РАЗДЕЛ 1
НАУЧНЫЕ ИССЛЕДОВАНИЯ
И КОНЦЕПЦИИ

SECTION 1
ACADEMIC
INVESTIGATIONS
& CONCEPTS

CORPORATE GOVERNANCE, EXPECTED OPERATING PERFORMANCE, AND PRICING

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Abstract

We examine whether ownership and governance characteristics are associated with the firm's operating performance and stock price. We hypothesize that while ownership structure and governance mechanisms impact the firm's operating performance, they can also impact stakeholders' abilities to expropriate rents from other stakeholders. We use a two-step estimation approach to assess whether the benefit of a better governance system manifest itself as higher operating performance or a premium on share price. To mitigate potential problems from using conventional accounting performance measures, we use Ohlson's (1995) expected residual income (*ERI*) valuation metric which incorporates the expected operating performance of the firm. Results suggest that (1) higher share ownership of the CEO, corporate insiders, and outside directors has a strong positive association with both firm performance (measured by the *ERI* metric) and market value; (2) large ownership of outside shareholders has a negative association with the firm's operating performance; (3) presence of a controlling shareholder is negatively related to market value; (4) after controlling for ownership, there is no improvement in operating performance or share value from having greater representation of outside directors, or having a larger board; and (5) variables representing the CEO's stature – the CEO's tenure and the board chairmanship – have a negative association with operating performance or market value.

Keywords: corporate ownership and governance, stock price, firms's operating performance

1. Introduction

Many U.S. corporations are owned by a large number of dispersed shareholders who exert minimal control over the firms' management. The separation of ownership and control under diffused ownership presents managers with opportunities to squander shareholders' wealth (Berle and Means

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1932; Jensen and Meckling 1976: Shleifer and Vishny 1997). As a result, academics and practitioners emphasize incentive alignments through high managerial ownership and effective monitoring by the board of directors (Crystal 1991; Jensen 1993; Byrne 1996). According to these authors, convergence of interest and improved monitoring promote corporate performance and shareholder values.

Do ownership structure and governance mechanisms have an impact on firm performance and shareholders' wealth? If so, does the impact manifest itself as observable financial performance, implicit price premium, or both? This study seeks to answer these questions by linking accounting and market performance measures to a number of agency-related variables -- share ownership of various stakeholders (the CEO, corporate insiders, outside directors, external blockholders, and controlling stockholders), and other governance characteristics such as board composition, board size, and CEO tenure.

Although our study is not the first to examine the impact of equity ownership and governance structure on firm performance and equity values;[1] our approach differs from previous efforts in two ways. First, while previous research uses various accounting performance measures (*ROA, ROE, cash rates of return*) as indicators of firm performance,[2] we use Ohlson's (1995) residual income valuation framework to measure operating performance. This metric -- often referred to as "intrinsic value" (Lee, Myers, and Swaminathan 1999) -- is more appealing than conventional accounting measures for at least two reasons: it encompasses not only the current, but also the expected operating performance of the firm; and it is less susceptible to accounting and risk differences that can compromise the comparability of accounting performance measures. Second, we use a two-step approach to distinguish the wealth effects reflected in the firm's financial data, from those that are not readily observable in accounting numbers but could still be impounded in stock prices. Specifically, we first regress the firm's intrinsic value on ownership and governance variables. In the next stage, we regress the firm's market value on *both* the intrinsic value and the ownership and governance variables. The motive for using this approach is that the impact of corporate governance on wealth creation and wealth distribution may not necessarily be in the same direction. Consider, for example, the role of a large shareholder. Large shareholders have incentives to collect more information and monitor the management, and these activities can promote operating performance. On the other hand, large shareholders can force the management to make suboptimal decisions, for example, to reject favorable takeover offers to the detriment of other shareholders. The wealth effects of such actions are not necessarily reflected in the current and expected financial performance. In our framework, the large shareholders' positive impact on operating performance, if any, is captured in the first stage regression, whereas their adverse impact on stock prices is captured in the second stage regression that controls for operating performance.

Analyses based on a sample of 947 firms indicate that corporate performance (captured by the intrinsic value measure) and equity values are significantly associated with ownership distributions and corporate governance characteristics. Specifically, we find:

1. Inside ownership, namely ownership of the CEO, executive officers, and inside directors on the board, is strongly (and most often positively) related to operating performance and equity value, in a manner consistent with the curvilinear relationship hypothesized by Morck, Shleifer and Vishny (1988) and Stulz (1988). Furthermore, increased ownership of *outside* directors has a positive relation with the firm's operating performance and market value.[3] On the other hand, greater representation of outside directors on the board has a negative association with the firm's equity value after controlling for outside director ownership. That is, the claim that greater representation of outside board members is a key ingredient of a "good" governance system is not supported by the evidence. Rather, results suggest that increasing the size of outsider directors without increasing their share ownership can have an adverse impact on the firm's market value.

[1] Related studies include Morck, Shleifer, and Vishny (1988), McConnell and Servaes (1990), Mehran (1995), Yermack (1996), and Core, Holthausen, and Larcker (1999).

[2] Examples include Demsetz and Lehn (1985), Morck et al. (1988), Holderness and Sheehan (1988), Mehran (1995), and Yermack (1996).

[3] Outside directors are directors who are neither relatives of the CEO, nor present or former employees of the company.

Similarly, while increased equity ownership of the board of directors (BOD) has a positive association, increased board size has a negative association with firm performance and firm value.

2. Blockholdings of external parties (ownership greater than five percent by those other than the CEO, executives, and directors) are negatively related with the firm's operating performance. This result contradicts a characterization where large external shareholders are active monitors (e.g., Shleifer and Vishny 1997). One possible interpretation for this evidence is that external blockholders interfere with the firm's operation and impede the firm's progress. Moreover, the incremental effect of a presence of a controlling shareholder (who owns more than 50% of the firm), regardless of whether he or she is the CEO or an outside party, is neutral for operating performance, but negative for market value. This suggests that excessive ownership concentration has an adverse distributive effect.
3. Variables representing the CEO's stature – the CEO's tenure and the board chairmanship – have a negative impact on the firm. The CEO's tenure is negatively associated with operating performance, whereas the CEO's chairmanship is negatively associated with market value after controlling for operating performance. This evidence suggests a characterization where power concentration to the CEO can undermine operating performance and expropriates wealth from shareholders.

Taken together, these results support the premise that both ownership structure and governance arrangements play a role in mitigating agency problems and promoting value maximization. Furthermore, the two-step approach reveals that the negative impact of the controlling shareholder, higher proportion of outside directors on the board, and the CEO's chairmanship is captured only in the second stage regression. This is consistent with a characterization that excessive ownership concentration, outsider-dominated board (without corresponding ownership), and the CEO's lengthy tenure can lead to potential expropriation of wealth from small shareholders.

