# Information Risk and the Cost of Capital: Review of the Empirical Literature

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## 1.0 INTRODUCTION

One of the fundamental decisions that every business needs to make is to assess where to invest its funds and to re-evaluate, at regular intervals, the quality of its existing investments [Damodaran, 2001]. The cost of capital is the most important yardstick to evaluate such decisions. Not only the hurdle rate for investment projects but the composition of the firm's capital structure is also determined by this variable. In addition, the determinants of cost of capital (especially the cost of equity capital) are relevant to the fundamental analysis literature, which attempts to shed light on the valuation role of accounting. Hence it comes as no surprise that a wide range of policy prescriptions have been advanced to help companies lower this cost. For example, Arthur Levitt, the former Chairman of the Securities and Exchange Commission, suggests that "high quality accounting standards...improve liquidity [and] reduce capital costs"[1]. The NASDAQ stock market suggests that its trading system "most effectively enhances the attractiveness of a company's stock to investors"[2], and investment banks routinely solicit business by arguing that their financial analysts will lower a company's cost of capital by attracting a greater institutional following to the stock [Easley and O'Hara, 2004, p.1553]. All these components are regarded as having an influence on the information structure surrounding a company's stock. However, the traditional capital asset pricing model (hereafter CAPM) does not allow any role for information. Easley and O'Hara [2004] therefore note that, "This exclusion [of informational role] is particularly puzzling given the presumed importance of market efficiency in asset pricing. If information matters for the market, why then should it not also matter for the firms that are in it?" [p. 1554].

Theory suggests that greater information is associated with a lower cost of capital[3] through reduced transaction costs and/or reduced estimation risk. Glosten and Milgrom [1985] suggest the positive role of information in reducing the bid-ask spread.[4] According to Glosten and Milgrom (1985), "the core

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[1] Cited in Admati and Pfleider (2000).

[2] The Nasdaq website, www.nasdaq.com.

[3] Cost of capital consists of both the cost of debt and the cost of equity capital. The survey to follow will generally look at the role of information in influencing the cost of equity capital. This is primarily because the traditional CAPM is a model for estimating required return on equity capital and estimation models based on dividend discount model capture the cost of equity capital effect. However, this is not to suggest that the cost of debt is not affected by information. Evidence regarding the role of information in influencing the cost of debt is presented in section four.

[4] The relation between accounting information and bid-ask spreads is surveyed by Callahan et al. [1997] who conclude that, "By improving the information environment for companies through better disclosure, accountants can contribute to a reduction in transaction costs, and hence the cost of capital" [p.58]. The present survey focuses on the informational impact on the direct estimation of the cost of equity

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idea is that the specialist faces an adverse selection problem, since a customer agreeing to trade at the specialist's ask or bid price may be trading because he knows something that the specialist does not" [p.72]. Amihud and Menedelson [1986] suggest and find evidence consistent with the hypothesis that average portfolio risk-adjusted returns increase with their bid-ask spread. They note that, "liquidity increasing financial policies can reduce the firm's opportunity cost of capital, and provide a measure for the value of improvements in the trading and exchange process" [p.224]. Another strand of theoretical research suggests that parameter uncertainty (estimation risk) influences the perceived unconditional rate of return distribution upon which investors make their investment decisions. An increase in information in such a setting allows investors to better estimate asset returns, which in turn, lowers the required rate of return [Clarkson et al., 1996; Coles et al., 1988; Coles et al., 1995; Bary and Brown, 1985; Klein and Bawa, 1976; Handa and Linn, 1993 among others].

Given this important positive role of information in reducing the cost of capital, this paper synthesizes archival research on the relationship between information quality and the cost of capital. The link between information quality and cost of capital is one of the most fundamental tenets in Finance and Accounting. Because of information asymmetries arising from dispersion of ownership, adverse selection costs arise between buyers and sellers of firm shares. This should result in reduced levels of liquidity for firm shares. To overcome the reluctance of potential investors to hold firm shares in illiquid markets, firms must issue capital at a discount. Discounting results in fewer proceeds to the firm and hence higher costs of capital. A commitment to increased level of disclosure[5] reduces the possibility of information asymmetries and hence should lead to a lower cost of capital effect. Also, the firm could reduce its cost of capital by structuring the governance system in a way that allows for transparency and monitoring over managerial actions. In addition, high quality auditing, analyst forecasting, etc. could provide credible information in the market regarding the future prospect of the firm and hence could reduce the cost of capital in general, and cost of equity capital in particular.

The paper is organised as follows. The next section briefly discusses the theoretical underpinnings of the effect of the role of information on the cost of capital. Section three surveys evidence on the estimation approach of the cost of equity capital. Since early cost of capital measures are based on realized returns as an ex ante measure of expected returns, the limitations of this approach are described and recent developments to estimating the cost of capital using current price, analysts' earnings expectations are elucidated. Section four surveys the empirical evidence on the relationship between information quality and cost of capital. Sub-section one looks at the role of increased disclosure in reducing the cost of capital. Sub-section two summarizes evidence on the role of earnings quality in reducing cost of capital. Finally, sub-section

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capital instead of the bid-ask spread. However, some interesting findings from recent research that uses bid-ask spread as a component of cost of capital are discussed.

