**Corporate Governance and the Cost of Equity Capital**

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*I. Introduction*

Separation of ownership and control in corporate organizations creates information asymmetry problems between shareholders and managers that expose shareholders to agency costs. Agency costs arise when managers have incentives to pursue their own interests at shareholder expense, i.e., information asymmetry creates a moral hazard problem. Self-interested managerial behavior can take several forms including shirking, consumption of perquisites, over compensation, and empire building that result in shareholder losses (Jensen and Meckling [1976]). Agency costs also arise when investors cannot discern the true economic value of the firm that is partially a function of the indistinguishable quality of management, i.e., information asymmetry creates an adverse selection problem. The lack of transparent financial information results in greater information risk being imposed on the shareholder. Without adequate controls, effective monitoring, and transparent financial information, rational investors will price-protect against expected agency costs, effectively raising the firm's cost of equity capital. Corporate governance encompasses a broad spectrum of mechanisms intended to mitigate agency problems by increasing the monitoring of managements' actions, limiting managers' opportunistic behavior, and reducing the information risk borne by shareholders. This paper investigates the extent to which governance attributes that are intended to mitigate agency problems affect firms' cost of equity capital.

We structure our analysis of the effects of governance on the cost of equity based on prior literature that identifies and links specific elements of governance to a reduction in agency costs (see Bushman and Smith [2001] and Shleifer and Vishny [1997] for an overview). Specifically, we examine governance attributes that relate to (1) financial information quality, (2) ownership structure, (3) shareholder rights, and (4) board structure. We use the magnitude of abnormal accruals, the timeliness and relevance of earnings, and the independence of the audit committee to

proxy for the quality of firms' financial information. The level of institutional ownership, the number of blockholders and the ownership stake of insiders are used to capture firms' ownership structure. These elements of governance are relevant to assessing the external monitoring of management, the propensity for rent extraction by significant equity stakeholders and incentive alignment between management and shareholders. We employ the shareholder rights governance score of Gompers, Ishii and Metrick (2003) to proxy for how easy or difficult it is for shareholders to make changes in management or changes in ownership that potentially affect shareholder value. The independence of the board and the percentage of directors that own stock are used to capture the board structure. This dimension of governance is relevant to assessing the degree of objectivity and attentiveness the board exercises in providing oversight of management performance and the degree to which they hold management accountable to stakeholders for its actions. To the extent a governance attribute attenuates the problems of adverse selection and moral hazard, we predict it will be negatively related to firms' cost of equity. If, on the other hand, a governance attribute exacerbates agency problems between shareholders and managers or increases the likelihood that selected shareholders can extract rents from other shareholders, we expect it to be positively related to firms' cost of equity.

Our analysis yields several key findings. First, we document a significant association between a number of governance attributes and firms' cost of equity capital. Specifically, we find that firms reporting larger abnormal accruals and less transparent earnings have a higher cost of equity, whereas firms with more independent audit committees have a lower cost of equity. Consistent with potential rent extraction, we find that concentrated ownership in the form of the percentage of shares held by institutions and the number of five-percent blockholders are positively related to the cost of equity. In addition, we find a negative relation between the cost of equity and the independence of the board, the percentage of the board that owns stock, and managerial power, as proxied by the shareholder rights score. Collectively, the governance

attributes we examine explain roughly 8% of the cross-sectional variation in firms' cost of capital.

Second, we document that our set of governance attributes have a significant incremental explanatory power for firms' cost of equity after controlling for well-known risk proxies, namely beta, size, and market-to-book. The results of benchmark regressions indicate that beta, size, and market-to-book in isolation explain 12, six, and five percent of firms' cost of equity, respectively. These three risk measures combined with our set of governance factors explain 16 percent of the cross-sectional variation in the cost of equity. Interestingly, while the set of governance attributes adds explanatory power relative to the conventional risk measures, we find that only the variables that capture the quality of firms' financial information, in the form of more transparent earnings information and the audit committee's oversight over the financial reporting process, continue to be negatively related to the cost of equity after controlling for the effects of beta, size and market-to-book. Our finding that firms with higher earnings transparency and greater integrity of the audit process, as proxied by the audit committee's oversight of the financial reporting process, have lower costs of equity capital adds to the extant literature on the financial information characteristics that are valued by the market. In addition, the consistent documentation of a positive relation between the number of blockholders and firms' cost of equity suggests that concentrated owners do not serve to monitor management and reduce agency costs. Rather the positive association between the number of blockholders and the cost of equity is consistent with potential rent extraction by significant shareholders, e.g., blockholders can extract rents via targeted share repurchases or greenmail.

Our results also provide insights into how governance is priced in that we document that many of the governance attributes we examine are significant determinants of firms' beta. We find that the magnitude of abnormal accruals and degree of financial transparency as proxied by the timeliness and value relevance of earnings are highly significant explanatory factors for beta. We also find that the percentage of shares held by institutional investors is positively related to

beta, which is consistent with institutional investors having preferences for investing in firms with higher risk and expected returns.  The results indicate a negative relation between the stakeholder rights score and beta, which suggests that firms with greater managerial power have lower betas. This result is consistent with more entrenched management seeking to avoid losses by taking on less risky projects (i.e., lowering firms' operating risk).  Finally, we find that the independence of the board and the percentage of directors that own stock are negatively associated with beta. Collectively, the governance attributes explain 17 percent of the variation in beta.  These findings lend support to Garmaise and Liu (2004) who model firms' exposure to market risk as a function of the quality of firms' governance.  More importantly, our findings provide evidence largely overlooked in the prior literature that governance affects firms' cost of equity capital both directly and indirectly via beta.

To provide some economic interpretation of our findings, we construct a composite governance score and incorporate the governance score in rank regressions along with beta, size and market-to-book.  The results indicate that firms with better governance have a lower cost of equity.  Better governed firms, on average, have a cost of equity that is 80 basis points lower than firms with weaker governance.   Furthermore, when we add a governance factor, defined as the difference in returns between firms in the bottom quintile versus the top quintile of the composite governance scores, to the Fama-French (1993) three-factor asset pricing model, we find a highly significant positive coefficient on the governance factor.  This finding suggests that governance is another risk factor in addition to beta, size and market-to-book that affects firms' cost of equity.

To provide further evidence that governance matters for firms' cost of equity and to address endogeneity concerns we conduct a change analysis.  We document that firms that improve their governance structure over our sample period from 1996 to 2002 benefit by lowering their cost of equity.  Demonstrating an association between changes in governance and changes in the cost of equity is important in that it mitigates concerns that the results from the cross-sectional analyses are driven by some correlated omitted variable(s).

In summary, we document the effect of governance on the cost of equity by linking governance attributes to firms' expected returns, firms' beta, and firms' realized returns. We also document the effect of governance on the cost of equity by demonstrating that improvements in governance are associated with a decrease in the cost of equity. The results of these four analyses support our general hypothesis that good governance lessens agency costs thereby reducing the cost of equity capital.

The remainder of the paper is organized as follows. Section II describes the role of governance in mitigating agency conflicts between shareholders and managers, and how the reduction in agency conflicts is expected to reduce firms' cost of equity capital. Section III develops empirical proxies to capture the governance attributes that we study. Section IV describes our sample, data sources, independent variables, and dependent variable, and provides descriptive statistics. Section V presents and discusses our findings. Section VI concludes and offers suggestion for future research.

*II. Why Governance Matters to Shareholders*

Information asymmetries arise in the equity market because dispersed shareholders cannot directly observe managers' effort, which potentially creates moral hazard problems, or know the true economic value of the firm or the quality of management, which potentially creates adverse selection problems. Moral hazard and adverse selection problems result in agency costs that rational investors will price-protect against resulting in higher costs of equity capital. Corporate governance represents a set of mechanisms that are intended to reduce agency costs that result from information asymmetries. Governance mechanisms that provide independent monitoring of management promote effective managerial decision making that increases firm value (e.g., investing in positive NPV projects) and guard against opportunistic management behavior that decreases firm value. Furthermore, governance mechanisms that result in more transparent financial information and more public disclosure of private information reduce information risk faced by shareholders resulting in an increase in firm value. We posit that better

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governance impacts a firm's cost of equity capital by mitigating agency costs driven by the problems of moral hazard and adverse selection.

Whether governance effects on cost of equity are manifested through known risk factors (e.g., beta) or through a distinct non-diversifiable risk factor is an unresolved issue in the literature. Using a CAPM framework, Garmaise and Liu [2004] develop a model of a firm owned by shareholders and administered by managers, where the managers are either honest or dishonest and governance oversight of management actions is either effective or ineffective. They derive a prediction that ineffective corporate governance combined with dishonest management increases firms' systematic (beta) risk and provide empirical support for this prediction in the international setting. Hence, within the Garmaise and Liu [2004] framework, agency risks are captured, at least in part, by beta risk. That is, good governance lowers equity cost of capital by lowering a firm's beta risk.

An alternative view of the effects of governance on the cost of capital is provided by Easley and O'Hara [2003] and Leuz and Verrecchia [2004]. Both studies develop models in which the quantity and quality of information affect asset prices through a non-diversifiable risk proxy that is distinct from beta in a CAPM world. Thus, within the Easley and O'Hara [2003] and Leuz and Verrecchia [2004] frameworks, the quality of information affects firms' cost of equity directly and is an additional priced risk factor**.**

In the next section, we identify the governance attributes that we predict have a direct effect on the cost of equity. After studying the *direct* effects of governance on the cost of equity conditional on beta and other well known risk proxies, we also investigate the *indirect* effects of governance attributes on the cost of equity by examining the influence of governance on beta.