A number of studies investigate the efficacy of ownership and firm governance structures in promoting firm performance. As noted by Core, Holthausen, and Larcker (1999), collective evidence from these studies is mixed, failing to provide a coherent picture of what constitutes an optimal governance arrangement. Nevertheless, we uncover new results while confirming the key findings and predictions of prior research. For example, we report evidence that firm values are impacted by ownership of outside directors, that of large shareholders (external blockholders and controlling shareholders), composition of the BOD, and the CEO's tenure, based on conventional market performance measures as well as an accounting measure that incorporates the market's expectation of future operating performance (the intrinsic value). We also confirm a curvilinear, and mostly positive, relation between firm value and inside ownership. Finally, we reaffirm the inverse relation between firm performance and board size reported by Yermack (1996) and Eisenberg et al. (1998).

The remainder of the paper is organized as follows: Section 2 provides an overview of the literature and motivates this study. Section 3 explains the research design and describes the data. Section 4 reports empirical results; and finally, section 5 concludes.

2. Literature review and motivation

2.1. Ownership structure and corporate performance

Since Berle and Means (1932), the accounting and finance literatures have examined the role of ownership distributions in mitigating the potential conflict of interest between managers and dispersed shareholders. Jensen and Meckling (1976) formalize the relation between firm value and managerial (inside) ownership. In particular, to the extent that corporate insiders have fractional ownership, insiders have incentives to adopt investment and financing decisions that are disproportionately more beneficial to them. Adoptions of suboptimal projects and consumption of perks reduce the value of the firm, and therefore, the firm value varies directly with the fraction of shares owned by the insiders.

Other researchers advance hypotheses that the relation between inside ownership and firm value is not monotonic. For example, Stulz (1988) formulates a takeover model in which at low levels of management ownership, the takeover premium increases as the target's inside ownership increases. This reasoning suggests that increased inside holdings enhance firm value at low levels of

ownership. But at higher levels of inside ownership, managerial entrenchment impedes takeovers, which, in turn, decreases firm value. As inside ownership approaches 50%, the probability of a hostile takeover goes to zero. Thus, the value of the firm increases, and then decreases to a minimum when inside ownership reaches 50%. The appreciation or depreciation in firm value due to potential takeover premium is what this study attempts to capture in the second stage regression, because such will not be evident in accounting-based measures of operating performance.

Morck, Shleifer, and Vishny (1988) observe that there are two opposing effects of inside ownership – incentive alignment and entrenchment. Their reasoning suggests that managers have a natural tendency to indulge their preferences for non-value maximizing activities. When managers' ownership increases, their interests are better aligned with those of other shareholders, and thus, deviations from value maximization decline. However, larger management shareholdings also increase their bargaining power, which, in turn, cause management to pursue self-interest at the expense of other shareholders. For this reason, it is impossible to predict which force dominates at various levels of inside ownership. Empirically, they find a step-wise linear relation between firm value (measured by Tobin's Q) and inside ownership: firm value first rises until inside ownership reaches 5%, falls until it reaches 25%, and finally rises thereafter. More recently, Yermack (1996) and Mehran (1995) find that firm value is higher when officers and directors have greater equity ownership, although Yermack (1996) reports ambiguous results with respect to accounting performance measures (*ROA*, return on sales).

Other researchers consider the role of large shareholders on firm value. Shleifer and Vishny (1997) suggest that the potential takeover threats from large outside blockholders serve as effective monitoring devices, and this reduces the firm's agency cost and improves operating performance. On the other hand, large shareholders have incentives to redistribute wealth to themselves, by indulging their private interests to the detriment of others. Evidence of wealth effects from large shareholders is mixed at best. While Mikkelson and Ruback (1985) and Holderness and Sheehan (1985) find positive excess returns around the announcement date when outsiders assume a large equity position, Holderness and Sheehan (1988) report no significant differences in Tobin's Q and accounting rates between the firms where a controlling shareholder (owning 50% or more) exists and those where no shareholder owns more than 20%. Subsequent studies generally find little evidence of an impact of large blockholders. For example, McConnell and Servaes (1990) examine Tobin's Q for a sample of firms for 1976 and 1986. They report a curvilinear relation between inside ownership and firm value, but find no effect of external blockholders. Mehran (1995) examines Tobin's Q and accounting profits (ROA) for 153 firms during 1979-80 and reports no impact of outside blockholders on either measure of performance.

2.2. The board of directors and other governance mechanisms

The board of directors (BOD) is central to the link between corporate governance and performance of the management. Jensen (1993) contends that, while the role of the BOD is to provide high-level counsel and oversight to the management, corporate internal control problems often originate from the BOD itself. He attributes the BOD's governance failures to factors such as CEO's agenda-setting power, low equity ownership of the board members, overcrowding of the board, and a board culture that encourages consent rather than dissent. Independence and share ownership of the board are two most often discussed attributes of the BOD.

The role of outside directors is emphasized with respect to board independence. Fama (1980), Fama and Jensen (1983), and others argue that including outside directors as professional referees enhances the viability of the board and also reduces the probability of top management colluding to expropriate shareholder wealth. There is no general consensus on the perceived benefits of outside directors, however. For example, Crystal (1991) argues that since outside directors are essentially hired by the CEO, they are unlikely to assume an adversarial position to the CEO. Mace (1986) and Patten and Baker (1987) offer similar views. Byrd and Hickman (1992) note that a clever CEO may hire more outside directors to give shareholders a false impression of having a high-quality governance system.

Empirical evidence on outside directors is also mixed. Weisbach (1988) finds that firms with outsider-dominated boards are more likely to remove the CEO than firms with insider-dominated

boards. Byrd and Hickman (1992) report that, in the case of acquisitions, bidding firms dominated by outside directors (board with more than 50% of outside directors) have higher announcement-date stock price reaction than other bidding firms. Rosenstein and Wyatt (1990) report that announcements of outside director appointments are associated with positive excess returns. On the other hand, Yermack (1996) and Mehran (1995) find no meaningful relation between the percentage of outside directors and financial performance or firm value. MacAvoy, Cantor, Dana, and Peck (1983), Hermalin and Weisbach (1991), and Bhagat and Black (1998) report similar results, showing little correlation between various measures of board composition and firm performance. In a related study, Core et al. (1999) report that the CEO is paid more if the board has more outside directors, indicating that outsider-dominated board may not be as effective a monitoring device as argued by many. Board size is often linked to BOD effectiveness. Lipton and Lorsch (1992) and Jensen (1993) argue that an "overcrowded" board is less likely to function effectively and is easier for the CEO to control. They thus recommend limiting the board size to fewer than seven or eight. This argument is consistent with the view in the organizational behavior theory that worker productivity declines in larger work groups (Steiner 1972). Empirically, Yermack (1996) finds an inverse association between board size and firm value (Tobin's Q). Eisenberg, et al. (1998) also report a negative correlation between board size and profitability for mid- and small capitalization Finnish firms.