    [5] Theory is sufficiently broad as to allow the meaning of "increased level of disclosure" to be interpreted as an increase in the quantity of disclosure, an increase in the quality of disclosure or both.

three summarizes research findings on the impact of corporate governance risk on the cost of capital. Section five concludes with suggestions for future research.

## 2.0 THEORETICAL UNDERPINNINGS

Analytical research suggests that firm-specific information affects the cost of capital (information risk is priced) and this risk can not be diversified away. Asymmetric information has been offered as the primary explanation for information risk resulting in observed cost of capital differences among companies [Admati, 1985]. Theory suggests that informed traders with private information exploit uninformed traders and consequently uninformed traders require a higher rate of return. A primary cause of illiquidity in the financial market is the adverse selection which arises from the presence of privately informed traders. Amihud and Mendelsen [1986] rely on the notion of exploitation by informed traders as the explanation for a higher required rate of return. They measure illiquidity as the spread between the bid and ask price. However, Brennan and Subramanyam [1996] question the use of the bid-ask spread as a measure of illiquidity and instead use intra-day data to measure illiquidity. Diamond and Verrecchia [1991] show that revealing public information increases demand from large investors due to increased liquidity by reducing information asymmetry.

Other theories that do not rely on privately informed trading are based on (i) incomplete information, and (ii) estimation risk. The first model considers the role of information when it is incomplete but not asymmetric. Of particular relevance is Merton [1987], who investigates the capital market equilibrium when investors are unaware of the existence of certain assets. In Merton's model, information is incomplete in the sense that not all investors have knowledge of every asset. However, all investors aware of the asset agree on its return distributions. Because of a lack of investor recognition, Merton [1987] shows that in equilibrium the value of a firm is always lower. In this setting, "cross-sectional differences in returns can emerge simply because traders cannot hold assets they do not know about; the lack of demand for these unknown assets results in their commanding a higher return in equilibrium" [Easley et al., 2002, p.2187].

The second model examines the effect of differential information on parameter uncertainty. Empirical applications of the CAPM model are ordinarily based on the assumptions that parameters of the model are known with certainty. However, the literature on estimation risk examines how differences in investor confidence about return distributions affect expected returns. Barry and Brown [1985] develop a Bayesian model in which "there is more information available concerning some securities than there is concerning others....such a situation [is characterized] as one in which there is "differential information" and...it leads to CAPM predictions that differ from the case of no estimation risk or of estimation risk that is constant across all securities" [p.408].

However, whether the effect of firm-specific information properties can be considered as "cost of capital" effect requires an equilibrium model with ra-

tional agents who can not diversify the information risk [Francis et al., 2004]. Easley and O'Hara [2004] develop a model where differences in public and private information affect the cost of capital, with investors demanding a higher return to hold stocks with greater private (i.e., less public) information. Easley and O'Hara [2004] summarize their model as follows:

> ..higher return reflects the fact that private information increases the risk to uninformed investors of holding the stock because informed investors are better able to shift their portfolio weights to incorporate new information. This cross-sectional effect results in the uninformed traders always holding too much of stock with bad news, and too little of stocks with good news. Holding more stocks cannot remove this risk because the uninformed are always on the wrong side...Private information thus induces *a new form of systematic risk*, and in equilibrium investors require compensation for this risk.....The model demonstrates how in equilibrium the quantity and quality of information affect asset prices....What is particularly intriguing about the model is that it demonstrates a role for both public and private information to affect a firm's required return. This provides a rationale for how an individual firm can influence its cost of capital by choosing features like accounting treatments, financial analyst coverage, and market microstructure [p.1554] (italics added).

Leuz and Verrecchia [2004] take a somewhat different approach and consider information quality to be a very important signal in aligning firms and investors with respect to capital investments. Poor-quality reporting impairs the coordination between firms and their investors with respect to the firm's capital investment decisions and hence creates information risk which results in higher expected return. Leuz and Verrecchia [2004] argue:

> ...share markets play a role in allocating capital and directing firms' investment choices. Given this function, the quality of financial reporting is important because it affects the market's ability to direct firms' capital allocation choices. The model captures this idea in that firm reports coordinate the activities of managers and investors with respect to capital investment by the firm. As a consequence, information quality affects firms' future cash flows and higher information quality (or reporting precision) reduces the firm's cost of capital. The intuition is that higher information quality improves the coordination between firms and investors with respect to capital investment decisions [pp. 1-2].

## 3.0 RECENT DEVELOPMENTS IN THE COST OF CAPITAL ESTIMATION

Despite the fact that the cost of equity capital plays an important role in managerial decision making, investors' equity valuation decisions and so forth, no well-accepted approach for estimating such as cost exists. Most of the prior empirical work on asset pricing relies on average realized returns as a proxy for expected returns. Despite the fact that tests of asset pricing theory call for measures of ex-ante (expected) returns, the widespread use of realized returns is necessitated, in part, by the fact that expected returns are not observ-

able. Furthermore, the use of realized return is defended on the ground that in an efficient market where risk is appropriately priced, the average ex post realized returns should be an unbiased estimator of the unobservable ex ante expected returns [Gebhardt et al., 2001, p.136]. Unfortunately, the estimates derived from the average realized returns have proven disappointing. Prior research employing average realized return has had difficulty establishing a significant association between returns and market beta, the most widely accepted measure of risk. Fama and French [1992] rather find a significant relationship between average realized returns and variables such as book-to-market and size. They note that:

> The cross-section of average stock returns on U.S. common stocks show little relation to the market βs of Sharpe (1964)-Lintner(1965) asset pricing model…On the other hand, variables that have no special standing in asset pricing theory show reliable power to explain the cross-section of average returns….. used alone or in combination with other variables, β…has little information about average returns….the bottom-line results is that two empirically determined variables, size and book-to-market equity do a good job explaining the cross-section of average returns….for the 1963-1990 period [pp.3-4].