*III. Governance Attributes*

III.1 Quality Financial Information

Quality financial information can be viewed as an element of corporate governance in that greater disclosure and financial transparency reduces information asymmetries between the

firm and its shareholders. Theoretical work in finance posits that quality financial information reduces the cost of equity capital in one of two ways: either by (1) increasing market liquidity, thereby reducing transactions costs or increasing the demand for a firm's securities (Copeland and Galai [1983], Glosten and Milgrom [1985], Amihud and Mendelson [1986] and Diamond and Verrecchia [1991]); or by (2) reducing investors' information risk (Klein and Bawa [1976], Barry and Brown [1985], Coles and Lowenstein [1988], Coles, Lowenstein and Suay [1995], Easly and O'Hara [2003], and Leuz and Verrecchia [2004]). [1] Consistent with theoretical predictions, there is considerable empirical evidence that disclosure quality or earnings transparency lowers firms' cost of capital. Botosan [1997], Botosan and Plumlee [2002], Bhattacharya, Daouk and Welker [2003], Barth and Landsman [2003], and Francis, LaFond, Olsson and Schipper [2004] find a negative relation between various proxies for disclosure quality or earnings transparency and cost of equity capital.

We use two proxies for financial information quality. [2] Our first proxy, FIN_TRANS, captures the timeliness and value relevance (transparency) of accounting earnings. The more transparent earnings are, the more current earnings reflect information about the firm's current economic activities. More transparent earnings result in less information asymmetry between the firm and its shareholders, leading to less information risk for shareholders which, in turn, should lead to lower cost of equity capital. FIN_TRANS is measured as the squared residual from regressing returns on earnings levels and changes allowing for separate intercepts and slopes for

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[1] Information risk is the likelihood that firm-specific information that is relevant to investor pricing decisions is noisy, that is, of poor quality (Francis, LaFond, Olsson and Schipper [2004]).

[2] Ideally, it is preferred to use an independent measure of firms' disclosure and transparency akin to the AIMR disclosure ratings for a broad cross section of firms in addition to our measures of earnings quality. However, the AIMR ratings are not available for the time period covered in our study (1996 - 2002). Standard & Poor's (S&P) assesses firms' financial information quality via its transparency and disclosure (T&D) ratings (Standard & Poor's [2002]). However, the T&D rating system was originally designed to capture the variation in disclosure practices across countries, not the variation in disclosure practices within the United States. Bushee [2004] suggests that the items that comprise the T&D score, for the most part, represent mandatory disclosures required of U.S. registrants or a set of voluntary disclosures that are common to the S&P 500. In addition, since the only U.S. firms that have T&D scores are firms that comprise the S&P 500, using this measure would greatly restrict our sample.

profit and loss firms (the details of FIN_TRANS are described more fully in Section IV). Earnings that better articulate with market returns are deemed to be more transparent and timely in that they better reflect the economic events that are priced by the market. A high squared residual indicates that earnings are less transparent or timely. To facilitate the interpretation of this variable, we multiply the squared residual by negative one and predict a negative relation with cost of equity capital (i.e., more transparent earnings are associated with lower cost of capital).

The second measure of financial information quality, ABN_ACCRUAL, is a measure of discretionary or abnormal accruals. Specifically, ABN_ACCRUAL is defined as the absolute value of abnormal accruals where abnormal accruals are estimated using the Jones [1991] model as modified by Dechow, Sloan and Sweeney [1995] (the details of ABN_ACCRUAL are described more fully in Section IV). Following Francis, et al. [2005], higher abnormal accruals signal lower earnings quality and higher information risk for investors. Francis et al. [2005] find this measure to be positively related to firms' cost of equity capital. Hence, we predict a positive relation between this variable and cost of equity capital.

The reliability of financial information is due, in part, to the quality and integrity of the audit process. Prior empirical evidence by Klein [2002], Beasley [1996], and Peasnell, Pope and Young [2000] support the conventional wisdom that audit committees more effectively carry out their oversight of the financial reporting process if they include a strong base of independent outside directors. We use %AUD_IND, defined as the percentage of the audit committee made up of outside independent directors, to proxy for the quality of oversight of the financial reporting process. To the extent that better monitoring of the financial reporting process leads to greater financial transparency, information risk for shareholders is lower and the firm is expected to have a lower cost of equity. Accordingly, we predict a negative relation between %AUD_IND and cost of equity capital.

III.2 Ownership Structure

The original premise that explains the existence of corporate governance is that dispersed shareholders demand that the firm has mechanisms in place to monitor management because no one shareholder has the incentive to monitor management on his own (i.e., there exists a free rider problem). However, as a shareholder accumulates more shares, his incentives for monitoring increase. Jensen (1993) and Shleifer and Vishny (1997) argue that blockholders, who own a relatively large proportion of shares, and institutional investors, who as fiduciaries hold shares on behalf of others, have greater incentives to monitor a firm's management and policies in an unbiased way. Because of their substantial investment, blockholders and institutional investors potentially have greater incentives to monitor the activities of management, and they have the voting power to effect change when management is deemed to be ineffective. To the extent blockholders and institutional investors provide effective monitoring of management that reduces opportunistic behavior all shareholders benefit leading to a reduction of agency costs and a lower cost of equity.

There are, however, reasons for blockholders and institutional investors not to actively monitor management. Monitoring is costly, and blockholders and institutional investors may not be willing to incur the costs when the benefits of monitoring accrue to all shareholders. Bhide [1993] posits that the liquidity of the U.S. equity market reduces institutional investors' incentives to monitor firms because it is cheaper for institutional investors to sell shares or not invest, i.e., walk away from investing in firms that are poorly managed, rather than to monitor. Furthermore, a competing view in the literature suggests that concentrated ownership allows blockholders (institutions or individuals) to exercise undue influence over management and that blockholders will use this influence to secure private benefits that are detrimental to other shareholders. Examples include greenmail and targeted share repurchases (Dann and DeAngelo 1983) or institutional investors' influence over management to use related parties' investment banking services. To the extent that blockholders and institutional investors use their voting

power to extract private benefits, thereby increasing agency costs, we expect a positive relation between institutional ownership or blockholders and the cost of equity capital.

We use the number of outside blockholders that own 5% or more of a firm's outstanding voting stock, BLOCK, to capture the effects of concentrated ownership on the cost of equity. In addition, we use the percentage of shares held by institutional investors, %INST, to capture the positive or negative effects of institutional share ownership. The relation between these two ownership structure variables and the cost of equity capital depends on whether the ownership attributes increase or decrease agency costs. Since there are competing theories on whether the presence of such owners decreases agency costs due to their monitoring of management or increases agency costs due to the extraction of private benefits, we leave the prediction on these two variables unsigned.

There is one other important ownership group that potentially diminishes firms' agency problems. %INSIDE is the percentage of shares held by officers and directors. We predict that %INSIDE will be negatively related to cost of equity under the assumption that as officers and directors hold greater ownership in the firm their interests are more aligned with outside shareholder interests, thereby lowering the agency problems between managers and outside shareholders. Moreover, greater board shareholdings encourages better monitoring of management that reduces moral hazard problems, and consequently less agency costs, leading to a lower cost of equity for the firm.

III.3 Financial Stakeholder Rights

Financial stakeholder rights reflect the ability of voting shareholders to exercise their control over firm assets, remove ineffective or opportunistic management, or effect ownership changes that increase shareholder value. One benefit of common stock ownership of U.S. firms is that voting shareholders can effectuate changes in management and corporate assets in the expectation of increasing firm value. Takeover defenses and other restrictions of shareholder rights like staggered terms of directors, golden parachutes for management, supermajority voting

requirements for approval of mergers and ownership changes, and limits on shareholders' ability to meet and act places more power in the hands of management vis-à-vis shareholders and restrict shareholders' abilities to make changes. Corporate devices that tilt power in favor of management can increase moral hazard problems that lower overall firm value, resulting in losses to shareholders.

We use the governance index constructed in Gompers, Ishii and Metrick [2003], referred to as the G_SCORE, to measure the power-sharing relationship between shareholders and management. The G_SCORE is based on the incidence of 24 governance provisions related to shareholder rights and take-over defenses found in corporate by-laws, charters, annual reports and proxy statements. A higher G_SCORE reflects weaker shareholder power. Therefore, we predict a positive relation between G_SCORE and cost of equity capital.

III.4 Board Structure

The board of directors' role is to provide independent oversight of management and hold management accountable to shareholders for its actions. A widely held view is that boards are more effective in their monitoring of management when there is a strong base of independent directors on the board (FitchRatings [2004]). Prior research examining the effects of board composition is inconclusive on whether board independence is positively related to firm performance. Baysinger and Butler [1985], Hermalin and Weisbach [1991], Bhagat and Black [2000] and Brown and Caylor [2004] find no relation between overall board independence and firm performance. In contrast, Agrawal and Knoeber [1996] find significant *negative* relation between outside membership on the board and firm performance, leading them to conclude that boards that have too many outsiders lose the expertise associated with officers serving on the board. While the link between board structure and firm performance is unclear, there is considerable evidence that board structure can affect the agency costs arising from opportunistic management or low quality financial reporting, i.e., financial information that is a noisy representation of the economic resources and changes in economic resources of the firm.

Richardson [2004] finds that firms with positive free cash flows exhibit less evidence of over-investment when their boards are made up of a higher percentage of independent directors. Core, Holthausen, and Larcker [1999] show that firms with more independent boards exhibit less evidence of CEO over-compensation.  The results of Beasley [1996], Dechow, Sloan and Sweeney [1996], and Peasnell, Pope and Young [2000] suggest that as the independence of the board increases, firms are more likely to generate high quality financial information.

Based on the literature reviewed above, we use %BRD_IND to capture the effects of board structure on the cost of equity capital, where %BRD_IND reflects the percentage of the board made up of independent outside (nonaffiliated) directors. To the extent better monitoring of management leads to less managerial opportunism and better overall decision making that enhances firm performance, shareholders should seek less price protection and the firm's cost of equity capital should be lower.  Therefore, we predict a negative relation between %BRD_IND and the cost of equity capital.