Jensen (1993) recommends that the CEO be separated from the function of the board chairman. Organizational theorists also suggest that "the CEO duality" (CEO is also the board chair) diminishes board control and promotes CEO entrenchment (Hambrick and Finkelstein 1987). CEO duality is also related to the CEO's age and tenure, as older, more experienced executives are likely to perform both roles. The CEO's age and tenure are also closely associated with the "horizon problem" that occurs because managers' anticipated tenure is shorter than the firm's optimal investment horizon (Smith and Watts 1982). Since some long-term investment decisions involve sacrificing short-term earnings for long-term gains, managers with short anticipated tenure have incentives to underinvest in long-term projects.

In summary, the literature postulates that effectiveness of the control mechanisms (and therefore operating performance and firm value) is influenced by equity ownership distributions and other governance mechanisms in place. Empirical evidence is mixed, however, particularly with respect to the role of outside directors, outside blockholders, and large shareholders. We provide further evidence on the role of ownership distribution and board characteristics on firm performance using both accounting- and market-based measures of firm performance.

3. Research design

3.1. The "intrinsic value" measure of firm performance

A distinguishing feature of our analysis is the application of the intrinsic value measure instead of conventional profit rates. Our approach is motivated by the following drawbacks of accounting performance measures. First, accounting profit rates reflect periodic performance with no attention being paid to future performance that can be affected by current or past managerial decisions (and governance mechanisms). Thus, there is a timing issue with these measures. Put differently, periodic accounting measures (and periodic market-based measures like stock returns) fail to account for value creation or destruction effected in previous periods by the existing governance system. Second, accounting profit rates have been criticized to convey little information about the economic return (Fisher and McGowan 1983; Benston 1985).[4] Third, they are susceptible to cross-sectional differences in accounting methods, and since they are unadjusted for risk, variations in accounting profit rates can be due to variations in required rates of return (risk) than to actual performance. We suggest that the intrinsic value measure mitigates the foregoing problems.[5]

[4] A counter argument is well-documented evidence of security market's response to earnings.

[5] While the shortcomings of accounting profit rates may favor the use of market-based measures, market-based measures may also suffer from vagaries in the stock market.

With respect to implementation, we begin with Ohlson's (1995) framework that shows that firm's value (V_t^*) can be expressed as a sum of the current book value and discounted future residual income.

$$V_t^* \equiv b_t + \sum_{i=1}^{\infty} E\ [NI_{t+i} - r_e b_{t+i-1}]/[1+r_e]^i, \quad (1)$$

where *E(.)* is the expectation operator, NI_t is net income, r_e is equity cost of capital, and b_t is ending book value of equity for time t. It is easy to restate expression (1) in the form of past *ROE* and expected future *ROEs*, so that *V** provides a summary measure of the firm's past and future operating performance expressed in accounting numbers. Notice that *V** not only adjusts for risk but also remains unaffected by accounting differences (as long as the clean surplus relation is maintained). In practice, *V** is estimated because longer horizon forecasts are unobserved. Since there are numerous ways of estimating *V**, it is not obvious which method is the most appropriate. We follow the procedures used by Frankel and Lee (1998) who compute *V** from a two-period representation of the *ERI* model (1).[6]

$$V_t = b_t + \frac{E(NI_{t+1}) - r_e * b_t}{(1+r_e)} + \frac{E(NI_{t+2}) - r_e * b_{t+1}}{(1+r_e)\ r_e} \quad (2)$$

Expression (2) assumes that after two periods, the second-period residual income ($E(NI_{t+2}) - r_e*b_{t+1}$) recurs perpetually. Aside from maintaining consistency with prior literature, a practical reason for limiting the forecasting horizon to two periods is that the *First Call™* earnings forecasts we employ rarely extend beyond two years. As with Frankel and Lee (1998), we also employ an alternative, one-period representation for which expected next-period residual income ($E(NI_{t+1}) - r_e*b_t$) is assumed to be earned in perpetuity. Results are materially identical for the alternative metric, and therefore, we report the results for *V* computed as in expression (2).

A number of studies document the efficacy of *V* as a proxy for the firm's fundamental value. For example, Frankel and Lee (1988) use ex-ante data (*IBES* earnings forecasts) and Penman and Sougiannis (1998) use ex-post data to document a high correlation between *V* and stock prices. Frankel and Lee (1988) further report that the *Price-to-V* ratio is a good predictor of long-term cross-sectional equity returns. Lee, et al. (1999) similarly suggest that *V* captures the intrinsic value of the Dow stocks in the sense that stock prices tend to revert to *V*, and that *Price-to-V* ratio predicts future equity returns. Nevertheless, the fact that *V* is an estimate of *V** raises certain statistical and conceptual issues; and therefore, results using *V* need to be interpreted with caution. We address these issues in the next section. We note that the *ERI* approach is only one of many widely-used firm valuation methods, and the concept of measuring wealth creation through "residual income" is not entirely new. [7] Nevertheless, the *ERI* approach does have a distinct advantage over other popular methods (such as the free cashflow or the dividend discount model) in that the proxies for market's earnings expectations (a key input to the *ERI* valuation) are readily available from security analysts. On the other hand, expected free cashflows or expected dividends are rarely available.

3.2. Estimation Issues

Our hypothesis is that ownership and governance mechanisms impact the firm value. Furthermore, the change in firm value can manifest itself as improved corporate performance (captured by *V**), or as an implicit cost (or premium) on firm's stock prices due to wealth distribution effects. To further distinguish between these two effects, we estimate a system of two equations (suppressing the firm and time subscripts).

V-equation: $V^* = \beta X + e$ (3)
Q-equation: $Q^* = \alpha V^* + \gamma X + u$, (4)

[6] The two-period model, expression (3.2), Frankel and Lee (1998) p. 290.
[7] The concept of "residual income" dates back to the 19th Century economist Alfred Marshall and to Preinreich (1938) and Edward and Bell (1961).

where *X* is a vector of ownership and governance variables to be defined in Section 3.4, α, β and γ are coefficient vectors, *V** is the firm's intrinsic value scaled by replacement cost, *Q** is the market value scaled by replacement cost, and *e* and *u* denote error terms for which a standard assumption is that Cov(*e*,*X*)= Cov(*X*,*u*)=Cov(*V*,*u*)=0.

For the *V*-equation, the null hypothesis is that β=0 (ownership and governance variables are unrelated to operating performance). For the *Q*-equation, the null hypothesis is that γ=0 (ownership and governance variables are unrelated to the firm's market value, *after controlling for* operating performance). Furthermore, it is reasonable to expect that α=1, if *V** is an unbiased estimate of market value after controlling for valuation effects of governance.

Although equations (3) and (4) are recursive, *OLS* regressions are likely misspecified because the *V* measure given by expression (2) estimates *V** with error. The measurement errors potentially bias the *Q*-equation due to errors-in-variables (*EIV*) problem, but should not bias the *V*-equation under standard assumptions laid out above.

