theory and evidence.

We assume that this controlling shareholder has cash flow or equity ownership α in the firm. Entrepreneurs typically control a higher fraction of votes than of cash flow rights by owning shares with superior voting rights, constructing ownership pyramids, or controlling the board (LLS 1999). We assume that α is exogenously determined by the history and the life-cycle of the firm, and do not consider the sale of equity by the entrepreneur. We also assume that the entrepreneur is the manager. In the data, controlling shareholders typically serve as managers (LLS 1999), but there are also instances of entrepreneurs or their families hiring professional managers. Such separation of control from management does not stand in the way of many forms of expropriation by the controlling shareholder of the minority shareholders. For example, the controlling shareholder can set up companies with which the firm deals on non-market terms, thereby benefitting himself personally, without actually serving as the chief executive officer.

The firm has the amount of cash I , which it invests in a project with the gross rate of return R . The firm has no costs, so the profits are RI . In this simple model, the scale of investment does not matter. Not all of the profits are distributed to shareholders on a pro rata basis. As a benefit of controlling the firm, the entrepreneur can divert a share s of the profits from the firm to himself, before he distributes the rest as dividends. This diversion or tunneling can take the form of salary, transfer pricing, subsidized personal loans, non-arms-length asset transactions, and in some cases outright theft. In most countries, much of such diversion short of theft is legal, but requires costly transactions, such as setting up intermediary companies, taking legal risks, and so on (Burkart, Gromb and Panunzi 1998, Johnson et al. 2000).

As a consequence of the costs of such legal expropriation, when the entrepreneur diverts share s of the profits, he only receives $sRI - c(k,s)RI$, where $c(k,s)$ is the share of the profits that he wastes when s is diverted. We call c the cost-of-theft function. Here k denotes the quality of shareholder protection; the better protected are the shareholders, the more has to be wasted to expropriate a given share of profits. Thus if the law accommodates something close to outright theft, then k is low and c is close to zero, but when the law is very stringent, then k is high and significant resources must be wasted to expropriate a given share of profits. Formally, we assume that $c_k > 0$, $c_s > 0$, $c_{ss} > 0$, and $c_{ks} > 0$. The first inequality means that stealing is costlier in a more protective legal regime; the second means that the marginal cost of stealing is positive; the third means that the marginal cost of stealing rises as more is stolen; and the final -- crucial -- inequality means that the marginal cost of stealing is higher when investors are better protected. We assume that the cost c is borne by the entrepreneur rather than by all the shareholders. This assumption does not affect our principal results.

Under these assumptions, the entrepreneur maximizes

$$(1) \quad \alpha (1-s)RI + sRI - c(k,s)RI,$$

where the first term is his share of after-theft cash flows (or dividends), and the remaining two terms are his benefits from expropriation. Since the solution for optimal s is independent of RI , the scale of the firm, we can assume that the entrepreneur maximizes:

$$(2) \quad U = \alpha(1-s) + s - c(k,s)$$

The first order condition for this problem is given by:

$$(3) \quad U_s = -\alpha + 1 - c_s(k,s) = 0,$$

which can be rewritten as:

$$(4) \quad c_s(k,s) = 1 - \alpha.$$

The last expression is the counterpart of the Jensen-Meckling (1976) condition for the consumption of perquisites by the entrepreneur. It states that the higher is the cash flow ownership by the entrepreneur, the greater are his incentives to distribute dividends in a non-distortionary way rather than expropriate minority shareholders in a distortionary way, and hence the lower is the equilibrium level of expropriation for a given k . High cash flow ownership reduces minority expropriation.

We can now examine this first order condition to derive several testable implications of the model. Differentiating the first order condition with respect to k , we get

$$(5) \quad c_{ks}(k,s) + c_{ss}(k,s) \frac{ds^*}{dk} = 0$$

We can rearrange terms and recall our assumptions on the function c to obtain:

$$(6) \quad \frac{ds^*}{dk} = - \frac{c_{ks}(k,s)}{c_{ss}(k,s)} < 0$$

Result 1: In countries with better shareholder protection, there is less expropriation of minority shareholders.

Next, we differentiate the first order condition with respect to α to obtain.

$$(7) \quad c_{ss}(k,s^*) \frac{ds^*}{d\alpha} = -1$$

Under our assumptions on the cost-of-theft function c , condition (7) implies:

$$(8) \quad \frac{ds^*}{d\alpha} = -\frac{1}{c_{ss}(k, s^*)} < 0$$

This gives us another important comparative static (Jensen and Meckling 1976):

Result 2: Higher cash flow ownership by the entrepreneur is associated with less expropriation of minority shareholders.

But what about the implications of this model for valuation? The most natural way to measure valuation in this model is with Tobin's q , which is given by $q = (1-s^*)R$. Tobin's q here measures the valuation of the firm from the perspective of a minority outside shareholder who does not receive any private benefits of control, rather than from the perspective of the entrepreneur who expropriates. The comparative statics results are given by:

$$(9) \quad \frac{dq}{dk} = -\frac{ds^*}{dk} R > 0,$$

$$(10) \quad \frac{dq}{d\alpha} = -\frac{ds^*}{d\alpha} R > 0,$$

$$(11) \quad \frac{dq}{dR} > 0.$$

We summarize these calculations as hypotheses to be tested in the empirical part of the paper.