Fama and French [1997] conclude that cost-of-capital estimates based on average realized returns are "unavoidably imprecise". They identify three potential problems with risk premia computed from past realized returns: (a) difficulties in identifying the right asset pricing model, (b) imprecision in the estimates of factor loadings, and (c) imprecision in estimates of factor risk premia. These problems lead to market equity premium estimates that range from less than zero to more than 10% (using a confidence band of +/- two standard errors).

The dividend discount formula for measuring the cost of equity capital has appeal because it is forward looking. The short-horizon form of the classic dividend discount model equates current stock price to a finite series of expected future cash flows and a terminal value, discounted to the present at the cost of equity capital. Since the majority of the expected future cash flows reside in the terminal value, successful deduction of cost of equity capital depends largely on the ability to discern the market's terminal value forecast [Botosan and Plumlee, 2005, p.22]. Botosan and Plumlee [2005] evaluate five models for estimating the cost of equity capital that deal with this terminal value assumption in different ways. The following tables summarize the key assumptions of the models.

Botosan [1997] calculates the cost of equity capital based on the accounting-based valuation formula of Edwards and Bell [1961], Ohlson [1995] and Feltham and Ohlson [1995]. Using Value Line forecasts of earnings and book values and long-range forecasts of earnings, book values, price-to-earnings (P/E) ratio, maximum price and minimum price, she estimates the mean (median) cost of equity capital to be 20.1% (19.0%) respectively. Her cost of equity capital estimate is increasing in market risk and decreasing in firm size [Botosan 1997, Table 6, panel C]. However, since her primary focus was to document the negative relationship between cost of equity capital estimates

Table 1
Key Assumptions of the Alternative Cost of Equity Capital Estimation Methods

| Specifications | CS | ME | Short horizon | Terminal value |
|---|---|---|---|---|
| $r_{DIVPREM}$ | No | Yes | During the forecast horizon, analysts' forecasts of dividends equal the market's expectation. | Beyond the forecast horizon analysts' forecasts of stock price equal the markets' expectation. |
| $r_{GLSPREM}$ | Yes | Yes | • During the forecast horizon, with analysts' forecasts, analysts' forecasts of earnings and book value equal the markets' expectation. • During the forecast horizon, without analyst forecasts, firm Return-on-equity (ROE) fades linearly to industry ROE. | • Beyond the forecast horizon, firms earn their industry ROE in perpetuity. • Beyond the forecast horizon, firms have a 100% dividend payout ratio. |
| $r_{GORPREM}$ | Yes | Yes | During the forecast horizon, analysts' forecasts of dividends equal the market's expectation. | Beyond the forecast horizon, each firm's ROE equals its cost of equity capital. |
| $r_{OJNPREM}$ | No | Yes | • Analysts' forecasts of earnings in years 1 and 2 and analysts' forecasts of dividends in year 1 equal the markets' expectation. | • Growth in abnormal earnings occurs at a constant rate for all time period t. • Estimated constant rate of growth in abnormal earnings equals the market's |

Table 1 (Continued)
Key Assumptions of the Alternative Cost of Equity Capital Estimation Methods

| Specifications | CS | ME | Short horizon | Terminal value |
|---|---|---|---|---|
| $r_{OJNPREM}$ | | | • Year 1 earnings and year 2 "abnormal earnings" are positive. | expectation.<br>• Constant rate of growth is less than the cost of equity and greater than zero. |
| $r_{PEGPREM}$ | No | Yes | • Analysts' forecasts of earnings in years 1 and 2 equal the market's expectation.<br>• Zero dividends in year 1. (3) Year 1 earnings and year 2 "abnormal earnings" are positive. | Beyond the forecast horizon zero growth in abnormal earnings |

Table 2

Correlation Analysis Among Alternative Proxies and Regression Coefficients of Alternate Proxies on all Risk Characteristics