Problems can arise in both equations, however, if measurement errors are systematically related to the governance variables (*X*). The literature offers little guidance on the nature the errors, but it may be reasonable to expect that they are negatively correlated with expected long-term growth in earnings. This is because Frankel and Lee's (1998) algorithm assumes that expected abnormal earnings are a perpetuity after period 3; therefore, the *V* estimate likely understates *V** if expected growth in abnormal earnings is positive, and overstates *V** if expected growth is negative. We address the estimation issues in two ways. With respect to the *Q*-equation, one approach is to regress *Q**- *V* on *X*, rather than regressing *Q** on *V* and *X*. This mitigates the *EIV* problem from *V**, but still rests on assumptions that α=1, and that measurement errors are uncorrelated with the governance variables. A second approach is to estimate the equations by using the instrumental variable (*IV*) estimator. This approach mitigates not only the *EIV* problem but also potential misspecifications stemming from the endogeneity of regressors. We employ both approaches, but report results based on the *IV* approach since it provides a more comprehensive treatment of potential problems discussed above. In practice, suitable instruments are difficult to find, and as a result, we use the grouping approach suggested by Wald (1940) and Durbin (1954). In particular, we rank each regressor in the *X* vector into 10 portfolios and use the portfolio ranks (ranging from 1 to 10) as instruments.[8] To supplement the *IV* procedures, we also consider specifications with and without proxies for past and future sales and EPS growth.

3.3. Data

We use the database of Baber, Janakiraman, and Kang (1996) who collect compensation, ownership, and governance data of 1,638 firms publicly traded on the NYSE, AMEX, and NASDAQ exchanges for 1992 and 1993.[9] From the base sample, we find 2,032 firm-year observations for 1,325 firms that have *both* one-year- and two-year-ahead *EPS* forecasts complied by *First Call*. We remove 154 firm-year observations that do not meet the data restrictions for computing *V* (see below), and another 234 that lack the necessary data to allow computations of *Q**, replacement cost, and ownership and governance variables. We further remove 105 firm-year observations based on a Belsley, Kuh, and Welsch's (1980) structural test for identifying outliers.[10] The final sample consists of 1,539 firm-years for 947 companies. About 51% of the sample firms are traded in the NYSE, 45% in the NASDAQ, and 4% are in the AMEX. Financial and stock price data are from COMPUSTAT primary, secondary, tertiary, and full-coverage files and the CRSP (Center for Research in Security Prices) files. Stock holdings of the various parties and governance variables (to be described) are from proxy statements filed with the SEC. The sample reflects considerable diversity in both firm size and industry. Table 1 summarizes industry distributions delineated into 35 major industry sectors. Firm size ranges from $7.9 million to $184 billion in total assets.

[8] Using portfolio ranks of 1 to 5, 1 to 20, or 1 to 30 yields comparable results.

[9] The original database of Baber et al. contains 2,006 firms, but 368 firms lack basic financial data such as total assets, sales, etc.

[10] Observations are omitted as outliers when 'dffits' exceeds $2\sqrt{(p/n)}$, where p is the number of parameters in the model and n is the number of observations (Belsley, Kuh, and Welsch 1980).

3.4. Variable specification

3.4.1. Intrinsic value, market value, and replacement cost

To compute *V*, we use the *First Call mean* consensus forecasts for both one and two period-ahead earnings specified as in expression (2). To ensure that accounting and governance variables are known before forecasts are issued and priced, we allow a minimum of three months to elapse after the fiscal year end, but no more than six months after the fiscal-year-end. To illustrate, we use forecasts issued during the second quarter of fiscal 1993 (forecasting earnings for 1993 and 1994) to match the financial and governance variables reported for fiscal 1992. Market values of equity are computed at the end of the second quarter to ensure complete dissemination of the financial and governance information, and earnings forecasts are also those closest to this date. Future book values (b_t, b_{t+1}) are derived using the clean surplus relation based on the average payout ratio for the most recent three years. For cost of equity capital (r_e), we use a firm-specific discount rate based on individual beta estimates on the single-factor *CAPM* model. To assess the sensitivity of results to discount rates, we employ two alternative r_e estimates: industry-wide discount rates using industry beta estimates, and a uniform discount rate of 12% for all firms.[11] Beta estimates are based on prior 5 years, the risk-free rate is 10-year treasury bill yield prevailing at the end of the second quarter (provided by *Datastream™*), and equity premium is 6% (the historical *geometric* average equity premium in the U.S).

As in Frankel and Lee (1998), we remove firm-years where book value is negative, estimated *V* is negative (87 firm-years), or ROE is above 100% (5 firm-years). Also as in Frankel and Lee (1988), dividend payouts are constrained to be between zero to 100% of earnings.[12] Finally, we remove 62 firm-year observations where the terminal year EPS forecast is negative. Altogether, these filters eliminate 154 firm-year observations (approximately 7.5% of the initial sample).

As noted earlier, we scale both the intrinsic value and the market value by the replacement cost. Replacement costs of assets are estimated using the algorithm proposed by Perfect and Wiles (1994).[13] Since both *V** and *Q** address the value of equity, the replacement cost is defined as replacement cost of assets less book value of debt.

3.4.2. Ownership, governance, and control variables

We include ownership, governance, and control variables consistent with the motivation described in Section 2. A detailed description of all variables appearing in the two-equation system is provided in Exhibit 1. We employ five variables to represent the ownership structure of the firm. Inside ownership (*INSIDE*) refers to fraction of shares owned by the CEO, the CEO's immediate family, top executives, and *inside* directors, but excludes ownership of *outside* directors (see below). The inside ownership is broken into three regions using inflection points of 5% and 25%, to allow for the curvilinear relation proposed in Morck et al. (1988).

Although the role of independent outside directors is emphasized in the literature, most studies address the composition of the board rather than the ownership of outside directors. We provide a separate variable indicating outside directors' ownership (*OUTHOLD*) to evaluate whether the number of outside directors or their shareholding is more important for corporate governance. *BLOCK* represents holdings of external blockholders owning more than 5%, and 0 if no one holds more than 5%. We introduce two additional indicator variables to capture the role of the controlling shareholder that is often implicated in the literature (Holderness and Sheehan 1988; McConnell and Servaes 1990; Romano 1996). *CEOL* takes a value of one if the CEO is the controlling stockholder; similarly *EXTL* takes a value of one if an external party is the controlling stockholder. Notice that holdings of both the CEO and the external holders are already included in *INSIDE* and *BLOCK*. Thus, *CEOL* and *EXTL* indicate the *incremental* effect of ownership concentration.

[11] The 12% rate approximates the long-run average realized return to U.S. equity securities.
[12] We set negative dividend payouts (due to negative earnings) to the mean dividend payout of the sample, and set payouts in excess of 100% to 100%.
[13] The replacement cost computation involves restating inventory and property, plant, and equipment to current values.