Another element of board structure that reflects the incentives for directors to actively monitor management is board compensation.  The key issue is whether board members are remunerated in ways that promote monitoring management to enhance the long-term success of the firm.  Yermack [2003] finds that director stock and option awards are positively related to firms' investment opportunities and subsequent firm performance, suggesting that tying directors' pay more closely to stock performance through the use of options and other equity awards generally leads to increased monitoring.  We use %BRD_STOCK to measure the percentage of outside directors that hold stock in the company. As board member stockholdings increase, we expect directors' interests to better align with shareholder interests and we expect the board to more carefully monitor the actions of management. This should lead to shareholders facing less risk of management expropriating firm assets and, consequently, a lower cost of capital. Therefore, we predict a negative relation between %BOARD_STOCK and cost of equity capital.

*IV. Sample, Variables, and Descriptive Statistics*

IV.1. Sample and Data Sources

The data for this study are compiled from the following sources:

- Board and committee composition–Investor Responsibility Research Center and Corporate Library

- Ownership data —Compact Disclosure

- Shareholder rights and take-over defenses (G_SCORES) – as defined in Gompers, et al. [2003]

- Accounting variables – Standard and Poor's Compustat

- Stock return data-- CRSP

- Expected returns (implied cost of capital estimates)--Value Line

The board and committee measures of corporate governance are from governance data bases compiled by the Investor Responsibility Research Center (IRRC) and the Corporate Library, independent research firms that provide data and analysis of corporate governance issues. The IRRC data base contains detailed governance data on the S&P 1500 while the Corporate Library Board Analyst data base contains governance data for over 2000 U.S. companies and profiles on over 22,000 individual directors. The data used in our analysis covers seven fiscal years from 1996 to 2002. We use IRRC data for the 1996-1999 timeframe because Board Analyst did not exist prior to 2000. We also use IRRC data for 2000 because while in existence in 2000, Board Analyst did not provide the necessary board structure data in 2000 to be compatible to IRRC. We convert to Board Analyst's board and committee structure data for 2001 and 2002 because Board Analyst is more comprehensive than IRRC and covers a broader sample of firms.[3]

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[3] The difference in the 2000 Board Analyst data base versus 2001 and 2002 Board Analyst data base pertains to the coding of directors. In 2000, Board Analyst used only two directors classifications; inside and outside directors. After 2000, Board Analyst classified directors into one of three groups; inside, grey, and outside. IRRC consistently classifies directors as inside, grey, and outside.

Ownership data related to institutional ownership (%INST), blockholders that hold 5% or more of a firm's outstanding stock (BLOCK), and inside ownership by officers and directors (%INSIDER) are obtained from Compact Disclosure. G_SCORES that measure the power-sharing relationship between investors and management are defined in Gompers, et al. (2003) and are found at http://finance.wharton.upenn.edu/~metrick/.[4]

Data for computing our measures of quality financial information, abnormal accruals (ABN_ACCRUALS) and earnings transparency (FIN_TRANS), along with market-to-book and firm size are obtained from Compustat. Beta is estimated using monthly return data from CRSP over a 60 month window ending the last month of the fiscal year from which Value Line expected returns are obtained.[5] The Value Line quarterly and updated expected returns, our proxy for firms' equity cost of capital, are averaged across each firm's fiscal year as detailed in Section IV.3 and are obtained from the Value Line Historical Estimates & Projections file.

The sample sizes for each year are determined by firms that satisfy the data requirements outlined above, and vary from 502 firms in 1996 to 996 firms in 2002 as shown in Table 1.[6]

[Insert Table 1 here]

IV.2. Independent Variables

The key governance attributes that we study in relation to the cost of equity capital are summarized in Table 2. In this sub-section, we describe how we measure our quality of financial

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[4] The main source for the Gompers et al. g-scores is the Investor Responsibility Research Center, which publishes detailed listings of corporate governance provisions for individual firms in *Corporate Takeover Defenses* [Rosenbaum 2002]. See Table 1 of Gompers et al. (2003) for details on the individual provisions that comprise the g-score.

[5] As an example, for a firm with a December 31, 1999 fiscal year end, beta is estimated using monthly return data from January 1995 to December 1999. This firm-year observation's cost of capital estimate is equal to the average of the Value Line expected return estimates reported from January 1999 to December 1999.

[6] Firms from the financial services industry (banks, brokerages and insurance companies) are excluded from our sample due to lack of data for computing abnormal accruals using the modified Jones model described below.

information variables, ABN_ACCRUALS and FIN_TRANS, as the other variable measurements were described in detail in Section III when introduced.

[Insert Table 2 here]

The first quality of financial reporting metric, ABN_ACCRUALS, is an accounting-based measure of earnings quality. Abnormal accruals are calculated using the following modified Jones model (Dechow, Sloan and Sweeney 1995):

$$TA = \alpha_1 (1/lag1asset) + \alpha_2 (\Delta REV) + \alpha_3 PPE + \varepsilon \tag{1}$$

where Total Accruals (TA) is equal to net income before extraordinary items (Compustat #123) minus cash flow from operations (Compustat #308) scaled by beginning of fiscal year total assets (Compustat #6); lag1asset is equal to total assets (Compustat #6) in year $t-1$; $\Delta$REV is equal to the sales (Compustat #12) in year $t$ less sales in year $t-1$, scaled by beginning of fiscal year total assets; PPE is equal to gross property plant and equipment (Compustat #7) scaled by beginning of fiscal year total assets.

Equation (2) is estimated within four, three, two or one-digit SIC codes using the entire population of publicly traded firms with necessary data available on Compustat requiring a minimum of 20 observations within the industry group. We use the parameter estimates from equation (2) to calculate expected accruals (EA) as follows:

$$EA = \hat{\alpha}_1 (1/lag1asset) + \hat{\alpha}_2 (\Delta \mathrm{Re}v - \Delta AR) + \hat{\alpha}_3 (PPE) \tag{2}$$

where $\Delta AR$ is equal to accounts receivable (Compustat #2) in year $t$ less accounts receivable in year $t-1$ scaled by beginning of year total assets.

A firm's abnormal accruals, AA, is equal to TA minus EA.

Based on the findings of Dechow et al. (1995), Kasznik (1999) and Kothari, Leone, and Wasley (2005) that abnormal accruals are correlated with firm performance, we performance-adjust abnormal accruals. Performance-adjusted abnormal accruals are calculated by partitioning the population of firms within each industry group (four, three, two and one digit SIC codes) into

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deciles based on their current year's ROA.[7]   ABN_ACCRUALS is the difference between a

sample firm's AA and the median AA for each ROA decile, where the median value excludes the

firm of interest.

Our second measure of financial information quality, FIN_TRANS, is a market-based

measure derived from the following regression equation:

$$RET_{it} = \beta_0 + \beta_1 NIBE_{it} + \beta_2 LOSS_{it} + \beta_3 NIBE_{it} * LOSS_{it} + \beta_4 \Delta NIBE_{it} + \varepsilon_{it} \tag{3}$$

where $RET_{it}$ is  the market adjusted return for firm i over fiscal year t (from CRSP); $NIBE_{it}$ is the
net income before extraordinary items (Compustat #18) scaled by beginning of period market
value of equity for firm i in period t (Compustat #25 * Compustat #199); $LOSS_{it}$ is equal to one if
$NIBE$ is negative and zero otherwise; $\Delta NIBE_{it}$ is the change in net income before extraordinary
items (Compustat #18) scaled by beginning of  period market value of equity (Compustat #25*
Compustat #199); $NIBE_{it}* LOSS_{it}$ is the interaction term that allows for a differential market
reaction for loss versus profit firms.

We estimate the above regression cross-sectionally within three, two and one digit SIC codes

requiring a minimum of ten firms in each industry grouping.

Gu (2002) argues that the squared residuals from this model can be conveniently

interpreted as the degree of price movement (returns) that is not explained by contemporaneous

accounting earnings. Higher squared residuals imply more noisy or less timely current earnings.

To facilitate interpretation of our results, we multiply the squared residuals by negative one,

which allows us to predict that more timely and relevant (transparent) earnings reduce firms' cost

of equity.[8]

IV.3 Dependent Variable

Conceptually, the cost of equity capital is the discount rate the market applies to a firm's

future cash flows to arrive at current stock price. We measure firms' cost of capital (expected

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[7] We require a minimum of 20 firms at each industry grouping level to ensure that there is at least one other
firm in each ROA decile used in the performance matching procedure.

[8] To validate this construct of financial transparency, we regress disclosure ratings from the Association of
Investment Management and Research (AIMR) on FIN_TRANS for those years for which AIMR ratings
are available (1989-1996). The coefficient is 9.12 with a t-statistic of 2.42 (p-value of 0.015, two-tailed).
Thus, our FIN_TRANS and AIMR disclosure ratings appear to be capturing similar constructs.

return) by taking the average of Value Line's high and low annualized expected return over a three to five year horizon. Value Line's expected return is the discount rate that equates their three to five year target price forecasts and dividend forecasts to a firm's current prices. These prices are provided quarterly, but Value Line updates the current prices and subsequently updates firms' expected returns between Value Line report dates. We measure firms' cost of capital as the average expected return over the firm's fiscal year. Averages are comprised of a minimum of four and maximum of twelve expected return measures.[9]

Our measure of the cost of capital is similar to estimates of the cost of capital used by Brav, Lehavy and Michealy [2003], Botosan and Plumlee [2002, 2004], and Francis, LaFond, Olsson and Schipper [2004]. [10] All of the above studies use Value Line's target prices and dividend forecasts to derive a measure of firms' expected return, based on valuation models incorporating these forecasts. Differences between Value Line's expected return and the measures of expected return derived in the above papers arise due to variation in the assumptions of how expected dividends and dividend growth are incorporated into the expected return calculations.[11] The advantage of our approach over those used in Brav et al. [2003] and Botosan and Plumlee [2004] is that we place no restrictions on how dividends and dividend growth enter into Value Line's expected return calculation. Instead, we allow Value Line to incorporate

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[9] Value Line issues four reports each calendar year. However, between report periods Value Line updates the price information contained in their database and subsequently recalculates its estimate of expected returns. There is some variability in the updating of prices within the Value Line database. Some firms are updated each month resulting in 12 expected return estimates for a given calendar year, while others are updated less frequently. Our results are robust to using the median expected return over the firms' fiscal year, using only the first (or last) expected return for a given Value Line report period. The correlations across various measures of expected return based on different requirements of price updating exceed 0.95.