| | Mean | (A) | (B) | (C) | (D) | (E) | (F) | UBETA | DM | INFO | LMKVL | BP | EXGRW | AdjR$^2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| r$_{DIVPREM}$ (A) | 6.40% | - | | | | | | 0.012 | 0.004 | 0.041 | 0.000 | 0.03 | 0.267 | 21.10% |
| | | | | | | | | (3.30) | (2.95) | (3.83) | (0.32) | (7.23) | (8.89) | |
| r$_{GLSPREM}$ (B) | 1.00% | 0.33 | - | | | | | -0.005 | 0.003 | 0.006 | 0.000 | 0.032 | -0.046 | 21.50% |
| | | | | | | | | (-1.93) | (2.77) | (1.85) | (0.98) | (6.69) | (-6.11) | |
| r$_{GORPREM}$ (C) | 2.10% | 0.61 | 0.71 | - | | | | -0.004 | 0.005 | 0.013 | 0.000 | 0.031 | 0.036 | 34.80% |
| | | | | | | | | (-4.14) | (5.03) | (1.93) | (0.53) | (13.39) | (3.27) | |
| r$_{OJNPREM}$ (D) | 6.60% | 0.61 | 0.36 | 0.68 | - | | | -0.009 | 0.003 | -0.011 | 0.001 | 0.027 | 0.327 | 58.20% |
| | | | | | | | | (-9.72) | (3.94) | (-1.69) | (2.72) | (13.22) | (19.54) | |
| r$_{PEGPREM}$ (E) | 5.50% | 0.60 | 0.30 | 0.60 | 0.86 | - | | 0.004 | 0.005 | 0.021 | -0.001 | 0.023 | 0.44 | 73.80% |
| | | | | | | | | (4.44) | (7.56) | (3.61) | (-2.23) | (10.01) | (31.28) | |
| r$_{REAL-PREM}$ (F) | 12.50% | 0.00 | 0.01 | 0.03 | 0.03 | 0.07 | - | -0.009 | 0.002 | 0.021 | -0.016 | 0.005 | 0.029 | 9.60% |
| | | | | | | | | (-4.25) | (2.10) | (2.20) | (-8.09) | (1.33) | (2.59) | |

**Source:** Table 1 adapted from Botosan and Plumlee (2005). Table 2 adapted from Botosan and Plumlee (2005). Table 2 adapted from Table 2 (Panel A), Table 3 (Panel A) and Table 5 of Botosan and Plumlee (2005).

CS and ME stand for clean surplus relation and market efficiency respectively.

r$_{DIVPREM}$ = the estimated risk premium based on the target price method less the risk-free rate; r$_{GLSPREM}$ = estimated risk premium based on the industry method (Gebhardt, Lee and Swaminathan 2001) less the risk-free rate. r$_{GORPREM}$ = estimated risk premium based on the finite horizon growth method less the risk-free rate. r$_{OJNPREM}$ = estimated risk premium based on the Ohlson and Juettner-Nauroth (2003) economy wide method less the risk-free rate. r$_{PEGPREM}$ = estimated risk premium based on the PEG formula (Easton 2004) less the risk-free rate. UBETA: Capital market beta divided by (1+ the debt-to-equity ratio). DM: Long-term liabilities at the end of the fiscal year prior to the date r is estimated. INFO: The Value Line [VL] price high less VL price low, scaled by the midpoint of VL price high and VL price low. LMKVL: the natural log of the market value of equity on 31$^{st}$ December of the year prior to the date r is estimated. BP: the book value of equity at the end of the most recent quarter prior to the date r is estimated, scaled by the market value of equity. EXGRW: earnings growth computed by dividing the difference in forecasted earnings five periods in the future less forecasted earnings four periods in the future by the absolute value of forecasted earnings four periods in the future.

and the disclosure level, she did not carry out any further test regarding the validity of her cost of equity capital estimate. Gebhard et al. [2001] proceeded in that direction. Using a discounted residual income model (RIM) and market price to estimate an implied cost of capital, the authors examine the cross-sectional association between the estimate of implied risk premium [implied cost of capital – risk free rate] and fourteen firm characteristics. Using 18,612 firm-year observations from 1979 to 1995, the authors calculate a mean (medium) implied risk premium to be 2.7% (2.0%) respectively compared to a 6.2% average based on historical returns. Also evident was an industry effect with industries like toys, automobile and tobacco requiring the highest risk premium while real estate, gold mining and agriculture the lowest. Multivariate regression of implied risk premium on firm characteristics (sign of the co-efficients in parentheses) show that, long-term growth in earnings (+), book-to-market ratio (+), industry membership proxied by average industry implied risk premium (+) and dispersion in analysts forecasts (-) are significantly related to risk premium. Beta has no significance, neither has the size variable. Further, forecasting regression results suggest that these four variables do a good job of predicting next year's implied cost of capital.

Gode and Mohanram [2003] test the empirical predictions of the Ohlson-Juettener [hereafter OJN, 2000] cost of equity capital estimates and compared this model with the residual income valuation (hereafter RIV) model in a predictive setting. Compared to RIV, which explicitly relies on dividends and assumes (i) a pattern of payout ratios and (ii) terminal value, OJN [2003] provide a parsimonious model that does not require forecasts of book value of equity and dividends. The OJN [2003] model relates the current price ($P_0$) to forthcoming earnings ($eps_1$), forthcoming dividends per share ($dps_1$), two-year-ahead eps ($eps_2$) and an assumed perpetual growth rate ($\gamma$). Both the OJN [2003] and RIV models show expected association with the traditional risk measures. However, the RIV model generally outperforms the OJN [2003] model in predicting one-year-ahead implied risk premia and realized returns potentially because the former incorporates additional information, particularly the industry median (ROE). Guay, Kothari and Shu [2004] argue that analysts are sluggish in revising their estimates of future earnings with changes in the stock price. Hence, the cost of equity capital estimates based on analyst forecasts are imprecise. Consistent with this hypothesis, they fail to find any significant positive relationship between cost of capital estimates and one-year-ahead realized returns. They further document that, implied cost of equity capital estimates contain a predictable error attributable to analysts' sluggish revisions of their forecasts. The error correlates negatively with the firm's immediate past price performance, and hence, cost of equity capital based on analysts forecasts is negatively related to the recent stock price performance. They suggest including the lagged stock return in a regression of year-ahead stock returns on cost of capital estimates. To control for sluggishness in analysts' forecast revisions, the authors suggest (i) allowing analysts extra time to impound information and (ii) remove stale forecasts.