Exibit 1. Variable definition

Variable	Definition
V	ERI valuation of equity scaled by replacement cost of equity (replacement cost of assets less book value of debt).
Q	Market value of equity scaled by replacement cost of equity.
INSIDE1	= insider ownership if the insider ownership (see note 1) is less than 0.05; = 0.05 if insider ownership ≥ 0.05
INSIDE2	= 0 if insider ownership <0.05; = insider ownership minus 0.05 if 0.05≤ insider ownership <0.25; = 0.20 if insider ownership ≥0.25.
INSIDE3	= 0 if insider ownership <0.25; = insider ownership minus 0.25 if insider ownership ≥0.25.
OUTHOLD	Outside directors' ownership (see note 1)
BLOCK	Holdings of external blockholder owning more than 5%, 0 if no one holds more than 5%.
EXTL	1 if an outsider holds more than 50% of equity, 0 otherwise.
CEOL	1 if the CEO holds more than 50% of equity, 0 otherwise.
OUTDIR	Percentage of outside directors on the BOD (number of outside directors/number of all directors)
LNBOD	Log of board size
TENURE	CEO's tenure, measured by the years served as director.
CHAIR	1 if the CEO is the chairman, 0 otherwise.
LOGSIZE	Log of total capital (beginning fiscal year market value of equity plus book value of long term debt)
SEGMENT	Number of business segments

Inside ownership represents aggregate stock holdings of the CEO, and his or her family, manager executives, and inside directors on the board, excluding the holdings of the outside directors. Outside directors are directors who are neither relatives of the CEO, nor present or former employee of the company.

Governance variables consist of two additional variables reflecting board characteristics, and another two indicating CEO characteristics. The former are the proportion of outside directors on the board (*OUTDIR*) and the log of board size (*LNBOD*). The latter are a dummy variable indicating whether the CEO is also the chairman (*CHAIR*), and the CEO's tenure (*TENURE*). *TENURE* represents the *CEO's* tenure as director, as this variable is available more often than tenure as CEO.

The control variables include *LOGSIZE* (log of beginning market value of equity and book value of long term debt) and the number of business segments (*SEGMENT*). The inclusion of firm size follows prior literature (e.g., Morck, et al. 1988; McConnell and Servaes 1990; Yermack 1996). A control for firm size is necessary not only because of statistical reasons (most of the explanatory variables are correlated with firm size), but also because of economic reasons (e.g., either *V* or *Q* can be related to firm size to the extent that firm size reflects monopoly power or information asymmetry). The firm size definition follows that of Yermack (1996), but we consider two other measures - log net sales and log total assets, and a specification without including firm size. The inclusion of *SEGMENT* (number of business segments) also follows Yermack (1996) who motivates this variable based on the evidence that diversified firms have lower market values (Lang and Stulz 1994; Berger and Ofek 1995). Finally, we include an indicator variable for fiscal year, and industry indicator variables based on the industry grouping delineated in Table 1.

We make a limited number of predictions with respect to directional relations because of the absence of consensus in prior work and because of competing explanations for some variables.[14] Judging from the theory (Jensen and Meckling 1976), past evidence showing a generally positive effect of inside (or the CEO's) ownership (Mehran 1995; Yermack 1996), and the curvilinear relation theorized or reported by Stulz (1988), Morck, et al. (1988) and McConnell and Servaes (1990), we

[14] For example, large external shareholders can be beneficial for firm performance if they offer improved monitoring, but detrimental if their interference impedes growth.

expect a positive estimate on *INSIDE1* (ownership<5%), a negative or zero estimate on *INSIDE2*, and a positive or zero estimate on *INSIDE3* (ownership>25%).[15] Also, recent evidence from Yermack (1996) and Eisenberg et al. (1998) suggests a negative estimate for *LNBOD* (the value of the firm is lower if it has a larger board) and for *SEGMENT* (the value of the firm is lower if it is more diversified).

Table 1. Industry composition

SIC Code	Industry	Sample	
		No. of firms	%
13xx	Oil & Gas	31	3.3
15xx ~ 17xx	Construction	17	1.8
20xx ~ 21xx	Food Products	32	3.4
22xx ~ 23xx	Textile Mills/Apparel & Textile Products	22	2.3
24xx ~ 25xx	Lumber/Wood/Furniture	18	1.9
26xx	Paper & Allied	13	1.4
27xx	Printing & Publishing	19	2.0
283x	Pharmaceutical/Biological	10	1.1
28xx ~ 29xx	Chemical & Allied excl. 283x	36	3.9
30xx ~ 31xx	Rubber & Misc. Plastics	12	1.3
331x ~ 332x	Iron & Steel Mills	14	1.5
333x ~ 339x	Primary Metal	8	0.9
34xx	Fabricated Metal	12	1.3
351x ~ 356x	Industrial Machinery	33	3.6
357x	Computers & Office Machines	28	3.0
358x ~ 364x	Appliances	13	1.4
365x ~ 366x	Communication/Audio/Video	8	0.9
367x ~ 369x	Electronic Components	29	3.1
37xx	Transportation Equipment	19	2.0
38xx	Instruments	50	5.4
39xx	Misc. Manufacturing	6	0.6
40xx ~ 47xx	Transportation Services	19	2.0
48xx	Communication Services	11	1.1
49xx	***Utilities***	68	7.3
50xx ~ 51xx	Wholesale Trade	35	3.8
52xx ~ 59xx	Retail Trade	90	9.7
6021	Banks, Savings & Loan	94	10.1
61xx ~ 62xx	Finance Services & Brokers	21	2.3
63xx	Insurance	59	6.4
64xx ~ 67xx	Other Financial Services	10	1.1
70xx ~ 76xx	Services excl. Computer & Software	20	2.2
737x ~ 738x	Computer Services & Prepackaged Software	34	3.7
78xx ~ 79xx	Entertainment	8	0.8
80xx ~ 87xx	Health, Medical, Education & Other Services	20	2.1
	Others	14	1.5
	Total	947	100%

Table 2 displays summary statistics for key variables. The median CEO is about 55 years old and has been director of the firm for 11 years. Lipton and Lorsch (1992) suggest that an "overcrowded" board (a board with more than seven or eight directors) is unlikely to function effectively. Median board size is nine, indicating that the board is "overcrowded" for greater than half the sample firms. Mean (median) inside ownership, which includes that of the CEO but excludes that of outside directors, is about 10.7 percent (4.0 percent). About 68% of directors are outside directors, and their mean (median) combined ownership is 3.1% (0.6%). The existence of a controlling shareholder is

[15] Most studies consistently report a positive relation between Q and inside ownership in the low ownership (less that 5%) region, but a mixed relation in other regions.

rare: the CEO is the controlling shareholder for 1.6% of the sample, and an external party is the controlling owner for 2% of the sample.