Result 3: *Other things equal*

H1: Firms in more protective legal regimes should have higher Tobin's qs;

H2: Firms with higher cash flow ownership by the controlling entrepreneur should have higher Tobin's qs;

H3: Firms with better investment opportunities should have higher Tobin's qs.

The model can be used to address one further interesting question: does the marginal benefit of stronger incentives from cash flow ownership decrease as shareholder protection improves? That is, is it the case that:

$$(12) \quad \frac{d^2 q}{d\alpha dk} < 0?$$

In principle, this would be a plausible result, since, with good shareholder protection, expropriation might be so costly that cash flow ownership hardly matters. Unfortunately, in the general case this result depends on a number of difficult to sign third derivatives. Specifically, differentiation yields the following conditions:

$$(13) \quad \frac{d^2 q}{d\alpha dk} = -R \frac{d^2 s^*}{d\alpha dk}$$

Differentiating equation (8) with respect to k, we obtain:

$$(14) \quad \frac{d^2 s^*}{d\alpha dk} = \frac{c_{ssk}(k, s^*) + c_{sss}(k, s^*) \frac{ds^*}{dk}}{(c_{ss}(k, s^*))^2}.$$

In general, we cannot be sure that the numerator of the last expression is positive. However, in the special case of a quadratic cost-of-theft function, we obtain this result. Specifically, let

$$(15) \quad c(k, s^*) = \frac{1}{2}ks^2.$$

In this case, all our assumptions on the function c hold and differentiation yields:

$$(16) \quad c_{ssk}(k, s^*) = 1 > 0, \text{ and}$$

$$(17) \quad c_{sss}(k, s^*) = 0$$

In this case, expression (13) is negative, and we have another testable prediction.

Result 4:

H4: For the quadratic cost-of-theft function, the effect of the entrepreneur's cash flow ownership on valuation is lower in countries with good investor protection.

The next several sections evaluate the hypotheses H1-H4 empirically. First, however, we note that Shleifer and Wolfenzon (2000) consider a more elaborate model in which an entrepreneur raises external equity funds to finance his investment, and his cash flow ownership stake, α , as well as the scale of the firm, are determined endogenously. In their model, it is the case that α is higher in countries with better shareholder protection, but hypotheses H1-H4 still hold in a market equilibrium for reasons virtually identical to those operating in our model.

3. Data.

Construction of the sample

Our 539-firm sample includes the largest 20 firms by market capitalization in each of the 27 countries covered by LLS (1999) that also have a shareholder who controls over 10 percent of the votes of the firm.² Using the largest firms makes it harder to find the benefits of investor protection for corporate valuation, since large firms have access to substitute mechanisms for limiting their expropriation of minority shareholders, including public scrutiny, reputation-building, foreign shareholdings, or listings on international exchanges. Shares of the largest firms are also the most liquid, undermining the concern that the differences in valuation are due to differences in liquidity.³ We generally use the richest countries based on 1993 per capita income, but exclude a number of them that do not have significant stock markets (e.g., Kuwait, United Arab Emirates, and Saudi Arabia). Like LLS (1999), we exclude all affiliates of foreign firms. A firm is defined as an affiliate of a foreign company if at least 50 percent of its votes are directly or indirectly controlled by a single foreign corporate owner. Unlike LLS (1999), we here exclude banks and financial firms (S.I.Cs. 6,000 through 6,999) because valuation ratios for financial firms are not comparable to those of non-financial firms.

As a rule, our companies come from the WorldScope database. For Argentina, WorldScope coverage is limited and we use other sources to add five firms to the sample. We generally rely on annual reports, 20-F filings for companies with American Depositary Receipts

²The only exception to the rule of 20 firms per country is Israel, which has 19 firms in the CS sample. There are 21 Israeli non-financial firms with non-missing values of common equity on *WorldScope*, one of which is widely-held and another a foreign subsidiary.

³We discuss liquidity at greater length in Section 6.

(ADRs), proxy statements, and -- for several countries -- country-specific books that detail ownership structures of their companies. We use the Internet because many individual companies (e.g., in Scandinavia), as well as institutions (e.g., the Paris Bourse and *The Financial Times*) have Websites that contain information on ownership structures. Virtually all of our data are for 1996 and 1995, though we have fifteen observations where the data come from the earlier years, and a few from 1997. Because ownership patterns tend to be relatively stable, the fact that the ownership data do not all come from the same year is not a big problem.

For several countries, our standard procedures do not work because disclosure is so limited. For Greece, we take the 20 largest corporations for which we could find ownership data (mostly in *Bloomberg*). For Mexico, we take the 20 largest WorldScope firms that have ADRs. For Korea, different sources offer conflicting information on corporate ownership structures of chaebols. We were advised by Korean scholars that the best source for chaebols (5 cases) contains information as of 1984, so we use the more stale but reliable data⁴.

To describe control of companies, we identify all shareholders who control over 10 percent of the votes. In many cases, the principal shareholders are themselves corporate entities and financial institutions. We then find the major shareholders in these entities, the major shareholders in the major shareholders, and so on, until we find the ultimate controllers of the votes. We say that a corporation has a controlling shareholder (ultimate owner) if this shareholder's direct and indirect voting rights in the firm exceed 10 percent. A shareholder has x% indirect control over firm A if: (1) it controls directly firm B which, in turn, directly controls x% of the votes in firm A; or (2) it controls directly firm C which in turn controls x% of the votes

⁴Our results are robust to the exclusion of Greece, Mexico, and Korea.

of firm B (or a sequence of firms leading to firm B each of which has control over the next one, i.e., they form a control chain), which directly controls $x\%$ of the votes in firm A. Having 10 percent of the votes is likely to suffice to have effective control of a firm⁵. When multiple shareholders have over 10 percent of the votes, we pick the one with the highest minimum voting stake along the control chain.