[10] As noted by Botosan and Plumlee [2004] the Brav et al. [2003] measure is equivalent to their measure of expected return, with the only differences arising due to differences in how dividends enter the valuation model. In addition Botosan and Plumlee use the three to five year forecast as a five year forecast rather than the four years used in Brav et al.. We refer to both the Brav et al. measure and the Botosan and Plumbee measure as the target price method and calculate this measure using the method developed by Brav et al. [2003].

[11] Additional differences may arise due to the fact that Value Line forecast for a three to five year period, most studies deal with this issue by treating it as a four or five year forecast.

expected future prices and expected future dividends into forecasts of expected return using their valuation model and use these values directly.

IV.4 Descriptive Statistics and Correlations

Panel A of Table 3 provides descriptive statistics for the variables used in our analysis. As shown, the mean (median) cost of capital estimate is 19% (17%) with an interquartile range of 12% to 24%.[12] The mean (median) beta (BETA) is .93 (.84), the market value of equity (SIZE) is $8.57 ($1.85) billion and the market-to-book ratio (MB) is 3.33 (2.31). These statistics reflect the fact that the IRRC, Board Analyst and Value Line data bases tend to be populated by larger, more established firms with a somewhat lower risk profiles, as proxied by BETA, SIZE and MB, than the average firm in the market.

[Insert Table 3 here]

Turning to our proxies for financial reporting quality, the mean (median) ABN_ACCRUALS for our sample is 6% (4%) of beginning total assets. The average (median) FIN_TRANS is -0.12 (-0.04). The mean (median) %AUD_IND is 88% (100%). The descriptive statistics indicate that institutions hold a significant percentage of firms' shares with an average (median) of 65% (67%).[13] For our sample, the mean (median) percentage of shares held by insiders is 6% (2%) and the mean (median) number of blockholders that own 5% or more of the firm's stock is 4.21 (4.00). For the "Financial Stakeholder Rights" dimension of governance, the average G_SCORE of our sample firms is 9.36, which is comparable to the mean G_SCORE reported by Gompers et al. of 9.15.

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[12] By way of comparison, Francis, et al. report mean (median) implied cost of capital estimates of 20.83% (20.22%) while Brav et al. report values of 20.9% (18.8%). The somewhat lower average (median) cost of capital estimates in our study is due to the fact that the data sources we use (IRRC, Corporate Library and Value Line) follow predominantly S&P 1500 firms, which tend to be larger, less risky firms.

[13] The relatively high percentage of institutional ownership is due to our sample being populated by S&P 1500 firms and the fact that many institutional investors follow indexing strategies based on S&P 500 and S&P 1500 firms.

The last section of Panel A of Table 3 provides data on the composition of the board and stock ownership of board members. Recall that boards that are comprised of more independent outside members are expected to provide better monitoring of management actions, thereby mitigating agency problems leading to a lower cost of equity capital. The average (median) percentage of outsiders on the board is 66% (69%) and the lower quartile is 56%. Finally, the average (median) percentage of board members holding stock in the company is 77% (86%).

Panel B of Table 3 provides correlations among the firm characteristic variables and governance variables and between these variables and our implied cost of capital measure. The upper right hand portion of the table presents Pearson product-moment correlations, while the lower left hand portion presents the Spearman rank-order correlations. To facilitate discussion, we focus on the Pearson correlations, but note that the Spearman rank order correlations are generally consistent with the Pearson results.

Consistent with prior evidence in the finance literature, we find a significant positive correlation between IMPLIED_CC and BETA (.30) and a significant negative correlation between IMPLIED_CC and SIZE (-0.14) and the MB ratio (-0.09). Interestingly, BETA is significantly correlated with each of our governance variables. Thus, consistent with the modeling in Garmaise and Lui (2004), the correlations suggest that at least part of the governance variables' effect on the cost of equity is captured by beta. We explore this implication further in a later section of the paper.

IV.5. Validation of Cost of Equity Measure

Botosan and Plumlee [2004] evaluate alternative measures of expected return derived from various valuation models and conclude that expected return estimates based on Value Line target prices and dividend forecast (target price method) and Easton's [2004] PEG ratio are superior to alternative measures of expected return. Their criteria for evaluating the descriptive validity of alternative expected return proxies is based on the association between measures of expected return and known risk proxies, such as beta, size (market value of equity), and the

market-to-book ratio. Sharpe [1964], Linter [1965] and Black [1972] formalize the prediction that expected return should be positively related to beta. Berk [1995] demonstrates that size will exhibit a negative relation with expected returns, as a residual risk factor, in any incomplete model of expected returns. Fama and French [2004] use Ohlson's [1995] residual income framework to formalize the valuation role of the market-to-book ratio (MB) in expected returns and predict a negative relation between MB and expected return. Fama and French [1993] develop a three factor asset pricing model that includes beta, size and market-to-book, and show that this asset-pricing model out performs the CAPM. To summarize, theoretical and empirical research indicates that a good measure of expected return will be positively related to beta and negatively related to size and MB.

We validate our estimate of firms' cost of equity capital by documenting the relations between IMPLIED_CC and these three known risk proxies. By doing so, we also provide a benchmark for assessing the incremental affect of our corporate governance attributes on the cost of equity capital using the following regression:

$$\text{IMPLIED\_CC} = \beta_0 + \beta_1 BETA + \beta_2 SIZE + \beta_3 MB + \sum_{t=1997}^{2002} \alpha_t YEAR + \varepsilon \quad\quad\quad (4)$$

where YEAR is equal to a series of indicator variables identifying fiscal reporting periods and all other variables are as previously defined.

[Insert Table 4 here]

The first three columns in Table 4 report the results of OLS regressions where IMPLIED_CC is regressed independently on BETA, SIZE and MB, respectively, after controlling for fiscal years. The last column of Table 4 reports the results of estimating the model that includes all three risk proxies. Consistent with prior literature, our results indicate a positive relation between BETA and firms' cost of equity capital whereas SIZE and MB are negatively related to firms' cost of equity capital (e.g., Fama and French [1993]). In addition, the results reported in Table 4 indicate that BETA in isolation explains 12% of the variation in

IMPLIED_CC, while SIZE and MB explain six percent and five percent of IMPLIED_CC, respectively. The explanatory power of the full model that includes all three risk proxies is 15 percent.[14] Thus, in terms of Botosan and Plumlee's [2004] evaluation criteria, the Value Line measure serves as a good proxy for firms' cost of capital.

Guay, Kothari, and Shu [2003] develop an alternative technique for evaluating measures of firms' expected return. Their evaluation is based on the association between measures of expected return and future realized returns. They argue that regressing future realized returns on expected returns proxies should yield a coefficient of one. Their prediction is based on the premise that expected returns, on average, should equal realized returns if the market's expected returns reflect rational expectations. Specifically, in estimating equation (5), rational expectations implies that $\beta_1$ should equal one.

$$RET_t = \beta_0 + \beta_1 E(RET_t) + \varepsilon \qquad (5)$$

where $RET_t$ is the firms' realized returns in period t, and $E(RET_t)$ is the firms expected returns at the beginning of period t.

Thus, the appropriateness of alternative expected return proxies is evaluated based on the association between expected returns and future realized returns and by whether the estimated $\beta_1$ in equation (5) is significantly different from one.

We further validate our measure of expected return using the methodology developed by Guay et al. [2003]. Specifically, we perform Fama-MacBeth regressions, regressing future monthly returns on Value Line's expected returns.[15] The average monthly $\beta_1$ coefficient is 0.68,

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[14] The full model's adjusted $R^2$ of 15 percent is similar to other studies that document the relation between the risk proxies and cost of capital measures. Using different samples over different time periods, Brav et al. [2003] and Francis at al. [2004] report adjusted $R^2$ of 13 percent and 17 percent, respectively.

[15] Our measure of expected return is on annual basis, we divided the annual measure by twelve to convert the annual expected return to monthly expected return. Our analysis period runs from April 1997 to December 2003, due to the requirement of future returns and allowing for three months following fiscal year end for financial information used to calculate the MB ratio to become known to the market. Specifically we regress realized returns for fiscal year t+1 on expected returns from fiscal year t which is the expected return for fiscal t+1. For example, the monthly realized return over fiscal 1997 is regressed on the expected return made in fiscal 1996 for fiscal 1997.

which is significantly different from zero at the 0.001 level. As noted by Guay et al., if the expected return measure in equation (5) is a good proxy for the market's rational expectations of future returns, the $\beta_1$ coefficient is predicted to be one. The p-value associated with the test of whether 0.68 differs from one is 0.10, two-tailed. Thus, using the Guay et al. criteria for evaluating alternative expected return proxies, the Value Line expected return measure serves as a reasonably good proxy for firms' equity cost of capital.