Table 2. Summary statistics. (n=1,539 firm-years)

Variable	Mean	Median	Std. dev.	Min.	Max.
V (Intrinsic value to replacement cost)	1.316	1.161	0.730	0.023	5.299
*Q (*Market value to replacement cost)	2.151	1.818	1.292	0.206	9.969
INSIDE *(Inside holding)*	0.107	0.039	0.143	0.000	0.861
INSIDE1 *(Inside holding<5%)*	0.031	0.040	0.019	0.000	0.050
INSIDE2 *(5%<Inside holding<25%)*	0.053	0.040	0.075	0.000	0.200
INSIDE3 *(25%<inside holding)*	0.022	0.000	0.071	0.000	0.611
OUTHOLD (Outside director holdings)	0.031	0.006	0.065	0.000	0.637
BLOCK (Holdings of outside blockholder)	0.144	0.114	0.142	0.000	0.950
EXTL (1 if an outsider holds more than 50% of equity)	0.020	0.000	0.138	0.000	1.000
CEOL (1 if an the CEO holds more than 50% of equity)	0.016	0.000	0.126	0.000	1.000
OUTDIR (Percentage of outside directors on the BOD)	0.685	0.714	0.159	0.000	0.950
LNBOD (Log of board size)	2.196	2.197	0.339	1.098	3.218
TENURE (CEO tenure)	13.8	11.0	9.269	1.000	48.0
CHAIR (1 if the CEO is the chairman)	0.720	1.000	0.448	0.000	1.000
LOGSIZE (Log of total capital)	6.396	6.351	1.523	2.336	11.445
SEGMENT (Number of business segments)	1.641	1.000	1.159	1.000	7.000

4. Results

4.1. Main Results

The primary findings are reported in Table 3. For both *V*- and *Q*- equations, the Hausman (1978) test rejects the null hypothesis of no misspecification at the 0.01 level of significance. We therefore focus on the *IV* estimates. Columns (1) and (2) respectively report *IV* estimates for the *V*- and the *Q*- equation. To provide information on the difference between *OLS* and IV estimates *IV*, *OLS* estimates for the *Q*- equation are shown in the third column.

It is interesting to observe that the coefficient for *V* is significantly less than one when using *OLS* (0.890: *t*=3.21), but it increases to 1.002 after applying the *IV* procedure. This *IV* coefficient is not significantly different from unity (*t*=0.21).[16]

[16] The t-statistics refer to a test of whether the coefficient is equal to one.

Table 3. Instrumental variable (IV) estimates for intrinsic value (*V*) and market value (*Q*) (*t*-statistics in parentheses)

Dependent Variable	*Sign Exp'd*	***V*** ***IV estimates (1)***	***Q*** ***IV estimates (2)***	***Q*** ***OLS estimates (3)***
Intercept		0.967 (4.09)**	0.409 (1.28)	0.699 (2.30)**
V	(+)	 --	1.002 (25.79)**	0.890 (26.03)**
INSIDE1 ***(Inside holding<5%)***	(+)	3.030 (2.04)**	10.200 (5.13)**	8.252 (4.64)**
INSIDE2 ***(5%<Inside holding<25%)***	(-)	0.670 (1.25)	-1.641 (-2.29)**	-0.230 (-0.45)
INSIDE3 ***(25%<inside holding)***	(+)	0.877 (1.35)	2.619 (2.96)**	0.596 (1.23)
OUTHOLD (Outside director holdings)	?	1.433 (2.94)**	2.623 (4.03)**	0.784 (2.09)**
BLOCK (Holdings of outside blockholder)	?	-0.577 (-3.90)**	-0.247 (-1.25)	-0.449 (-2.54)**
EXTL (1 if an outsider holds 50% or more)	?	0.003 (0.01)	-0.477 (-2.68)**	-0.437 (-2.52)**
CEOL (1 if an the CEO holds 50% or more)	?	-0.032 (-0.15)	-1.147 (-4.04)**	-0.598 (-2.68)**
OUTDIR (% of outside directors on the BOD)	?	0.072 (0.49)	-0.451 (-2.32)**	-0.320 (-1.80)*
LNBOD (Log of board size)	(-)	-0.211 (-2.79)**	-0.738 (-7.29)**	-0.679 (-7.15)**
TENURE (CEO tenure)	?	-0.010 (-4.67)**	-0.002 (-0.66)	-0.004 (-1.52)
CHAIR (1 if the CEO is the chair)	?	0.052 (1.23)	-0.180 (-3.25)**	-0.192 (-3.52)**
LOGSIZE (Log of total capital)	(+)	0.096 (5.55)**	0.370 (15.70)**	0.334 (15.51)**
SEGMENT (no. of business segments)	(-)	-0.071 (-4.00)**	-0.117 (-4.88)**	-0.130 (-5.55)**
Adjusted R^2		0.148	0.520	0.520

** Significant at the 5 percent level, two-tailed.
* Significant at the 10 percent level, two-tailed.

The total number of firm years used to estimate the system of equations is 1,539. See Exhibit 1 for variable definitions. Thirty-four industry indicator variables and a fiscal year indicator variable are included in the regression, estimates for which are not reported. The instruments for the *IV* estimation are portfolio ranks (ranging from 1 to 10) of each independent variable in the regression with the exception of the binary indicator variables (*EXTL, CEOL, CHAIR*).

Furthermore, estimates for the three inside ownership variables (*INSIDE1-INSIDE3*) are consistent with the curvilinear relation documented in the literature. In particular, the firm value rises, and then falls, and finally rises again as inside ownership rises (Morck, et al. 1988). The positive association is the strongest for ownership below 5%. The point estimate of 10.200 suggests that if inside ownership is higher by one percent of outstanding stocks, the *Q*-ratio will be higher by 0.10 in this low ownership region (0%<ownership<5%). The inside ownership coefficients for the *V* equation (column 1) are all positive, but the coefficient is significant at conventional levels only for the low ownership region (0% < ownership < 5%). We later show (in Table 4) that the average relation between inside ownership and corporate operating performance is indeed positive.

To interpret the remaining results in proper perspective, we note that CEO ownership is a major factor for the observed relation between inside ownership and firm performance (or firm value).

In particular, results are comparable but slightly weaker when *INSIDE* is defined as the ownership of the CEO or that of the inside directors (including the CEO), but results virtually disappear when *INSIDE* is defined as inside ownership *excluding* that of the CEO.