In addition to defining control, we compute cash flow ownership of the controlling shareholder (or family), the α from the model. We measure α as the fraction of the sample firm's cash flow rights owned directly and indirectly by the controlling shareholder. The shareholder may hold the cash flow stake α directly. If alternatively a fraction x of the cash flows in the sample company is owned by another firm which the controlling shareholder controls, and if he owns the fraction y of the cash flows of this corporation, then α is equal to the product of x and y . If there are several chains of ownership between the controlling shareholder and the sample company, we add his cash flow ownership across all these chains.

Table I summarizes all the variables. We use two rough proxies for protection of minority shareholders, the theoretical k of the model. The first is a dummy equal to one if a country's company law or commercial code is of common law origin, and zero otherwise. Because we have data on fewer countries than LLSV (1998), we do not distinguish between French, German, and Scandinavian civil law origins in this paper. LLSV (1998) show that

⁵Choosing a threshold below 10% is not possible in practice as many countries don't have mandatory reporting requirements for ownership below 10%. LLS (1999) presents evidence that shareholders controlling over 20% of the votes are typically themselves the managers. Our working paper (La Porta et al. 1999) used a smaller sample of 371 firms and a 20% control cutoff. The results were similar to those presented here, but statistically weaker. The principal difference here is a large expansion of the sample, not a change in control cutoff. Using the 20% rather than the 10% cutoff for the sample in this paper yields results similar to those in section 5.

countries with the common law legal origin have better protection of minority shareholders than do countries with civil law legal origin. The reason for this finding may be that the judiciary philosophy of common law countries allows judges to broadly interpret certain principles, such as fiduciary duty, and hence authorizes them to prohibit more forms of minority expropriation (Johnson, La Porta, Lopez-de-Silanes, and Shleifer 2000). Alternatively, common law countries may protect minority investors better because corporate owners have less political influence. Recent discussions of political influence of large shareholders in shaping corporate governance include Rajan and Zingales (2000) and La Porta et al. (2000).

The second measure of investor protection is the index of anti-director rights, also from LLSV (1998). This index reflects such aspects of minority rights as the ease of voting for directors, the freedom of trading shares during a shareholders meeting, the possibility of electing directors through a cumulative voting mechanism or proportional representation of minorities on the board, the existence of a grievance mechanism for oppressed minority shareholders, such as a class action lawsuit or appraisal rights for major corporate decisions, the existence of a preemptive right to new security issues by the firm, and the percentage of votes needed to call an extraordinary shareholder meeting. LLSV (1997) find that the anti-director rights score predicts stock market development across countries.

Our measure of valuation is Tobin's q computed for the most recent fiscal year available, typically 1995. The denominator of q is the book value of assets. The numerator is the book value of assets minus the book value of common equity and deferred taxes plus the market value of common equity. To compute market value of equity for firms with multiple classes of common, Worldscope multiplies the total number of outstanding shares other than preferred

stock by the price per share of the most widely traded class of common stock. Since shares with lower voting rights tend to have larger floats than those with higher voting rights (LLS 1999), this procedure typically prices equity using prices of lower-voting shares. This is exactly what we want conceptually since the model's predictions concern the value of equity to the outside minority shareholders, i.e. without the voting premium that reflects the power to divert⁶. As a check, we have rerun all of our regressions excluding 83 firms with multiple classes of shares. The results were very similar. To reduce the weight of outliers, we censor Tobin's q at the 5th and 95th percentiles by setting extreme values to the 5th and 95th percentile values, respectively⁷.

For each firm, we also compute its annual sales growth rate over the most recent three fiscal years. This is our rough proxy for the value of growth opportunities. We cap growth in sales at both the 5th and 95th percentiles to avoid problems with outliers. We use sales rather than earnings growth to avoid dealing with the volatility and manipulability of earnings. In section 6, we discuss other measures of investment opportunities.

We also compute industry adjusted Tobin's q. For each company in a given industry, we make this adjustment relative to the world-wide rather than country-wide average for that industry (*i.e.*, take out world-wide industry effects rather than country-industry effects). Consider

⁶In practice, the importance of voting premia in computing market values is minor in our sample since roughly half of the firms with multiple classes of shares are from Scandinavian countries, where voting premia tend to be very low (Nenova 2000).

⁷In our working paper (LLSV 1999), we also present results for the cash-flow-to-price ratios as measures of valuation. We have computed these results for the present sample as well. The cash-flow-to-price results provide equally strong support for the positive effect of investor protection on valuation, but weaker result on the benefits of cash flow ownership. The interpretation of cash-flow-to-price is plagued by the questions of whether cash flow is reported before or after expropriation as well as whether the risk premium is constant across countries. Because of these problems, we do not present these results.

the computation of the industry-adjusted growth in sales. We first find the world-wide median growth in real sales for each industry using all WorldScope (non-sample) firms in the sample countries. The industry-adjusted growth in sales for a company is the difference between its own sales growth and the world median sales growth in its industry.⁸ The idea is that different industries might be at different stages of maturity and growth that determine their valuations.