Lee, Ng and Swaminathan [2003] use data from G-7 countries to (a) devise a practical approach to estimating the cost of equity capital to aid in international investments and (b) to conduct tests of international asset pricing

model (IAPM) using forward-looking cost of equity capital measure. Over 1990-2000, the pooled average of median and mean risk premia of G-7 countries were found to be 2.9% and 2.6% respectively. Book-to-market ratios, long-term growth rate, return volatility and lagged industry risk premia are the primary determinants of the implied risk premium in G-7 countries. Betas from a multifactor model fail to explain the implied risk premium. Chen, Jorgensen and Yoo [2004] compare the implied cost of equity capital from RIV and OJN [2003] models. The former assumes clean surplus relation (hereafter CSR) whilst the latter does not. The authors document superior performance of RIV (OJN) models in environments where CSR holds (does not hold). Sample consists of 31,199 firm-year observations from 1993 to 2001. The implied cost of equity capital from all the models are related to the traditional risk proxies. Further, the deviations from the CSR seem to affect the relative performance of the RIV and OJN models with the former outperforming the latter in countries where the CSR holds.

## 4.0  FIRM-SPECIFIC INFORMATION RISKS AND THE COST OF CAPITAL

This section summarizes empirical literature that looks at the information risk emanating from (i) disclosure quality, (ii) earnings quality and (iii) corporate governance.

### 4.1  Disclosure Quality and the Cost of Capital

Corporate disclosure is critical for the functioning of an efficient capital market. Demand for financial disclosures arises from information asymmetry and agency conflicts between managers and outside investors. Healy and Palepu [2001] provide a comprehensive survey of extant corporate disclosure literature. Theoretical research supporting a negative association between disclosure level and cost of capital follows two related streams. First, greater disclosure enhances stock market liquidity and reduces transaction costs, or increases demand for a firm's securities. All these result in reduced cost of capital. Diamond and Verrecchia [1991] and Kim and Verrecchia [1994] suggest that voluntary disclosures reduces information asymmetries among informed and uninformed investors. Consequently, investors can be relatively confident that any stock transactions occur at a "fair price" for firms with high level of voluntary disclosures. Second, greater disclosure reduces estimation risk arising from investors' estimates of the parameters of an asset's return or payoff distribution. If estimation risk is nondiversifiable, investors require compensation for this additional element of risk.

A significant amount of research has investigated the relationship between the impact of corporate disclosure on variables that are expected to be related to the cost of capital. A summary of research findings on the relation between disclosure quality and the cost of capital as well as variables that are expected to be related to the cost of capital is presented in Table 3.

For example, Healy et al. [1999] investigate whether firms with consistent improvement in disclosures as evaluated by Association for Investment Man-

Table 3.1
Taxonomy of Cost of Equity Capital Estimates and Disclosure Proxies

| | Cost of equity capital estimates | Measurement of independent variable |
|---|---|---|
| Botosan (1997) | Cost of capital is based on the valuation models of Ohlson (1995) and Feltham-Ohlson (1995). | Disclosure score (DSCORE) was self constructed by the author based on background information, two-to-five years of historical summary, key non-financial statistics, Management Discussion and Analysis, projected information. |
| Sengupta (1998) | Cost of debt (COD) is based on yield- to-maturity (YTM) and interest cost (ICOST). | DSCORE is obtained from AIMR analysts evaluation reports. |
| Botosan & Plumlee (2002) | Dividend discount model for calculating ex-ante cost of capital | AIMR analysts evaluation reports of (i) annual report disclosures, (ii) quarterly report disclosures and (iii) investors relations related disclosures. |
| Hail (2002) | Cost of equity capital estimate is based on RIV model. | Three categories of voluntary disclosures; namely (i) background and non financial information, (ii) trend analysis and MD&A, and (III) risk, value-based and projected information. |

Table 3.1 (Continued)
Taxonomy of Cost of Equity Capital Estimates and Disclosure Proxies

| | Cost of equity capital estimates | Measurement of independent variable |
|---|---|---|
| Welker (1995) | Closing spreads scaled by price. | AIMR Corporate Information Committee (CIC) reports. Higher level of informed trading is proxied by percentage of institutional share holding. High probability of information event is proxied by the standard deviation of share turnover. |
| Healy et al. (1999) | Stock liquidity as proxied by relative bid-ask spread. | AIMR Corporate Information Committee (CIC) evaluation reports. |
| Leuz and Verrecchia (2000) | Bid-ask spreads, trading volume in firm share, share price volatility are proxied as the information asymmetric component of cost of equity capital. | Dummy variable for switch to IAS or U.S. GAAP as disclosed in the footnotes. |
| Kothari and Short (2003) | Fama and French (1993) three factor model as the cost of capital estimate. | Texts were classified as good news or bad news based on (i) market risk, industry structure etc., (ii) Development and execution of firm strategy, (iii) Building of organizational capital, (iv) Image, brand and reputation, (v) Investment and financial performance, (vi) The announcement and impacts of government regulation. |