In addition to the Value Line measure of expected return we also considered two alternative measures of expected return. Our choice of alternative measures is motivated by the findings of Botosan and Plumlee [2004]. They find that the Value Line target price method and Easton's [2004] PEG ratio method are significantly related to BETA and SIZE in the expected directions and thus conclude that these two measures "dominate" alternative measures. We use Value Line data to calculate both measures of expected return.

The first measure of expected return is calculated using the target price method (Brav et al. [2003)]), which calculates firms' expected return using current prices, Value Line target prices and dividend forecasts. This target price measure of expected returns makes the assumption that Value Line's three to five year forecasts are for four years. The target price method of estimating expected return and the Value Line measure of expected return are highly correlated (Spearman correlation 0.72, significant at the 0.01 level), as might be expected given that they use similar inputs. In untabulated analysis, we find that the target price method estimates are significantly related to known risk factors in the expected direction. Specifically, we find that that these estimates are positively related to BETA and negatively related to SIZE and MB. We further evaluate this measure using the method developed in Guay et al. [2003]. Estimating equation (5) with the target price method estimates of cost of capital yields a coefficient 0.39, p-value of 0.08. However unlike the Value Line measure of expected return, 0.39 is significantly different from one at the 0.01 level. Thus, this measure fails the reasonableness test proposed by Guay et al. [2003].

The second measure of expected return is based on the PEG ratio as developed in Easton (2004). The Spearman correlation between the PEG ratio estimates of expected return and the Value Line measure of expected return is 0.36, significant at the 0.01 level. In untabulated analysis, we find that the PEG ratio expected return estimates are positively related with BETA and MB and negatively related to SIZE. Thus, this measure's association with growth (MB) is opposite of what is expected. Furthermore, in estimating equation (5), we fail to find a significant association between the PEG ratio measure of expected return and future realized returns.

To summarize, we conduct two tests developed in the literature to evaluate the reasonableness of our cost of capital measure. The results of these tests indicate that Value Line's expected return serves as a good proxy for firms' cost of equity capital. Additional untabulated analyses indicate that the Value Line's measure of expected returns performs better than other measures of expected return used in the literature.

*V. Results*

V.1. Primary Analyses

We test our predictions regarding the affects of the key governance attributes on cost of equity capital using the following OLS regression model:

$$
\begin{aligned}
\mathrm{IMPLIED\_CC} = {} & \beta_0 + \beta_1 BETA + \beta_2 SIZE + \beta_3 MB + \beta_4 ABN\_ACCRUALS + \beta_5 FIN\_TRANS + \\
& \beta_6 \%AUD\_IND + \beta_7 \%INST + \beta_8 \%INSIDER + \beta_9 BLOCK + \beta_{10} G\_SCORE + \quad (6) \\
& \beta_{11} \%BRD\_IND + \beta_{12} \%BRD\_STOCK + \sum_{t=1997}^{2002} \alpha_t YEAR + \varepsilon
\end{aligned}
$$

where all variables are as previously defined.

The first column of Table 5 displays the results of estimating equation (6) with the nine corporate governance attributes but without the risk proxies of BETA, SIZE and MB. We estimate the model using only the corporate governance attributes to assess whether the various governance mechanisms are related to firms' expected returns before controlling for known risk factors. We find positive and negative coefficients on ABN_ACCRUALS and FIN_TRANS, respectively. These results are consistent with prior literature that documents that firms reporting greater abnormal

accruals and less transparent, lower quality earnings incur higher costs of equity (e.g., see Francis et al. [2005]). The significant negative coefficient on %AUD_IND indicates that firms with more independent audit committees have lower costs of equity. This finding suggests that shareholders value the audit committee's oversight of the financial reporting process when the audit committee is comprised of independent directors.

We find a significant positive relation between IMPLIED_CC and the ownership structure variables of %INST and BLOCK. These findings suggest that institutional investors and concentrated owners do not provide additional monitoring of management that benefits dispersed shareholders. The positive coefficients on these variables are consistent with minority shareholders facing greater risk that significant institutional investors or blockholders will use their voting power to extract rents (e.g., targeted share repurchases or greenmail), or individual shareholders facing greater risk of trading with more informed institutional traders or blockholders We find a marginally significant negative coefficient on G_SCORE, which is inconsistent with our expectations that weaker shareholder rights (higher g-scores) results in higher risk to shareholders. Turning to board structure measures, the results indicate that both variables that we use to capture the monitoring effects of the board, %BRD_IND and %BRD_STOCK, are negatively related to IMPLIED_CC, consistent with our predictions.

Overall, the set of governance attributes in isolation explain eight percent of the variation in firms' cost of equity capital. To provide some indication of whether the governance attributes that we study are beneficial to shareholders, we conduct an F-test on governance attributes as a whole. The result of the F-test (F-statistic=13.37, significant at the .001 level) indicates that the governance variables have significant additional explanatory power for IMPLIED_CC. In addition in unreported analysis we conduct an incremental F-test on the non-financial information quality metrics, the F-statistic is significant at the 0.01 level. This indicates that the governance variables related to ownership structure, financial stakeholder rights, and board structure have significant additional explanatory power, after controlling for the quality of financial information.

Model 2 of Table 5 introduces BETA into the analysis. We introduce BETA in isolation to test whether our governance variables add to the explanatory power of the CAPM. The results displayed in column three indicate that FIN_TRANS, %AUD_IND, and BLOCK remain as significant explanatory variables for firms' cost of equity capital. After controlling for BETA, the coefficients on ABN_ACCRUALS, %INST, G_SCORE, %BRD_IND, and %BRD_STOCK are insignificant suggesting that BETA captures much of the effect of these governance variables on the cost of capital. The explanatory power of BETA and the set of governance attributes is 14 percent. The incremental F-statistic of 29.14 indicates that the governance attributes add significant incremental explanatory power over BETA alone.

The results reported in the last column of Table 5 are from estimating the full model (equation 6) with BETA, SIZE and MB and all governance variables,. The coefficients on BETA, SIZE and MB are significant with the expected signs. FIN_TRANS and %AUD_IND continue to be significant in explaining firms' cost of equity capital. We also find a marginally significant positive coefficient on ABN_ACCRUALS, whereas the level of significance of BLOCK for IMPLIED_CC declines to .10. The adjusted $R^2$ is 16 percent and the significance of the incremental F-test indicates that the governance variables provide additional explanatory power beyond the three well known risk proxies.

Garmaise and Liu (2004) posit that weak corporate governance affects firm value in part by exposing the firm to greater market risk, implying that effects of corporate governance are captured by BETA. Collectively, the results reported in Table 5 support the work of Garmaise and Liu (2004). To further investigate the extent to which our governance attributes are related to BETA, we estimate the following model:

$$
\begin{aligned}
BETA = &\ \beta_0 + \beta_1 ABN\_ACCRUALS + \beta_2 FIN\_TRANS + \beta_3 \%AUD\_IND + \beta_4 \%INST + \\
&\ \beta_5 \%INSIDER + \beta_6 BLOCK + \beta_7 G\_SCORE + \beta_8 \%BRD\_IND + \\
&\ \beta_9 \%BRD\_STOCK + \sum_{t=1997}^{2002} \alpha_t YEAR + \varepsilon
\end{aligned}
\tag{7}
$$

where all variables are as previously defined.

Table 6 reports the results of estimating equation (7). We find that ABN_ACCRUALS is significantly positively related and FIN_TRANS is significantly negatively related with BETA. These results are consistent with larger abnormal accruals (more transparent earnings) exposing shareholders to greater (less) risk leading to a higher (lower) cost of capital. We also find that %INST is positively related to BETA, which is consistent with institutions investing in stocks with higher risk and expected returns. The significant negative coefficient on G_SCORE indicates that firms with greater managerial power (higher G_SCORES) have lower BETAs, which is consistent with more entrenched management seeking to avoid losses by taking on less risky projects (Bertrand and Mullainathan [2003]. Finally, we find that %BRD_IND and %BRD_STOCK are negatively associated with BETA, consistent with the notion that more independent boards and boards with greater share ownership lower the risk faced by outside shareholders. Collectively, our governance attributes explain 17 percent of the variation in BETA. These findings lend support to Garmaise and Liu (2004) who claim that the quality of firms' governance is related to firms' exposure to market risk. More importantly, these findings provide evidence that governance attributes affect firms' cost of equity capital both directly and indirectly through their effect on beta.

To assess the magnitude of the governance effect on the cost of capital we estimate rank regressions (see, for example, Abarbanell and Bushee [1997]). To conduct the rank regressions we first rank the independent variables into quintiles for each fiscal year, designating the quintiles by [0,4]. We then scale the quintile rank by four so that each variable observation takes on a value between zero and one. By using the scaled quintile ranks, the estimated coefficient on the variable represents the difference in the cost of capital between the highest and lowest ranked firms. We use quintile ranks due to the relatively low variation in the governance variable measures across our sample.

Panel A of Table 7 presents the results of estimating equation (8):

$$IMPLIED\_CC = \beta_0 + \beta_1 R\_BETA + \beta_2 R\_SIZE + \beta_3 R\_MB + \sum_{t=1997}^{2002} \alpha_t YEAR + \varepsilon \qquad (8)$$

where R_BETA is the scaled quintile rank of BETA; R_SIZE is the scaled quintile rank of SIZE; and R_MB is the scaled quintile rank of MB. All other variables are as previously defined.