One final issue is the differences in consolidation rules in financial statements among countries, which can in principle distort our measures of Tobin's q. Accounting procedures can result in *excessive consolidation* of both sales and balance sheet items when partially-owned subsidiaries are treated as if they are fully owned. To address this problem, we collect data on the consolidation procedures used by sample firms for their subsidiaries with asset values of at least US \$10 million. We also collect data on equity values of excessively consolidated subsidiaries (V_{sub}) using market values for publicly-traded subsidiaries and book values for privately-held ones. We then re-compute Tobin's q as follows:

$$(18) \quad \frac{\text{Debt}_{\text{par}} + V_{\text{par}} + (1 - \beta) V_{\text{sub}}}{\text{Assets}_{\text{par}}}$$

where Debt_{par} is the consolidated book value of debt of the parent company, V_{par} is the market value of equity of the parent company, β is the fraction of the equity that the parent company owns in the subsidiary, and $\text{Assets}_{\text{par}}$ is the consolidated book value of assets of the parent company. As it turns out, excessive consolidation is of limited practical importance: the

⁸ Industry is defined at the three-digit S.I.C. level whenever there are at least five WorldScope non-sample firms in the control group and at the two-digit S.I.C. level when the previous condition is not met. In 13 cases we have a 2-digit industry definition.

correlation between the adjusted and the unadjusted Tobin's q is .8279. Accordingly, we only report the results using unadjusted Tobin's q ⁹.

4. Preliminary results on investor protection and valuation.

Table II presents the relationship between legal origin (common vs. civil law) and valuation across 27 countries. For each country, we present the median Tobin's q of sample firms, the antidirector rights score, and the median sales growth rate of firms from that country. We also compute the median of medians of each variable among civil law and common law countries separately. Table II confirms that common law countries have sharply higher antidirector rights scores than civil law countries do. The median anti-director rights score is 2 for civil law countries, and 4 for common law countries.

The principal result of Table II is that companies with controlling shareholders countries have higher valuations in common law than in civil law countries. The median of medians (MOM) Tobin's q is 1.37 for common law, and 1.20 for civil law countries ($t = -2.16$). However, the growth rate in sales is also higher (though not statistically significantly) in common law countries, suggesting that the investment opportunities their companies face may be better.

The result that better investor protection is associated with higher valuation also obtains if we divide countries according to whether their anti-director rights score is above or below the median, although the difference of MOM's is no longer statistically significant. The results from sorting by legal origin also hold for the sample of all WorldScope firms, as reported in our

⁹In our working paper (LLSV 1999), we have verified that the results are unaffected by this adjustment in the computation of Tobin's q .

working paper (LLSV 1999). This preliminary evidence is consistent with the main prediction of our model. At the same time, the model generates additional predictions, which may also mean that a simple comparison of medians omits important confounding effects. In the next section, we turn to the regression analysis to reexamine all the predictions.

5. Regression analysis.

Table III presents the relationship between valuation, investor protection, and ownership. We estimate all regressions using country random effects since the Breusch-Pagan (1980) Lagrange multiplier test strongly rejects the null hypothesis that errors are independent within countries. This specification uses both within and between country variation in cash flow ownership to estimate its effects on valuation, but does not treat firms in a given country as independent observations. Instead, standard errors are adjusted to reflect the cross-correlation between observations due to common country components. In all regressions, we control for the past growth rate in sales as a measure of investment opportunities for each firm.

We report 4 regressions. In the first two we use the common law dummy as the measure of shareholder protection, and in the second two the antidirector rights score. For each measure of shareholder protection, we present two specifications. First, we use shareholder protection as the only independent variable, besides the sales growth rate. From the point of view of the model, this corresponds to regressing Tobin's q on k and R . Second, we also include in the regression the cash flow rights of the controlling shareholder as well as an interaction term between that measure and the investor protection variable. This corresponds to testing the full model, since we are regressing Tobin's q on k , R , α , and $k \bullet \alpha$. Recall that Hypotheses 2 and 4

predict that incentives from cash flow ownership should exert a positive influence on valuation, and that this influence should be greater in countries with inferior protection of shareholders.

In Table III, growth in sales has a positive coefficient in all specifications. When the common law dummy is included alone, it is significant at the 10% level. But when it is included along with the cash flow rights and the interaction term, its coefficient is significant at the 5% level, and implies that Tobin's q rises by an impressive .28 as one moves from civil to common law origin, other things equal. The coefficient on the cash flow rights is .26 and significant at the 10% level, although the coefficient on the interaction term is not. These parameter estimates imply that, as cash flow ownership rises from 20% to 30%, Tobin's q rises by 0.026 in civil law countries, and .016 in common law countries.

When included alone, the antidirector rights score is insignificant. But when cash flow rights and the interaction term are added to the regression, the coefficient on antidirector rights becomes significant at the 5% level and suggests that an improvement in the score by 2 points (from the civil law to the common law median) raises Tobin's q by about .2. The coefficient on the cash flow rights variable is .52 and significant at the 5% level. The coefficient on the interaction term is insignificant, although its sign is consistent with the prediction of the theory. These results imply that as cash flow ownership rises from, say 20% to 30%, Tobin's q increases by about .05 when the anti-director score is 2, and .03 when the anti-director score is 4. The incentive effect is small even in civil law countries¹⁰.