Table 3.2

Summary of Studies on the Relationship Between Disclosure Choices and the Cost of Equity Capital

| Author(s) | Objective | Sample | Results |
|---|---|---|---|
| Botosan (1997) | To explore (i) the relationships between self-constructed disclosure scores and the cost of equity capital, and (ii) whether the relationship systematically varies between high and low analyst following firms. | One hundred twenty two firm (122) from machinery industry in 1990 | (i) In the full sample of firms, cost of equity capital is negatively related to DSCORE after controlling for market beta and size but the coefficient is not statistically significant. (ii) For low analysts following firms, the coefficient is negative and statistically significant. One unit increase in DSCORE reduces cost of equity capital by 0.28% per year. For low analysts following firms, information disclosed in the annual reports assumes greater importance for investors compared to large analysts following firms. |
| Sengupta (1998) | To examine the impact of disclosure quality on the cost of debt. | A total of 114(103) firms with information to calculate the cost of debt based on yield-to-maturity (Y-T-M) and interest cost. | (i) Disclosure quality is negatively related to the cost of debt. A 1% increase in the score results in approximately 0.02% reduction in the cost of debt estimates. (ii) Lenders rely more on the DISC when the market is relatively uncertain about the firm's future (operationalized by the standard deviation of daily stock return). In this situations, traditional ratios to estimate risk like leverage, profitability etc. may not be very informative. |
| Botosan and Plumlee (2002) | To extend the study of Botosan (1997) by including more firms and a long time period. | 3,618 firm-year observations from 1985 to 1996. | Greater disclosure in the annual report results in cost of capital reduction of about 0.7 percentage points between the most and least disclosing firms. However, more timely other quarterly disclosures causes a 1.3 percentage point increase in cost of capital between the most and least disclosing firms because of greater stock return variability caused by quarterly disclosures. |

Table 3.2 (Continued)

Summary of Studies on the Relationship Between Disclosure Choices and the Cost of Equity Capital

| Author(s) | Objective | Sample | Results |
|---|---|---|---|
| Hail (2002) | To explore the relationship between disclosure quality and the cost of equity capital in the context of Switzerland. | 73 (financial and regulators firms excluded) in 1997. | Fractional rank of disclosure score is negatively and statistically significantly related to DSCORE. Companies in the sample with most forthcoming financial reporting enjoys somewhere between a 1.8% to 2.4% reduction in the cost of capital compared to the least forthcoming firms. |
| Welker (1995) | To examine the impact of disclosure quality on cross-sectional variation in the bid-ask spreads. | 1,639 firm-year observations from 427 firms in 28 different industries. | (i) Two-stage least square regression result shows that the coefficient on DISC is negative (-2.204) and significant at 1% level. (ii) Bid-ask spreads are more sensitive to variations in disclosure policy amongst firms characterized by both higher level of inforrmde trade and a high probability of information event. |
| Healy et al. (1999) | To investigate the stock performance and inter-mediation change surrounding sustained increase in disclosure. | 97 firms out of 595 in 23 industries during 1980-90 that had an increase in disclosure. | Firms with sustained increase in disclosures had higher stock returns, growth in institutional share ownership and analyst coverage. There is also evidence that relative bid-ask spreads decreased for sample firms although the prediction was marginally significant. |
| Leuz and Verrecchia (2000) | To examine whether the cost of equity capital is lower for German firms switching to IAS or U.S. GAAP than a control sample of German firms employing German accounting methods. | 102 firms in the DAX 100 index during 1998. | Firms with an international reporting strategy (IAS or U.S. GAAP switched firms) report a 35% reduction in the bid-ask spread. For trading volume proxy, median daily turnover of firms with an international reporting strategy have a median daily turnover that is 0.0044 above the German GAAP firms. However, contrary to expectation, share price volatility component has a positive coefficient for firms with an international reporting strategy. |

Table 3.2 (Continued)
Summary of Studies on the Relationship Between Disclosure Choices and the Cost of Equity Capital

| Author(s) | Objective | Sample | Results |
|---|---|---|---|
| Kothari and Short (2003) | To explore the impact of disclosures made by management, analysts and in print medium on the cost of equity capital. | 887 firms from 1996-2001 from four industry sectors. A total of 326,357 texts were analyzed. | Favourable (unfavourable) disclosures decrease (increase) the cost of equity capital. However, the source of disclosure does have a pronounced effect on the cost of capital estimates with media releases are associated with significant cost of capital effects, while disclosures made by analysts, are not. |