Having established a degree of consistency with prior studies, our next key observations relate to the impact of the remaining ownership and governance variables. First, estimates for outside directors' holdings (*OUTHOLD*) are positive with high significance levels for both *V*- and *Q*-equations. This finding supports the argument that convergence-of-interest from higher ownership of outside directors promotes firm performance and share values (Jensen 1993; Byrne 1996). By contrast, estimates for the proportion of outside directors (*OUTDIR*) are zero for the *V* equation, and significantly negative for the *Q*- equation (-0.451: *t*=-2.32). Taken together, these results suggest that outside directors are effective monitors only to the extent that they have a substantial equity stake in the firm. As discussed earlier, direct evidence on monitoring efficacy of an outsider-dominated board is mixed in prior work, and most studies report zero or negative effect on firm value.[17]

Next, observe that estimates for variables denoting large ownership, *BLOCK*, *EXTL*, *CEOL*, are all negative. The negative coefficient for *BLOCK* (ownership greater than five percent by those other than the CEO, executives, and directors) for the *V*-equation contradicts the notion that large external shareholders are effective monitors (e.g., Shleifer and Vishny 1997). A possible interpretation is that external blockholders interfere with the firm's operating activities unnecessarily and impede the firm's progress. The negative estimates for both *EXTL* and *CEOL* in the *Q*-equation indicate that the incremental effect of a presence of a controlling shareholder is neutral for operating performance, but negative for market value. The implication is that, regardless of whether the controlling shareholder is the CEO or an outside party, excessive ownership concentrations can have adverse distributive effects**.**

Turning to other governance variables, we find negative estimates for *TENURE* (*V*-equation) and *CHAIR* (*Q*-equation). Plausible interpretations for the negative impact of *TENURE* on *V* are that the CEO shirks more as his stature improves; or as the CEO nears retirement, he/she tends to underinvest in profitable projects**.** The CEO duality (*CHAIR*) is usually associated with a negative connotation in the popular press (see also Jensen (1993)). We find that CEO's chairmanship has a weak, positive association with *V* (0.052: *t*=1.23) but a strong, negative association with *Q* (-0.180: *t*=-3.25). The point estimate suggests that the *Q*-ratio is lower by 0.18 if the CEO is also the board chair. Taken together, the estimates for *CHAIR* and *TENURE* suggest that a strong leadership of the CEO can have an adverse impact on the distribution of corporate wealth (for example, by blocking a profitable takeover offer).

Finally, we find that, consistent with Yermack (1996) and Eisenberg et al. (1998), a larger, "overcrowded" board is associated with lower corporate performance and lower market value; and more diversified firms are associated with lower corporate performance and lower market values. Core, et al. (1999) report related evidence that a larger board is associated with larger CEO compensation. The result for board size is somewhat sensitive to alternative definitions of firm size (*LOGSIZE*), however. We discuss this in section 4.3.

4.2. Alternative specifications

Next, we consider alternative specifications to facilitate comparisons with prior studies. The first issue is whether results change if inside ownership is not broken into three steps as in several prior studies (e.g., Mehran 1995; Yermack 1996). We thus replace *INSIDE1*, *INSIDE2*, and *INSIDE3* with a single continuous variable, *INSIDE*. This treatment also permits a comparison of coefficients between inside ownership (*INSIDE)* and outside director ownership *(OUTHOLD*).

Another issue is whether results are affected by the presence of additional control variables such as R&D-to-sales ratio, leverage ratio (long term debt-to-total long term capital),[18] and proxies for growth. The reason for including R&D-to-sales is that the *Q*-equation may be subject to a built-in correlation due to the mandated expensing of R&D expenditures. Specifically, firms with high R&D

[17] For example, Core, et al. (1999) find that outsider-dominated boards hand out larger compensation to the CEO.

[18] Leverage is defined as (book value of long term debt)/ (book value of long term debt plus book value of equity).

expenditures have low replacement costs and high *Q* ratios by construction, to the extent that to R&D investments are economically productive and the returns to R&D are reflected in stock prices. The leverage ratio controls for possible omitted variables and measurement errors associated with financial leverage.[19] Berger, Ofek, and Yermack (1997) find that entrenched managers tend to use less leverage. If so, leverage can also serve as a proxy for certain attributes of governance that are not captured by the existing variables (*X*). Finally, as discussed before, measurement errors in *V** can be correlated with growth, which in turn can be correlated with the governance variables. We thus consider two measures of growth, one for the future and one for the past. The first is the expected growth rate of EPS as implied by the *First Call's* one- and two-year EPS forecasts computed as forecast EPS_{t+2}/forecast EPS_{t+1} –1. A second measure is the compounded annual growth rate of revenues during the prior three years.[20] Neither measures alter our results materially, so we report results using the expected growth rate of EPS.

Tables 4 reports the estimates. Columns (1) and (2) contain estimates from the *V*- and *Q*- equations. These specifications reveal further insights. First, the estimate for *OUTHOLD* is greater than that for *INSIDE,* suggesting that the positive effect of outside ownership is greater than that of insiders. For example, the *Q*-equation indicates that the effect of outside director holdings is about twice that of the insiders (3.06 vs. 1.41: $\alpha<0.01$).[21] Next, the R&D-to-sales ratio has a weak positive relation to *V* and *Q*. Leverage ratio is unrelated to *V*, but is negatively related to *Q*.

Table 4. Estimates for *v* and *q* equations including r&d/sales, leverage, and growth[1]
(*t*-statistics in parentheses)

Dependent Variable	*Sign Exp'd*	***V*** ***IV estimates (1)***	***Q*** ***IV estimates (2)***	***Q*** ***IV estimates (3)***
Intercept		0.969 (4.03)**	0.391 (1.22)	1.349 (3.49)**
V (Intrinsic value)	(+)	--	0.989 (25.59)**	--
INSIDE ***(Insider holding)***	(+)	1.045 (4.91)**	1.415 (4.95)**	2.447 (7.16)**
OUTHOLD (Outside director holdings)	?	1.611 (3.44)**	3.062 (4.93)**	4.656 (6.18)**
BLOCK (Holdings of outside blockholder)	?	-0.542 (-3.60)**	0.056 (0.28)	-0.480 (-1.98)**
EXTL (1 if an outsider holds 50% or more)	?	-0.009 (-0.07)	-0.482 (-2.74)**	-0.491 (-2.30)**
CEOL (1 if an the CEO holds 50% or more)	?	-0.103 (-0.63)	-0.979 (-4.52)**	-1.081 (-4.10)**
OUTDIR (% of outside directors on the BOD)	?	0.054 (0.37)	-0.375 (-1.94)*	-0.321 (-1.36)
LNBOD (Log of board size)	(-)	-0.199 (-2.60)**	-0.709 (-7.00)**	-0.906 (-7.35)**
TENURE (CEO tenure)	?	-0.010 (-4.49)**	-0.002 (-0.86)	-0.012 (-3.47)**
CHAIR (1 if the CEO is the chair)	?	0.052 (1.24)	-0.166 (-2.96)**	-0.113 (-1.67)*
SEGMENT (no. of business segments)	(-)	-0.068 (-3.75)**	-0.097 (-4.06)**	-0.165 (-5.69)**
R&D/Sales (R&D expenditure/Sales)	(+)	0.784 (0.79)	0.077 (0.05)	0.853 (0.53)

[19]The measurement error can arise because book value of debt is used as a proxy for unobservable market value of debt when computing the replacement cost of equity.
[20] Both growth rates are winsorized at the first and the 99th percentiles to mitigate the influence of outliers.
[21] The p-value of the equality test between *INSIDE* and *OUTHOLD* for the V-equation is 0.22.