¹⁰We have also re-estimated these regressions using Tobin's q from the previous year and from the next year as alternative dependent variables, omitting utilities (because they are regulated companies), and omitting firms with large government ownership. We also tried removing all firms with Tobin's q below the 5th percentile and above the 95th percentile. The results are robust to these changes in specification.

Table IV presents the results with industry adjusted data. The result that investor protection is associated with higher valuation is about as significant as it is in Table III. The result that incentives are associated with higher valuation when investor protection is poor also hold, as do the results that the benefits of cash flow ownership for valuation are higher in low investor protection countries. The results are thus similar to those without the industry adjustment in supporting the hypotheses presented in Section 2.

These results are consistent with the predictions of the theory concerning the effects of investor protection and entrepreneurial cash flow ownership on firm valuation¹¹. They provide indirect evidence of expropriation of minority shareholders by controlling shareholders. Although our data do not provide direct evidence of expropriation works, papers by Johnson et al. (2000) using case studies, and by Bertrand et al. (2000) using flow of funds inside pyramidal groups, show that non-arms-length transactions among firms are an important tunneling channel.

6. Robustness.

In this section, we address five issues of robustness. Can differences in market liquidity among countries account for our results? Do we have good measures of investment opportunities? Are our results driven by the selection of the most valuable firms in each country? Are the results somehow driven by more complex ownership structures, such as interactions between multiple large shareholders? What can be done about the endogeneity of ownership?

¹¹In an effort to tell a more precise story, we have included both the anti-director rights score and the legal origin in the regression (both become insignificant), added a proxy for the quality of law enforcement in the regression (insignificant), and added a measure of the difference between control and cash flow rights of the controlling shareholder (insignificant).

With respect to liquidity, it might be argued that the lower valuation in poor investor protection countries is just due to a higher rate of return required to compensate for lower liquidity of their markets (Pagano 1989). This might explain lower ratios of cash flow to price in such countries, but does not suffice to explain lower q 's. Regardless of the required rate of return, we expect firms in a non-agency-cost world to invest until marginal Tobin's q is equal to 1. We are measuring average rather than marginal q , but there is no reason to expect the difference between marginal and average q to be higher in common law than in civil law countries. The differences in required rates of return thus cannot account for our results, but the private component of cash flows can¹².

Past sales growth may be a poor measure of investment opportunities, which might conceivably bias our results. We have tried three alternative measures of investment opportunities: the ratio of capital expenditure to sales (Berger and Ofek 1995), past growth in assets and the more precise but less econometrically appropriate actual future sales growth. The conclusions we draw are robust to these changes in specification.

Another possible bias in our analysis may come from the fact that firms in common law countries are larger (Kumar, Rajan, and Zingales 1999), and larger firms might have higher valuations, perhaps because they have better investment opportunities. We use two strategies to address this concern. First, we have redone our analysis controlling for the logarithm of sales.

¹²Some sample firms have ADRs traded in the U.S., which generally require better disclosure of corporate information. We have investigated the effect of having an ADR on valuation, and found a small positive effect for firms in common law countries and no effect for firms in civil law countries. This result is also inconsistent with the view that liquidity drives our results, since on that theory the benefit of an ADR for valuation should be higher in less liquid markets (in civil law countries).

When we do that, the anti-directors rights dummy is significant when combined with cash flow rights, but the common law dummy is insignificant. Size is always highly significant. The interpretation of the positive effect of firm size on q in these regressions is not transparent, however, because in the U.S. there is no relationship in a cross-section between Tobin's q and size. Size is probably picking up cross-country variation in the *WorldScope* sample related to the fact that firms are large in countries with good investor protection. Second, we re-estimate our results using a broader sample, which includes a large number of smaller firms. This sample adds to our basic sample widely held firms that we come across in the process of constructing the 539-firm sample, as well as the sample of medium size firms (those with capitalization around \$500 million) from LLS (1999). The results are robust to this expansion of the sample.

As another sensitivity check, we have focused on firms with only one shareholder with above a 10 percent stake. The idea is to make sure that our results are driven by the effects described in the model rather than by the interactions between multiple large shareholders. The results also hold in this sample of 422 firms where there is only one large shareholder.

Interestingly, the incentive effect is larger in the sample of firms with a single large shareholder.

In the empirical analysis in section 5, we have assumed that α is exogenous. Our defense of this assumption is that, generally speaking, ownership patterns are extremely stable, especially outside the United States, and are shaped largely by histories of the companies and their founding families. Still, we next consider some ways to get around this assumption, and some empirical implications of endogenous ownership. We also discuss the incentives results more broadly.

According to Shleifer and Wolfenzon (2000) and other studies, cash flow ownership may vary systematically across countries, depending on their legal systems. The incentive effect we

are picking up may then be a cross-country and not just a cross-firm effect. Our interpretation of the ownership coefficient may then be problematic due to this endogeneity. Lacking instruments, we can address this problem by focusing solely on within-country variation of cash flow ownership (fixed effects estimation), which is arguably more exogenous to the legal regime. In Table V we use as our cash flow rights variable for each firm the measure relative to the country mean. This adjustment reduces the magnitude and significance of the investor protection results for both the raw and the industry-adjusted Tobin's q to the 10-15% significance level. The incentive effects also show up at about 10% significance level, indicating that our earlier findings are not driven solely by differences among countries.