As expected, all variables are highly significant, both in isolation and collectively, in explaining IMPLIED_CC. The explanatory power of the models using risk proxies of R_BETA, R_SIZE, and R_MB explain 11, six, and five percent of IMPLIED_CC, respectively, which is similar to the explanatory power of the raw risk proxy values as reported in Panel A of Table 4. Not surprisingly, the explanatory power of the rank regression (13 percent) is slightly less than the OLS regression (15 percent). When BETA, SIZE and MB are all included in the model the difference in the cost of capital between the highest and lowest quintiles of BETA, SIZE and MB is 324, 128, and 64 basis points, respectively. The cost of equity effects in terms of basis points is determined by multiplying the estimated coefficient from the rank regression times 4 because there are four quintile differences between the highest and lowest rank and then multiplying these results times 1000. For example, multiplying the coefficient estimate for beta of 0.081 x 4 x 1000 yields a 324 basis point spread between the highest and lowest quintile of beta stocks.

To assess the magnitude of the cost of capital effects of the various governance features we form a composite governance score and estimate the following rank regression model:

$$IMPLIED\_CC = \beta_0 + \beta_1 R\_BETA + \beta_2 R\_SIZE + \beta_3 R\_MB$$
$$+ \beta_4 GOV\_COMPOSITE + \sum_{t=1997}^{2002} \alpha_t YEAR + \varepsilon \qquad (9)$$

where GOV_COMPOSITE is equal to the scaled quintile rank of the following: quintile rank of (ABN_ACCRUALS*-1) + quintile rank of FIN_TRANS+ quintile rank of %AUD_IND+ quintile rank of (%INST*-1)+ quintile rank of %INSIDER+ quintile rank of (BLOCK*-1)+ quintile rank of (G_SCORE*-1)+ quintile rank of %BRD_IND + quintile rank of % BRD_STOCK. All other variables are as previously defined.

Panel B of Table 7 reports the results of the rank regressions using GOV_COMPOSITE. We find the overall GOV_COMPOSITE measure to be significant in explaining the cost of equity in isolation,

with R_BETA, and with R_BETA, R_SIZE, and R_MB. In isolation, the results indicate that firms in the upper quartile of governance scores enjoy a lower cost of equity capital of 132 basis points relative to firms in the lower quartile of governance scores. After controlling for the three risk proxies, the benefit of good governance drops to 80 basis points. The results of the incremental F-tests, reported at the bottom of Panel B of Table 7 indicate that GOV_COMPOSITE significantly increases the explanatory power of the models. From these analyses, we conclude that a portion of the effect of governance on the cost of equity capital is captured by firms' exposure to market risk. However, our results indicate that there is a significant governance effect on the cost of equity capital beyond what is captured by beta.[16]

To further explore the pricing effects of governance attributes versus known risk proxies, we conduct one more test. Rather than investigating the relation between expected returns and firms' governance attributes, we examine the relation between realized returns and the quality of firms' governance. To do so, we construct and add a governance factor, GOV_FACTOR to the three-factor asset pricing model developed in Fama and French [1993]. GOV_FACTOR captures the differences in realized returns between firms with bad and good governance, the governance risk premuim.

Table 8 presents the results of our asset pricing test using the following firm-specific regression:

$$EXRET = \beta_0 + \beta_1 RMRF + \beta_2 SMB + \beta_3 HML + \beta_4 GOV\_FACTOR + \varepsilon \qquad (10)$$

where EXRET is the firm's monthly return less the monthly risk free rate; RMRF is the monthly market risk premium defined as the return on the market less the risk free rate; SMB is the size risk premium defined as the returns of small stocks minus the returns of large stocks; HML is the book-to-market risk premium defined as the returns of low market-to-book stocks minus high market-to-book stocks; GOV_FACTOR is equal to the monthly returns difference between bad and good governance portfolios, where good and bad is defined by the quintile rank of the governance composite scores of five and one, respectively.

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[16] As a robustness check, we estimate Fama-MacBeth regressions rather than pooling observations across fiscal years. The results of this analysis are similar to the tabled results. The average coefficient on GOV_COMPOSITE is -0.024, and the coefficient is significant at the 0.01 level five of the seven years.

The portfolio of firms that represent bad and good governance stocks for each year of the analysis period are identified three months after the appropriate fiscal year end to ensure that the information in the GOV_FACTOR is known to the market. [17]

Table 8 reports the mean coefficients and adjusted $R^2$ from estimating equation (10). The first column of Table 8 reports the results estimating the three factor model using the 1191 firms for which we have complete governance data and future realized returns. We require each firm to have at least 18 months of return data over the April 1997 to December 2003 time period. The average adjusted $R^2$ is 22 percent and the coefficients on RMRF, SMB and HML are all positive and significant as expected. The significance of the factor coefficients are based on the standard error of the distribution of the coefficient estimates.

In column 2 of Table 8, we report the results where GOV_FACTOR is added to the asset pricing model. Consistent with our expectation, we find a significant positive coefficient on GOV_FACTOR. In addition, the adjusted $R^2$ increases to 24 percent in the model that includes GOV_FACTOR. The significant increase in the adjusted $R^2$ and the significant coefficient on the governance factor indicates that a portion of firms' realized returns is due to a governance risk premium.

To assess whether these results generalize to the market as a whole, we repeat the analysis using all firms having at least 18 months of returns data on CRSP. While the explanatory power of the models decline, the signs and significance of the coefficients on RMRF, SMB, HML, and GOV_FACTOR are similar to the governance sample.

To summarize, we conduct three analyses to assess the influence of corporate governance on the cost of equity capital. We assess the affects of governance on expected returns, the influence of governance on firms' BETA, and the governance effects on realized returns. The

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[17] April 1997 is the first month for which we have a sufficient number of firms to portfolio based on fiscal 1996's governance data. The test ends in December 2003 due to returns data availability from CSPR.

results of these three analyses support our general hypothesis that firms with better governance are able to reduce their agency costs resulting in lower costs of equity capital.

V.2. Endogeneity Issues

The preceding analyses treat governance attributes as being exogenously determined. There is prior literature (e.g., see Bushman, Chen, Engel and Smith [2004] and Hermalin and Weisbach [2003]), that conjectures that a firm's governance structure is endogenously determined. If governance is endogenously determined such that there is a factor or set of factors that affect our governance attributes and also affect firms' cost of equity, then our study suffers from a potential correlated omitted variable problem.

To address the endogeneity concern, we investigate whether changes in governance are associated with changes in the cost of equity. A change analysis assumes that any undocumented factor (or factors) that determine a firm's governance structure is (are) constant over time, and thus would have no impact on a change in the firm's cost of equity. To the extent governance attributes are exogeneously determined, i.e., investors prefer governance attributes with specific characteristics, we expect improvements in governance to reduce the cost of equity.

There are 444 firms for which we have complete data in 1996 and 2002. We use this sample of firms and this time period to conduct the change analysis because firms' governance structures tend to change relatively slowly over time. The associations between changes in cost of capital and changes in the three known risk proxies and corporate governance strength are estimated using the following model.

$$\Delta IMPLIED\_CC = \beta_0 + \beta_1 \Delta BETA + \beta_2 \Delta SIZE + \beta_3 \Delta MB + \beta_4 \Delta GOV + \varepsilon \qquad (11)$$

where change ($\Delta$) is the 2002 value minus the 1996 value; and GOV is the average of the following: the percentile rank of ($\Delta ABN\_ACCRUALS*-1$) + percentile rank of $\Delta FIN\_TRANS$+ percentile rank of $\Delta\%AUD\_IND$+ percentile rank of ($\Delta\%INST*-1$)+ percentile rank of $\Delta\%INSIDER$+ percentile rank of  ($\Delta BLOCK*-1$)+ percentile rank of ($\Delta G\_SCORE*-1$)+ percentile rank of $\Delta\%BRD\_IND$ + percentile rank of $\Delta\%BRD\_STOCK$. All other variables are as previously defined.

The results of the change analysis are reported in Table 9. We begin, once again, by examining governance in isolation from the three known risk proxies. The results reported in column one of Table 9 indicate that improvements in governance are associated with reductions in firms' equity cost of capital. The coefficient on $\Delta$GOV is -0.123, significant at the 0.01 level. After controlling for the change in the three risk proxies, we find a significant negative coefficient on $\Delta$GOV at the .05 level. The coefficient on $\Delta$BETA is marginally significant, but in the wrong direction. The coefficient on $\Delta$SIZE is negative and highly significant indicating that firms that increased their market value of equity between 1996 and 2002 saw a reduction in their cost of capital. Finally, the coefficient on $\Delta$MB is positive and significant at the 0.05 level, inconsistent with expectations. Overall the change analysis results provide further evidence that governance affects firms' cost of equity.

Himmelberg, Hubbard, and Palia [1999] argue that some features of governance, specifically ownership structure, are endogenously determined by exogenous changes in firms contracting environment. Given that only some of the exogenous changes are observable empirically, Himmelberg et al. [1999] include firm fixed effects in their estimations to control for the unobservable features that affect governance. The assumptions behind the inclusion of firm fixed effects are similar to those in the changes analysis. Whereas the change analysis controls for the effect of the unobservable features by estimating a model using first differences, the firm fixed effects approach specifically controls for the time invariant unobserved features that affect individual firms.

Following Himmelberg et al., we add both firm and industry fixed effects to equation (9) as an alternative way of addressing endogeneity concerns. Industry fixed effects are based on firms' two-digit SIC codes. The inclusion of both firm and industry fixed effects (untabulated) results in similar inferences to those reported in Panel B of Table 7. Specifically, we continue to find the coefficient on GOV_COMPOSITE, the overall governance composite score, to be negative and significant at the 0.01 level.

Overall, the results of the change and fixed effects analyses indicate that our results are unlikely to be driven by some unspecified endogenous variable or variables and support our earlier conclusions that key governance attributes affect firms' cost of equity.