agement and Research (hereafter AIMR) analysts' evaluation reports, experience increased stock liquidity, institutional interest and analyst following. They use a sample of 97 firms during 1980-90 with a maximum change of 30 percentage points or more (sustained improvement in disclosure sample). Univariate results show that expanded disclosures increase stock return, growth in institutional ownership and analyst coverage. However, there is weak evidence of a decrease in analysts' forecast dispersion and relative bid-ask spreads. Multivariate results suggest that disclosure increase is positively and significantly associated with stock return, growth in institutional ownership, analyst coverage and negatively related to bid-ask spreads after controlling for earnings performance and other relevant variables. Using bid-ask spreads as the observable measure of market liquidity to identify the perceived level of information asymmetry, Welker [1995] shows that this proxy for information asymmetry is negatively related to the disclosure quality. Further, this relationship becomes more pronounced for firms with high level of institutional shareholdings (proxy for probability of informed trading) and standard deviation of share turnover (proxy for the probability of information event occurring). Welker finds that, after controlling for simultaneity between disclosure score and bid-ask spreads, the former is negatively and significantly related to the bid-ask spreads at 1% level.

Leuz and Verrecchia [2000] empirically examine the relationship between proxies for the cost of capital and disclosure levels for German firms that adopt either International Accounting Standards (hereafter IAS) or U.S. generally accepted accounting principles (hereafter U.S. GAAP) for their financial reporting, compared to firms employing German domestic accounting standards. Their choice of investigating this association in the context of Germany is motivated by the mixed U.S. evidence on disclosure reality and the cost of capital that is due mainly to the fact that "under current U.S. generally accepted accounting principles...., the disclosure environment is already rich. Consequently, commitments to increased levels of disclosure in the United States are largely incremental, thereby leading to economic consequences that are difficult to substantiate empirically"[p.92]. They hypothesize that firms selecting either IAS or U.S. GAAP should evidence measurable economic benefits in the form of a lower information asymmetry component of the cost of capital. They report evidence consistent with the hypothesis that firms with an international reporting strategy report both a reduction in the bid-ask spread and an increase in the trading volume metric. However, contrary to expectation, German firms with an international reporting strategy have a higher share return volatility. An event study methodology provides similar evidence. However, all these studies suffer from the well-known limitation of the validity of the disclosure proxy, but more importantly, these studies fail to directly estimate the cost of equity capital.

Botosan [1997] takes the first step of directly measuring the cost of equity capital based on accounting-based equity valuation technique and provides direct evidence of a negative and statistically significant relationship between voluntary disclosure level and the cost of equity capital. Using 122 firms in 1990 from machinery industry, she finds that cost of equity capital is negatively related to the disclosure score for low analyst following firms but not for high analyst firms. She suggests that this is because for low analyst firms dis-

closure in annual reports plays a much more significant role compared to firms with high analysts coverage.

Botosan and Plumlee [2002] extend Botosan [1997] by investigating the relationship between the expected cost of equity capital and three types of disclosures (annual report, quarterly and other published reports, and investor relations) for a large sample representing 43 different industries and spanning a period from 1986-1996. They find that greater annual report disclosure is associated with a lower cost of equity capital after controlling for firm size and beta. Contrary to expectations, the coefficient on the other publications score (ROPBSCR) is found to be positive and statistically significant. They argue that more frequent disclosures could attract transient investors who trade aggressively on short-term earnings. This increases the return volatility and causes an increase in the cost of capital. However, Gietzman and Ireland [2005] find the hypothesized negative relationship between timely disclosure level and the cost of equity capital in the U.K. context. They construct an innovative measure of timely strategic disclosure (which relies on quality rather than quantity) that draws on Regulatory News Service (RNS) of London Stock Exchange. Using this measure of timely disclosure, they find that timely disclosure is associated with reduced cost of equity capital and the effect is more pronounced for firms adopting aggressive accounting policies[6].

Hail [2002] studies the relationship between disclosure level and the ex-ante cost of capital in Switzerland. Using voluntary disclosure index developed by the Swiss Banking Institute, Hail [2002] finds in his 73 sample firms that disclosure score is negatively related to the cost of equity capital after controlling for the self-selection bias inherent in the disclosure choice.

Kothari and Short [2003] test for the impact of disclosure made by corporate management, analysts and financial press on cost of equity capital using a very large, content database of disclosure texts constructed from disclosure contents published in print medium. Based on the content analysis of the texts, the authors find evidence that favorable (unfavorable) disclosures decrease (increase) the cost of equity capital, but the impact differs depending on who is making the disclosures. The most pronounced effect is found for disclosures made by financial press which is consistent with the hypothesis that these reporters typically don't have any strong economic ties and relationships with individual firms and can report independently. Disclosures made by analysts, in contrast, do not have any significant impact on the cost of equity capital as research has shown that these analysts suffer from lack of objectivity because of their proclivity to curry favor with management. Kothari and Short use the Fama and French [1993] three-factor asset pricing model to estimate the cost of equity capital.

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[6] Gietzman and Trombeta [2003] analytically show that when firms with 'good prospects' adopt a conservative accounting practice, they may find little incremental benefit from also making timely voluntary disclosures. However, firms adopting aggressive accounting policies are penalized by the market with a higher cost of capital. But, if a fraction of these firms received good news then they have the incentives to differentiate themselves from other aggressive accounting policy firms but without good news, by making timely voluntary disclosures. However, the net beneficial effect may still leave the aggressive accounting policy firms with a cost of capital that is above the conservative accounting policy firms.