A possible reason for the weakness (despite statistical significance) of our incentive results comes from assuming that the degree of control by the controlling shareholder is constant (effectively nearly absolute) as long as he has over 10% of the votes. If the degree of control rises as the voting rights increase, and if moreover cash flow rights are correlated with voting rights, then our incentive measure may be capturing greater control by the dominant shareholder rather than greater incentives. And if greater control is associated with greater expropriation, then greater control rights would offset the beneficial incentive effect. We might be finding a stronger incentive effect if we could disentangle incentives from power. The same problems that plague U.S. data in separating incentives from control may also plague the international data.

Table VI presents country means of control rights, cash flow rights, and their difference, which we call the wedge. A wedge close to 0 points to small deviations from one-share-one-vote (through pyramids or multiple classes of stock). The clear message of Table VI is that in this sample the deviations from one share one vote are small. Although in some countries the mean

wedge exceeds 15 percent, the world-wide mean of means is about 10 percent. This mean is 11 percent for civil law countries, and a statistically insignificantly lower 8 percent for common law countries. This evidence points to the problem of separating econometrically cash flow ownership from control.

7. Conclusion.

In this paper, we presented a simple theory of the consequences of corporate ownership for corporate valuation in different legal regimes. We have also tested this theory using data on companies from 27 wealthy countries around the world. The results generally confirm the crucial predictions of the theory, namely that poor shareholder protection is penalized with lower valuations, and that higher cash flow ownership by the controlling shareholder improves valuation, especially in countries with poor investor protection. The result on incentives is also consistent with the findings of Claessens et al. (1999) on a larger sample of companies from Asia. This evidence indirectly supports the importance of expropriation of minority shareholders by controlling shareholders in many countries, and for the role of the law in limiting such expropriation. As such, it adds an important link to the explanation of the consequences of investor protection for financial market development. The evidence expands our understanding of the role of investor protection in shaping corporate finance, by clarifying the roles which both the incentives and the law play in delivering value to outside shareholders.

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Table I: The Variables

This table describes the variables collected for the twenty seven countries included in our study. We present the description and the sources from which each variable is collected.

Variable	Description
Common Law	Equals one if the origin of the Company Law or Commercial Code of the country is the English Common Law and zero otherwise. <i>Source: La Porta et al. (1998).</i>
Civil Law	Equals one if the Company Law or Commercial Code of the country originates in Roman Law and 0 otherwise. <i>Source: La Porta et al. (1998).</i>
Antidirector Rights	This index of antidirector rights is formed by adding one when: (1) the country allows shareholders to mail their proxy vote; (2) shareholders are not required to deposit their shares prior to the General Shareholders' Meeting; (3) cumulative voting or proportional representation of minorities on the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an Extraordinary Shareholders' Meeting is less than or equal to ten percent (the sample median); (6) or when shareholders have preemptive rights that can only be waived by a shareholders meeting. The range for the index is from zero to six. <i>Source: La Porta et al. (1998).</i>
Tobin's q	The ratio of the market value of assets to their replacement value at the end of the most recent fiscal year. The market value of assets is proxied by the book value of assets minus the book value of equity minus deferred taxes plus the market value of common stock. The replacement value of assets is proxied by the book value of assets. <i>Source: WorldScope Database (1/97).</i>
Industry-adjusted Tobin's q	Industry-adjusted Tobin's q is computed as the difference between Tobin's q and the <i>world median</i> Tobin's q for the firm's industry. Industry control groups are defined at the three-digit S.I.C. level whenever there are at least five WorldScope firms (excluding sample firms) in that group and at the two-digit S.I.C. level otherwise. <i>Source: WorldScope Database (1/97).</i>
Growth in Sales (GS)	Geometric average annual percentage growth in lagged (net) sales for up to 3 years depending on data availability. Sales are expressed in (US\$) dollars. <i>Source: WorldScope Database (1/97).</i>
Industry-adjusted GS	Average annual Industry-adjusted growth in lagged (net) sales for up to three years depending on data availability. Ind-GS is computed as the difference between GS and the <i>world median</i> GS for the firm's industry. Industry control groups are defined at the three-digit S.I.C. level whenever there are at least five WorldScope firms (excluding sample firms) in that group and at the two-digit S.I.C. level otherwise. <i>Source: WorldScope Database (1/97).</i>
Control Rights	Fraction of the firm's voting rights, if any, owned by its controlling shareholder. To measure control we combine a shareholder's <i>direct</i> (<i>i.e.</i> , through shares registered in her name) and <i>indirect</i> (<i>i.e.</i> , through shares held by entities that, in turn, she controls) <u>voting</u> rights in the firm. A shareholder has an <i>x% indirect control</i> over firm A if: (1) she controls directly firm B which, in turn, directly controls x% of the votes in firm A; or (2) she controls directly firm C which in turn controls firm B (or a sequence of firms leading to firm B each of which has control over the next one, <i>i.e.</i> they form a control chain) which, in turn, directly controls x% of the votes in firm A. A group of n companies form a <i>chain of control</i> if each firm 1 through n-1 controls the consecutive firm. A firm in our sample has a controlling shareholder if the sum of her direct and indirect voting rights exceeds ten percent. When two or more shareholders meet our criteria for control, we assign control to the shareholder with the largest (direct plus indirect) voting stake.
CF Rights	Fraction of the firm's ultimate cash-flow rights, if any, owned by its controlling shareholder. CF Rights are computed as the product of all the equity stakes along the control chain (see description of Control Rights for an explanation of "control chains").
Wedge	The difference between Control Rights and Cash Flow Rights.