Table 4 continued

Leverage (Long term debt/Total long term	(-)	-0.072 (-0.72)	-1.098 (-8.31)**	-1.170 (-7.29)**
Growth (Implied EPS growth)	?	0.003 (0.05)	0.164 (2.10)**	0.168 (1.76)*
LOGSIZE (Log of total capital)	(+)	0.098 (5.50)**	0.408 (17.22)**	0.505 (17.64)**
Adjusted R^2		0.145	0.534	0.324

** Significant at the 5 percent level, two-tailed.
* Significant at the 10 percent level, two-tailed.

See Exhibit 1 for variable definitions. Thirty-four industry indicator variables and a fiscal year indicator variable are included in the regression, estimates for which are not reported. The number of firm-year observations is 1,436. R&D/sales = R&D expense/Sales revenue. Leverage = Book value of long term debt/(Book value of long term debt plus book value of equity). Growth =Implied expected EPS growth rate taken from the *First Call* EPS estimates (forecast EPS_{t+2}/forecast EPS_{t+1} –1). All specifications are estimated using *IV*. The instruments are portfolio ranks (ranging from 1 to 10) of each independent variable in the regression with the exception of the binary indicator variables (*EXTL, CEOL, CHAIR*).

Finally, the coefficient estimate for future EPS growth is zero for the *V*- equation. This is consistent with a characterization that the *V* estimates are unaffected by expected EPS growth rates despite the assumption that abnormal earnings do not grow after year 3. One potential concern for including a measure of growth is that it can understate or overstate the effect of governance on market value, to the extent that growth itself is affected by the governance system (e.g., a "good governance" system leads to higher growth). Notice, however, that the inclusion of three additional variables has little impact on the inferences drawn from Table 3.

Finally, column (3) contains estimates from regressing *Q* directly on governance variables without including *V*. This equation provides inferences on *Q* that are unaffected by potential measurement errors in *V*. The following relations remain significant at the 5% level or better: the positive relation for inside ownership and outside director ownership; the negative relation for external blockholders, majority shareholders, board size, CEO tenure, and diversification.

4.3. Robustness

Sensitivity analyses examine whether results are robust to alternative specifications and variable definitions. The computation of *V* is an important issue for our study, so we examine the robustness to alternative definitions of *V*. First, we compute *V* using two alternative discount rates -- industry-discount rate and a fixed rate of 12% for all firms. The results yield minimal differences, indicating that the relation between *V* and governance variables is insensitive to discount rate assumptions. Next, as with Frankel and Lee (1998), we employ an alternative, one-period approximation of *V* for which expected next-period residual income is assumed to be earned in perpetuity. This approach also yields immaterial differences. We also employ two alternative estimates of *V** based on extrapolated finite growth assumptions (based on the growth rate implied by the *EPS* estimates). This procedure entails making arbitrary assumptions on growth rates and growth periods, and, not surprisingly, yields regression estimates that are slightly weaker than those reported. Also, the *V* estimates imposing the growth assumption have a weaker correlation with stock prices.

We also compute the *V*-and *Q*-ratios at the firm level rather than at the equity level, by adding back the debt value to both the numerator and the denominator of *V* and *Q*. This treatment yields little difference except that estimates for the leverage ratio become more strongly negative in both the *V*-and *Q*-equations. About 19.7% of the sample is in regulated industries such as banking and utilities (SIC 49 and 60). Estimations excluding these industries produce trivial differences from the results reported in Tables 3 and 4. Operational definitions of inside stockholdings vary, so we use three alternative measures of inside ownership, namely the ownership of (1) the CEO, (2) the board of directors including the CEO but excluding outside directors, and (3) all insiders excluding the CEO. Results are qualitatively similar for using definitions (1) and (2), but not for using definition (3): the positive effect of inside ownership disappears when inside ownership excludes that of the CEO.

These results indicate that the CEO's ownership is a major factor that produces the reported relation between inside ownership and firm performance. Finally, we consider two alternative proxies for firm size: log total assets, and log net sales, and a specification excluding size. These alternative proxies alter some relations in Table 3. In particular, the significance of board size (*LNBOD*) and outside director ownership (*OUTHOLD*) is considerably lower when using these alternative size measures, or when excluding firm size. Results for other major variables, in particular inside holdings (*INSIDE*), large outside holdings (*EXTL, CEOL*), and the CEO's tenure and chairmanship are unchanged. To further investigate the observed sensitivity to various firm size measures, we divide the sample into large and small firms (based on the size of total assets) and re-estimate the equations. For small firms (total assets less than the median of $550 million), outside director ownership (*OUTHOLD*) continues to be positive and significant at conventional levels *irrespective* of the size definition; but for large firms, outside director ownership (*OUTHOLD*) is significant only when firm size is defined as log of total capital.

5. Summary and Conclusions

In recent years, there is a mounting concern of governance failures and executive entrenchment among academics and practitioners (Crystal 1991; Jensen 1993; Byrne 1996). These writers emphasize the benefits of convergence-of-interest through higher managerial ownership and more independent board of directors. While this idea is theoretically appealing, the empirical support has been mixed, particularly with respect to the role of outside directors and large shareholders.

In this study, we extend this literature and offer further insights on the role of these mechanisms. A distinguishing feature of our analysis is that we employ Ohlson's (1995) *ERI* valuation metric which incorporates the market's expectations of future operating performance. This measure not only has a greater theoretical appeal but also helps us assess whether the benefits of a better governance system manifest as higher operating performance as a premium on share price. Despite the theoretical appeal of the *ERI* metric, its empirical performance, especially whether the *V* estimate preserves the same desirable attributes as the theoretical *V,** is an open question. In this regard, our evidence should be interpreted with caution. Our results can be summarized as follows.

First, consistent with the theory (Jensen and Meckling 1976), higher share ownership of the CEO and other corporate insiders has a direct positive impact on expected firm performance as well as a residual positive impact on the market value. This is consistent with an incentive alignment between management and shareholders (through share ownership) for wealth creation and wealth distribution. The ownership of outside directors also has a significant positive impact on performance and market values. Excessive ownership concentration to any single insider or outsider can be harmful to share prices, however. In particular, the negative impact of the controlling shareholder manifests itself not as lower expected operating performance but as a share price discount, consistent with the premise that the controlling shareholders can expropriate rents from other shareholders. Large block ownership of outside shareholders has a negative impact on the firm's operating performance.

Second, after controlling for ownership, no improvement in operating performance or share value is associated with greater representation of outside directors, or with larger number of directors on the board. The overall implication is that increasing the size of outside directors or the board without a corresponding increase in their share ownership, has a non-positive, perhaps even negative, effect on the firm's performance or the market value.

Finally, variables representing the CEO's stature – the CEO's tenure and the board chairmanship – have a negative impact on the firm. This evidence is consistent with a conjecture that a powerful CEO potentially undermines operating performance or expropriates wealth from shareholders. Taken together, our evidence supports the premise that share ownership and various parameters of corporate governance significantly influence operating performance and stock prices.

Furthermore, while ownership and governance impact the intrinsic value through enhanced corporate performance, they could also impose an implicit cost or premium on stock prices because of their impact on wealth distribution.

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