*VI. Conclusion*

In this paper, we identify key governance attributes related to the quality of firms' financial information, ownership structure, stakeholder rights, and board structure that are intended to reduce moral hazard and adverse selection problems present in publicly traded firms. We posit that since the governance attributes are intended to reduce agency costs, governance attributes should have significant effects on firms' cost of equity capital. We provide evidence that is consistent with this conjecture. Consistent with prior research, we document that the quality of firms' financial information is negatively related to firms' cost of equity. We also document that governance attributes related to ownership structure, stakeholder rights, and board structure affect firms' cost of equity capital indirectly via beta. We construct a composite governance score and find it to be significant in explaining both expected and realized returns. Collectively, the results of the four separate analyses provide evidence that the set of governance attributes that we study have a significant effect on firms' cost of equity capital.

Our study suggests several avenues for future research. First, our findings suggest that some governance mechanisms are viewed to be more beneficial to shareholders than others. Future research can explore the cost of capital trade-offs between alternative governance attributes. Second, our results indicate that beta captures some portion of the value of governance and the effect of governance on the cost of equity capital. Future research, both analytical and empirical, can explore how governance attributes articulate with other risk factors that are known to affect the cost of equity capital.

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**Table 1 Sample**

**Number of Observations by Fiscal Year**

| | |
|------|------|
| 1996 | 502 |
| 1997 | 582 |
| 1998 | 668 |
| 1999 | 829 |
| 2000 | 809 |
| 2001 | 920 |
| 2002 | 996 |
| Total | 5306 |

| Table 2 Variable Definitions | |
|---|---|
| Variable | Definitions and Data Source |
| Governance Attributes: | |
| ABN_ACCRUALS | Performance matched abnormal accruals (see text for details) |
| FIN_TRANS | Financial transparency metric (see text for details) |
| %AUD_IND | % of audit committee made up of independent directors (source IRRC and Board Analyst). |
| %INST | % of shares held by institutional investors (source Compact Disclosure). |
| %INSIDE | % of shares held by insiders (officers and directors) (source Compact Disclosure). |
| BLOCK | Number of block holders, where block ownership is defined at the 5% ownership level (source Compact Disclosure). |
| G_SCORE | Shareholder rights governance score as defined in Gompers, Ishii and Metrick (2003) |
| %BRD_IND | % of independent directors on the board (source IRRC and Board Analyst). |
| %BRD_STOCK | % of the directors that own stock in the company (source IRRC and Board Analyst). |
| Firm Characteristics: | |
| BETA | Coefficient on *RMRF* from the following model: $EXRET = \beta_0 + \beta_1 RMRF + \varepsilon$ estimated over the 60 months prior to a firm-year observation fiscal year end, requiring minimum of 18 months. EXRET is the firm's monthly return minus the risk free rate, RMRF is the excess return on the market (source http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html) |
| SIZE | Natural log of fiscal year end market value of equity (Compustat #25 * Compustat #199) |
| MB | Fiscal year end market value of equity divided by fiscal year end book value of equity (Compustat # 60). |
| IMPLIED_CC | Average annual Value Line 3 to 5 year expected return over the 12 months encompassing the firm-year observation's fiscal year. |

**Table 3 Descriptive Statistics**

**Panel A:  Variable Distributions**

| Variables | Q1 | Mean | Median | Q3 | Std.Dev |
|---|---|---|---|---|---|
| Firm Characteristics: | | | | | |
| IMPLIED_CC | 0.12 | 0.19 | 0.17 | 0.24 | 0.10 |
| BETA | 0.54 | 0.93 | 0.84 | 1.20 | 0.61 |
| SIZE ($ billions)[1] | 0.72 | 8.57 | 1.85 | 5.49 | 28.45 |
| MB | 1.52 | 3.33 | 2.31 | 3.84 | 3.35 |
| | | | | | |
| Governance Attributes: | | | | | |
| ABN_ACCRUALS | 0.02 | 0.06 | 0.04 | 0.08 | 0.06 |
| FIN_TRANS | -0.13 | -0.12 | -0.04 | -0.01 | 0.22 |
| %AUD_IND | 0.75 | 0.88 | 1.00 | 1.00 | 0.19 |
| %INST | 0.53 | 0.65 | 0.67 | 0.79 | 0.20 |
| %INSIDER | 0.01 | 0.06 | 0.02 | 0.06 | 0.11 |
| BLOCK | 2.00 | 4.21 | 4.00 | 6.00 | 2.58 |
| G_SCORE | 7.00 | 9.36 | 9.00 | 11.00 | 2.68 |
| %BRD_IND | 0.56 | 0.66 | 0.69 | 0.80 | 0.17 |
| %BRD_STOCK | 0.64 | 0.77 | 0.86 | 1.00 | 0.24 |

See the Table 2 for variable definitions.

[1] In this table, we report the untransformed values of market value of equity. We use the natural log of market value of equity in our regression tests reported below due to the skewness in this variable.

**Table 3 continued**

**Panel B:  Correlations**

| | | A | B | C | D | E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IMPLIED_CC | A | | 0.30 | -0.14 | -0.09 | 0.08 | -0.13 | -0.09 | 0.02 | 0.03 | 0.09 | -0.06 | -0.11 | -0.09 |
| BETA | B | 0.30 | | 0.01 | 0.06 | 0.21 | -0.24 | -0.05 | 0.14 | 0.04 | 0.10 | -0.21 | -0.13 | -0.15 |
| SIZE | C | -0.17 | 0.04 | | 0.46 | -0.02 | 0.03 | -0.02 | 0.04 | -0.12 | -0.36 | -0.01 | 0.07 | 0.06 |
| MB | D | -0.13 | 0.08 | 0.53 | | 0.12 | -0.09 | -0.06 | 0.02 | 0.01 | -0.10 | -0.08 | -0.04 | -0.01 |
| ABN_ACCRUALS | E | 0.09 | 0.18 | -0.05 | 0.11 | | -0.15 | -0.02 | 0.05 | 0.06 | 0.09 | -0.11 | -0.08 | -0.05 |
| FIN_TRANS | F | -0.14 | -0.18 | 0.07 | -0.04 | -0.12 | | -0.01 | 0.00 | -0.04 | -0.05 | 0.11 | 0.04 | 0.06 |
| %AUD_IND | G | -0.08 | -0.04 | -0.03 | -0.08 | -0.02 | 0.00 | | 0.12 | -0.08 | 0.02 | 0.05 | 0.59 | 0.08 |
| %INST | H | 0.05 | 0.18 | 0.07 | 0.09 | 0.06 | -0.02 | 0.12 | | -0.17 | 0.44 | 0.05 | 0.16 | 0.09 |
| %INSIDER | I | 0.13 | 0.09 | -0.34 | -0.01 | 0.12 | -0.12 | -0.12 | -0.12 | | 0.08 | -0.15 | -0.27 | -0.05 |
| BLOCK | J | 0.13 | 0.15 | -0.33 | -0.13 | 0.10 | -0.09 | 0.04 | 0.45 | 0.24 | | -0.07 | -0.05 | -0.03 |
| G_SCORE | K | -0.04 | -0.17 | 0.02 | -0.07 | -0.10 | 0.10 | 0.04 | 0.04 | -0.13 | -0.06 | | 0.23 | 0.13 |
| %BRD_IND | L | -0.09 | -0.13 | 0.08 | -0.06 | -0.08 | 0.06 | 0.52 | 0.16 | -0.34 | -0.04 | 0.24 | | 0.17 |
| %BRD_STOCK | M | -0.10 | -0.20 | 0.07 | -0.03 | -0.07 | 0.08 | 0.07 | 0.02 | -0.04 | -0.06 | 0.15 | 0.20 | |

Bold text indicates significance at the 0.01 level or better.
See Table 2 for variable definitions.

**Table 4 Validation of Cost of Equity Capital Measure**

$$IMPLIED\_CC = \beta_0 + \beta_1 BETA + \beta_2 SIZE + \beta_3 MB + \sum_{t=1997}^{2002} \alpha_t YEAR + \varepsilon$$

| Variables | Predicted Sign | Estimated Coefficient | | | |
|---|---|---|---|---|---|
| | | Model 1 | Model 2 | Model 3 | Model 4 |
| | | | | | |
| Firm Characteristics: | | | | | |
| Intercept | ? | 0.189*** | 0.308*** | 0.247*** | 0.253*** |
| BETA | + | 0.049*** | | | 0.050*** |
| SIZE | - | | -0.009*** | | -0.008*** |
| MB | - | | | -0.003*** | -0.002*** |
| | | | | | |
| Adjusted R-square | | 0.12 | 0.06 | 0.05 | 0.15 |
| | | | | | |
| Sample Size | | 5306 | 5306 | 5306 | 5306 |

Variable definitions: YEAR is a series of year indicator variables identifying fiscal years 1997 through 2002. All other variables are as defined in Table 2. *** indicates significance at the 0.01 level or better, **indicates significance at the 0.05 level or better, *indicates significance at 0.10 level or better.