Table II: Data

Panel A classifies countries by legal origin and presents medians by country for both the sample of 539 firms that have a controlling shareholder. Panel B reports tests of medians for civil versus common legal origin. Variables are defined in Table I.

Country	Antidirector Rights	Tobin's q	Growth in Sales (%)
<i>Panel A: Medians</i>			
Argentina	4	1.1494	14.07
Austria	2	1.1180	8.52
Belgium	0	1.2226	8.89
Denmark	2	1.5040	10.71
Finland	3	1.1018	15.25
France	3	1.2728	8.31
Germany	1	1.1921	7.31
Greece	2	1.6734	22.05
Italy	1	1.0320	7.00
Japan	4	1.3263	0.73
Korea	2	1.0725	20.47
Mexico	1	1.6388	-4.00
Netherlands	2	1.7404	12.88
Norway	4	1.1443	14.16
Portugal	3	1.0910	20.20
Spain	4	1.1560	5.05
Sweden	3	1.2123	16.20
Switzerland	2	1.3351	11.36
Civil Law Median	2	1.2022	11.03
Australia	4	1.3724	14.71
Canada	5	1.7533	17.38
Hong Kong	5	1.1626	10.64
Ireland	4	1.2937	12.64
Israel	3	1.1669	12.88
New Zealand	4	1.3344	17.15
Singapore	4	1.5486	25.70
United Kingdom	5	1.7165	10.22
United States	5	3.0815	9.94
Common Law Median	4	1.3724	12.88
Sample Median	3	1.2728	12.64
<i>Panel B: Test of Medians (z-statistic)</i>			
Civil vs Common Law	-3.53 ^a	-2.16 ^b	-1.29

a=Significant at 1% level; b=Significant at 5% level; c=Significant at 10% level.

Table III - Random Effects Regressions for Raw Data

The table presents results of random-effect regressions for the sample of 539 firms with a controlling shareholder. The dependent variable is Tobin's q. The independent variables are: (1) Growth in Sales, the three-year geometric average annual growth rate in sales; (2) Common Law, a dummy variable that equals one if the legal origin of the Company Law or Commercial Code of the country in which the firm is incorporated is Common Law and zero otherwise; (3) Antidirector Rights, the Index of Antidirector rights of the country in which the firm is incorporated; (4) CF Rights, the fraction of the cash flow rights held by the firm's controlling shareholder; (5) the interaction between CF Rights and Common Law; and (6) the interaction between CF Rights and Antidirector Rights. Table I provides definitions for the variables. Standard errors are shown in parentheses.

	(1)	(2)	(3)	(4)
Constant	1.2986 ^a (0.0836)	1.2192 ^a (0.0900)	1.1559 ^a (0.1649)	0.9480 ^a (0.1635)
Growth in Sales	0.8275 ^a (0.1403)	0.8191 ^a (0.1408)	0.8314 ^a (0.1403)	0.8258 ^a (0.1411)
Common Law	0.2441 ^c (0.1400)	0.2848 ^b (0.1472)		
Antidirector Rights			0.0735 (0.0490)	0.1083 ^b (0.0478)
CF Rights		0.2552 ^c (0.1334)		0.5228 ^b (0.2680)
CF Rights * Common Law		-0.0946 (0.2367)		
CF Rights * Antidirector Rights				-0.1023 (0.0828)
Overall R ²	0.0735	0.0771	0.0654	0.0759

a=Significant at 1% level; b=Significant at 5% level; c=Significant at 10% level.

Table IV - Random Effects Regressions for Industry-Adjusted Data

The table presents results of random-effect regressions for the sample of 539 firms with a controlling shareholder. The dependent variable is industry-adjusted Tobin's q. The independent variables are: (1) Industry-adjusted Growth in Sales, the three-year geometric average annual growth rate in industry-adjusted sales; (2) Common Law, a dummy variable that equals one if the legal origin of the Company Law or Commercial Code of the country in which the firm is incorporated is Common Law and zero otherwise; (3) Antidirector Rights, the Index of Antidirector rights of the country in which the firm is incorporated; (4) CF Rights, the fraction of the cash flow rights held by the firm's controlling shareholder; (5) the interaction between CF Rights and Common Law; and (6) the interaction between CF Rights and Antidirector Rights. Table I provides definitions for the variables. Standard errors are shown in parentheses.

	(1)	(2)	(3)	(4)
Constant	0.0705 (0.0704)	-0.0181 (0.0758)	-0.0639 (0.1389)	-0.1906 (0.1318)
Industry-adjusted Growth in Sales	0.7505 ^a (0.1336)	0.7487 ^a (0.1337)	0.7534 ^a (0.1336)	0.7443 ^a (0.1336)
Common Law	0.1982 ^c (0.1199)	0.2613 ^b (0.1196)		
Antidirector Rights			0.0659 (0.0415)	0.0857 ^b (0.0377)
CF Rights		0.2811 ^b (0.1158)		0.4066 ^a (0.1583)
CF Rights * Common Law		-0.2571 (0.2058)		
CF Rights * Antidirector Rights				-0.0764 (0.0481)
Overall R ²	0.0659	0.0801	0.0638	0.0851

a=Significant at 1% level; b=Significant at 5% level; c=Significant at 10% level.