**Table 5 Governance Effects on Cost of Equity Capital**

$$IMPLIED\_CC = \beta_0 + \beta_1 BETA + \beta_2 SIZE + \beta_3 MB + \beta_4 ABN\_ACCRUALS + \beta_5 FIN\_TRANS +$$
$$\beta_6 \%AUD\_IND + \beta_7 \%INST + \beta_8 \%INSIDER + \beta_9 BLOCK + \beta_{10} G\_SCORE +$$
$$\beta_{11} \%BRD\_IND + \beta_{12} \%BRD\_STOCK + \sum_{t=1997}^{2002} \alpha_t YEAR + \varepsilon$$

| Variables | Predicted Sign | Estimated Parameters | | |
|---|---|---|---|---|
| | | Model 1 | Model 2 | Model 3 |
| Firm Characteristics: | | | | |
| Intercept | ? | 0.261*** | 0.207*** | 0.264*** |
| BETA | + | | 0.044*** | 0.044*** |
| SIZE | - | | | -0.006*** |
| MB | - | | | -0.002*** |
| | | | | |
| Governance Attributes: | | | | |
| ABN_ACCRUALS | + | 0.085*** | 0.017 | 0.033* |
| FIN_TRANS | - | -0.065*** | -0.039*** | -0.041*** |
| %AUD_IND | - | -0.023*** | -0.024*** | -0.029*** |
| %INST | ? | 0.016** | -0.008 | 0.008 |
| %INSIDER | - | 0.007 | 0.004 | 0.001 |
| BLOCK | ? | 0.003*** | 0.003*** | 0.001* |
| G_SCORE | + | -0.001* | 0.001 | 0.000 |
| %BRD_IND | - | -0.017** | -0.006 | -0.003 |
| %BRD_STOCK | - | -0.020*** | -0.006 | -0.004 |
| | | | | |
| Adjusted R-square | | 0.08 | 0.14 | 0.16 |
| Incremental F-test | | 13.37*** | 29.14*** | 8.14*** |
| | | | | |
| Sample Size | | 5306 | 5306 | 5306 |

Variable definitions: YEAR is a series of year indicator variables identifying fiscal years 1997 through 2002. All other variables are as defined in Table 2. *** indicates significance at the 0.01 level or better, **indicates significance at the 0.05 level or better, *indicates significance at 0.10 level or better. All incremental F-tests test whether the governance variables as a whole add explanatory power to the model.

**Table 6 OLS Regression Results of the Effects of Corporate Governance on Beta**

$$BETA = \beta_0 + \beta_1 ABN\_ACCRUALS + \beta_2 FIN\_TRANS + \beta_3 \%AUD\_IND + \beta_4 \%INST +$$

$$\beta_5 \%INSIDER + \beta_6 BLOCK + \beta_7 G\_SCORE + \beta_8 \%BRD\_IND + \beta_9 \%BRD\_STOCK$$

$$+ \sum_{t=1997}^{2002} \alpha_t YEAR + \varepsilon$$

|  | Estimated Parameters |
|---|---|
| Intercept | 1.254*** |
|  |  |
| ABN_ACCRUALS | 1.548*** |
| FIN_TRANS | -0.584*** |
| %AUD_IND | 0.025 |
| %INST | 0.552*** |
| %INSIDER | 0.073 |
| BLOCK | -0.002 |
| G_SCORE | -0.032*** |
| %BRD_IND | -0.253*** |
| %BRD_STOCK | -0.313*** |
|  |  |
| Adjusted R-square | 0.17 |
|  |  |
| Sample Size | 5306 |

Variable definitions: YEAR is a series of year indicator variables identifying fiscal years 1997 through 2002. All other variables are as defined in Table 2. *** indicates significance at the 0.01 level or better.

**Table 7 Results of the Effects of Corporate Governance on Cost of Equity Capital**
**Using Rank Regressions [a]**

**Panel A: Baseline Model – Rank Regressions**

$$IMPLIED\_CC = \beta_0 + \beta_1 R\_BETA + \beta_2 R\_SIZE + \beta_3 R\_MB + \sum_{t=1997}^{2002} \alpha_t YEAR + \varepsilon$$

|  | Predicted Sign | Estimated Coefficient | | | |
|---|---|---|---|---|---|
|  |  | Model 1 | Model 2 | Model 3 | Model 4 |
|  |  |  |  |  |  |
| Firm Characteristics: |  |  |  |  |  |
| Intercept | ? | 0.199*** | 0.257*** | 0.252*** | 0.222*** |
| R_BETA | + | 0.078*** |  |  | 0.081*** |
| R_ SIZE | - |  | -0.037*** |  | -0.032*** |
| R_ M/B | - |  |  | -0.026*** | -0.016*** |
|  |  |  |  |  |  |
| Adjusted R-square |  | 0.11 | 0.06 | 0.05 | 0.13 |
|  |  |  |  |  |  |
| Sample Size |  | 5306 | 5306 | 5306 | 5306 |

**Table 7 continued**
**Panel B: Governance Effects on Cost of Equity Capital - Rank Regressions**

$$\text{IMPLIED\_CC} = \beta_0 + \beta_1 R\_BETA + \beta_2 R\_SIZE + \beta_3 R\_MB$$

$$+ \beta_4 GOV\_COMPOSITE + \sum_{t=1997}^{2002} \alpha_t YEAR + \varepsilon$$

|  | Predicted | Estimated Coefficient | | |
|---|---|---|---|---|
| Variables | Sign | Model 1 | Model 2 | Model 3 |
| Intercept | ? | 0.255*** | 0.211*** | 0.234*** |
| Firm Characteristics: |  |  |  |  |
| R_BETA | + |  | 0.075*** | 0.077*** |
| R_ SIZE | - |  |  | -0.030*** |
| R_ MB | - |  |  | -0.018*** |
|  |  |  |  |  |
| Total Governance: |  |  |  |  |
| GOV_COMPOSITE | - | -0.033*** | -0.020*** | -0.020*** |
|  |  |  |  |  |
| Adjusted R-square |  | 0.05 | 0.12 | 0.14 |
| Incremental F-test |  | 74.93*** | 27.92*** | 29.80*** |
|  |  |  |  |  |
| Sample Size |  | 5306 | 5306 | 5306 |

[a] Using this rank regression approach results in the coefficients on the independent variables representing the cost of capital difference between the highest and lowest quintile values of an independent variable..

Variable definitions:
R_BETA is the scaled quintile rank of BETA, R_ SIZE is the scaled quintile rank of SIZE, R_ MB is the scaled quintile rank of MB, GOV_COMPOSITE is equal to the scaled quintile rank of the following sum: quintile rank of (ABN_ACCRUALS*-1) + quintile rank of FIN_TRANS+ quintile rank of %AUD_IND+ quintile rank of (%INST*-1)+ quintile rank of %INSIDER+ quintile rank of (BLOCK*-1)+ quintile rank of (G_SCORE*-1)+ quintile rank of %BRD_IND + quintile rank of % BRD_STOCK. Quintile ranks are scaled by dividing the rank value (zero to four) by four so that each observation takes on a value between zero and one. Ranks are calculated by fiscal year. YEAR is a series of year indicator variables identifying fiscal years 1997 through 2002. Other variables are defined in Table 2. *** indicates significance at the 0.01 level or better, **indicates significance at the 0.05 level or better, *indicates significance at 0.10 level or better.

**Table 8 Asset Pricing Test**

$$EXRET = \beta_0 + \beta_1 RMRF + \beta_2 SMB + \beta_3 HML + \beta_4 GOV\_FACTOR + \varepsilon$$

| Variables | Predicted Sign | Estimated Coefficient | | | |
|---|---|---|---|---|---|
| | | Governance Sample | | Market Sample | |
| | | Model 1 | Model 2 | Model 3 | Model 4 |
| | | | | | |
| Intercept | ? | 0.537*** | 0.491*** | 0.296*** | 0.253*** |
| RMRF | + | 1.194*** | 1.113*** | 0.963*** | 0.874*** |
| SMB | + | 0.372*** | 0.347*** | 0.718*** | 0.687*** |
| HML | + | 0.539*** | 0.557*** | 0.124*** | 0.144*** |
| GOV_FACTOR | + | | 0.294*** | | 0.299*** |
| | | | | | |
| Adjusted R-square | | 0.22 | 0.24 | 0.16 | 0.17 |
| | | | | | |
| Number of Firms | | 1191 | 1191 | 10758 | 10758 |

Variable definitions:
EXRET= the firm's monthly return less the monthly risk free rate, RMRF is the monthly market risk premium set equal to the return on the market less the risk free rate, SMB is the monthly size risk premium set equal to the returns of small stocks minus the returns of large stocks, HML is the monthly book-to-market risk premium set equal to the returns on low book-to-market stocks minus the returns on high book-to-market stocks. GOV_FACTOR=the return for bad governance firms less the return for good governance firms, where bad (good) is defined by the quintile rank of GOV_COMPOSITE and 5=good and 1=bad. We conduct firm specific regressions and report the mean coefficient estimates across the sample of firms. Statistical significance is assessed using the standard errors across the distribution of coefficient estimates. We require firms to have a minimum of 18 months of return data over the April 1997 to December 2003 analysis period. The Governance Sample is comprised of the 1191 firms for which we have complete governance data and at least 18 months of returns over the analysis period. The Market Sample is comprised of the 10758 firms for which we have at least 18 months of returns over the analysis period.

*** indicates significance at the 0.01 level or better.

**Table 9 Change Analysis**

$$\Delta \text{IMPLIED\_CC} = \beta_0 + \beta_1 \Delta BETA + \beta_2 \Delta SIZE + \beta_3 \Delta MB + \beta_4 \Delta GOV + \varepsilon$$

| Variables | Predicted Sign | Estimated Coefficient | |
|---|---|---|---|
| | | Model 1 | Model 2 |
| Intercept | ? | -0.065*** | -0.061*** |
| ΔBETA | + | | -0.016* |
| ΔSIZE | - | | -0.093*** |
| ΔMB | - | | 0.003** |
| | | | |
| ΔGOV | - | -0.123*** | -0.095** |
| | | | |
| Adjusted R-square | | 0.01 | 0.24 |
| | | | |
| Sample Size | | 444 | 444 |

Variable definitions:
Change (Δ) is the 2002 value minus the 1996 value; and GOV is the average of the following: the percentile rank of (ΔABN_ACCRUALS*-1) + percentile rank of ΔFIN_TRANS+ percentile rank of Δ%AUD_IND+ percentile rank of (Δ%INST*-1)+ percentile rank of Δ%INSIDER+ percentile rank of (ΔBLOCK*-1)+ percentile rank of (ΔG_SCORE*-1)+ percentile rank ofΔ %BRD_IND + percentile rank of Δ%BRD_STOCK. All other variables are as previously defined.