Table V: Random Effects and Demeaned Ownership

Random effects regressions for the cross-section of 539 firms in 27 countries that have a controlling shareholder. The dependent variables are: (1) Tobin's q in Panel A; and (2) Industry-adjusted Tobin's q in Panel B. The independent variables are: (1) Growth in Sales, the three-year geometric average annual growth rate in sales; (2) Industry-adjusted GS, the three-year geometric average annual growth rate in industry-adjusted sales; (3) Common Law, a dummy variable that equals one if the legal origin of the Company Law or Commercial Code of the country in which the firm is incorporated is Common Law and zero otherwise; (4) Antidirector Rights, the Index of Antidirector rights of the country in which the firm is incorporated; (5) CF Rights, the deviations from the country mean of the fraction of the cash flow rights held by the firm's ten percent controlling shareholder (defined in Table I); (6) the interaction between CF Rights and Common Law; and (7) the interaction between CF Rights and Antidirector Rights. Table I contains definitions for the variables. Standard errors are shown in parentheses.

<i>Independent Variables</i>								
Constant	Growth in Sales	Industry-adjusted GS	Common Law	Antidirector Rights	CF Rights	CF Rights* Common Law	CF Rights* Antidirector Rights	Overall R ²
<i>Panel A: Tobin's q</i>								
1.2986 ^a (0.0836)	0.8275 ^a (0.1403)		0.2441 ^c (0.1400)					0.0735
1.2994 ^a (0.0865)	0.8219 ^a (0.1403)		0.2442 ^c (0.1452)		0.2561 ^c (0.1345)	-0.0510 (0.2372)		0.0796
1.1559 ^a (0.1649)	0.8314 ^a (0.1403)			0.0735 (0.0490)				0.0654
1.1562 ^a (0.1698)	0.8296 ^a (0.1400)			0.0735 (0.0505)	0.4376 ^c (0.2675)		-0.0671 (0.0826)	0.0722
<i>Panel B: Industry-Adjusted Tobin's q</i>								
0.0705 (0.0704)		0.7505 ^a (0.1336)	0.1982 ^c (0.1199)					0.0659
0.0706 (0.0728)		0.7506 ^a (0.1337)	0.1981 (0.1242)		0.2715 ^b (0.1275)	-0.1401 (0.2250)		0.0727
-0.0638 (0.1389)		0.7534 ^a (0.1336)		0.0659 (0.0415)				0.0638

<i>Independent Variables</i>								
Constant	Growth in Sales	Industry-adjusted GS	Common Law	Antidirector Rights	CF Rights	CF Rights* Common Law	CF Rights* Antidirector Rights	Overall R ²
-0.0638 (0.1440)		0.7527 ^a (0.1333)		0.0659 (0.0430)	0.4177 ^c (0.2536)		-0.0649 (0.0783)	0.0710

a=Significant at 1% level; b=Significant at 5% level; c=Significant at 10% level.

Table VI: Ownership, Control, Wedge

Panel A classifies countries by legal origin and presents the average cash-flow rights, control rights, and the wedge (defined as the difference between control rights and cash flow rights). Table I defines the variables. Panel B reports tests of means for civil versus common legal origin.

Country	N	CF Rights	Control Rights	Wedge
<i>Panel A: Means</i>				
Argentina	20	0.3768	0.4808	0.1040
Austria	20	0.4680	0.5645	0.0965
Belgium	20	0.2945	0.3943	0.0998
Denmark	20	0.3039	0.4083	0.1044
Finland	20	0.3032	0.3808	0.0776
France	20	0.2326	0.3651	0.1325
Germany	20	0.2972	0.3682	0.0710
Greece	20	0.4832	0.5226	0.0394
Italy	20	0.3523	0.5146	0.1624
Japan	20	0.2457	0.2551	0.0095
Korea	20	0.1849	0.2442	0.0593
Mexico	20	0.3591	0.5210	0.1619
Netherlands	20	0.3319	0.7043	0.3724
Norway	20	0.2699	0.3390	0.0692
Portugal	20	0.4590	0.4914	0.0324
Spain	20	0.2588	0.3334	0.0746
Sweden	20	0.1220	0.3156	0.1936
Switzerland	20	0.3409	0.4646	0.1237
Civil Law Mean	20	0.3158	0.4260	0.1102
Australia	20	0.2513	0.2993	0.0479
Canada	20	0.2468	0.4141	0.1672
Hong Kong	20	0.3176	0.4203	0.1027
Ireland	20	0.2903	0.3022	0.0120
Israel	19	0.2446	0.4031	0.1585
New Zealand	20	0.2441	0.3254	0.0813
Singapore	20	0.3092	0.3775	0.0683
United Kingdom	20	0.1416	0.2455	0.1039
United States	20	0.1998	0.2059	0.0061
Common Law Mean	20	0.2495	0.3326	0.0831
Sample Mean	20	0.2937	0.3949	0.1012
<i>Panel B: Test of Means (t-stats)</i>				
Civil vs Common Law		1.9323 ^c	2.1632 ^b	0.8954

a=Significant at 1% level; b=Significant at 5% level; c=Significant at 10% level.