Francis et al. [2003], in an international setting,  investigate whether external financing need of a company drives the voluntary disclosure incentives of managers and if this, in turn, leads to a reduced cost of equity capital in countries outside the U.S.A. For a sample of 856 firm observations from 34 countries and 18 industries, authors document a significant positive relationship between disclosure level (measured by Centre for International Financial Accounting and Research, CIFAR index) and external dependence of an industry after controlling for legal origin and the financial structure of a country. Also, predicted disclosure score from the first stage regression has a negative and significant relationship with the ex-ante cost of equity capital.

Richardson and Welker [2001] test the relation between financial and social disclosure and the cost of equity capital for a sample of Canadian firms.[7] They find that the quantity and quality of financial disclosure is negatively related to the cost of equity capital for firms with low analyst following (similar to Botosan's findings). However, they find a significant positive relation between social disclosures and the cost of equity capital which is contrary to expectations. They conjecture that this anomalous result may be due to the poor economic conditions that characterize their sample period. Consistent with this, they find that "there is essentially no relation between social disclosure and cost of equity capital for firms with above average return on equity, but a significant increase in the cost of capital accompanying better social disclosure for below average return on equity firms"[p.612]. In other words, firms with below average performance make increased social disclosure to obfuscate the poor performance.

Sengupta [1998] provides evidence that disclosure quality is negatively related to the cost of debt financing. A firm's disclosure policy allows lenders and underwriters to better estimate the default risk of the borrower. Using analysts evaluation of disclosure practices reported by AIMR as a proxy for overall disclosure quality, the author shows that the coefficient on DISC is negative and statistically significant at 5%(1%) level for yield-to-maturity (YTM) and total interest cost (ICOST)-based measures of cost of debt, respectively. Further, the author shows that there is greater reliance on disclosures when the market uncertainty surrounding the firm is high. Though not directly testing the relationship between disclosure level and the cost of debt, Mansi et al. [2004a] find evidence in the corporate bond market that properties of analyst forecasting (forecast accuracy, forecast dispersion and analyst following) are significantly related to credit spreads and credit ratings. They further find that, the impact of analysts forecast on the cost of capital is larger in firms with relatively more private information (proxied by the intensity of R&D, intangible intensity).

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[7] They develop their disclosure score based on the Society of Management Accountants of Canada (SMAC) and University of Quebec at Montreal (UQAM) sponsored assessments of the annual reports of a broad section of Canadian firms. They claim this measure to be unique because the scores contain a ranking of firms on both the quality and level of financial disclosure and social disclosure contained in annual reports.

## 4.2   Financial Reporting Quality and the Cost of Capital

Financial reporting of low quality earnings increases the risk of inefficient resource allocation. The arbitrariness of many accounting measurement and valuation techniques, and the incidence of earnings manipulation by managers adversely affects the financial reports, particularly the information content of earnings. Recent corporate scandals of Enron, WorldCom and other companies including Sunbeam, Waste Management, Adelphia etc. have highlighted the importance of quality of earnings issue. High quality earnings, by reducing the uncertainty in earnings as an informative signal about the pay-off structure, decrease the cost of capital. A summary of empirical research on the relationship between financial reporting quality and the cost of capital is presented in Table 4.

Francis et al. [2004] investigate the association between properties of earnings and the cost of capital. They hypothesize that since earnings is a premier source of firm-specific information and this information is priced (i.e., affects the cost of equity capital), there should be an inverse relationship between earnings attributes and the cost of capital. They use accruals quality (AQ), earnings persistence, earnings predictability and earnings smoothness as "accounting-based" and value-relevance, timeliness and conservatism as "market-based" earnings attributes. Their empirical result provides support of their hypothesized negative relationship between earnings attributes and the cost of capital.

In a follow up paper, Francis et al. [2005] rely on the theoretical notion that information risk (poor quality firm-specific information that is relevant for investment decision making) is a non diversifiable risk factor and show that this risk is priced in the cost of debt and equity capital.[8] Further, they disentangle the components of information risk proxy into (i) innate (fundamental) factors and (ii) discretionary factor (managerial choices). They find that firms with poor AQ have both higher cost of debt and cost of equity. Regarding the impact of innate versus discretionary components of AQ, the authors find that the cost of capital effect of a unit of discretionary AQ is smaller both in magnitude and statistical significance than the cost of capital effect of a unit of innate AQ. This finding contradicts arguments that reporting quality is largely determined by management's short-term reporting choices.

Barone [2003] investigates the effects of variation in the level of perceived earnings quality on the expected cost of equity capital. Two measures of the market's perception of the quality of reported earnings are developed. Multivariate regression result of these earnings perception scores find a negative and statistically significant association with the two measures of the cost of capital [OJN, 2003 and Easton, 2002]. Documenting this relationship is thought to be important because value-relevance studies fail to answer this question by considering variation in prices alone. However, this variation could be caused by expected value of future payoffs (the numerator in the

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[8] Aboody, Hughes and Liu [2005] use earnings quality as a measure of information asymmetry and find that this factor is priced in the market. They then empirically provide evidence that insiders trade more profitably in firms with poorer earnings quality (higher information asymmetry risk).

Table 4.1

Taxonomy of the financial reporting quality and the cost of capital measures

| Author(s) | Cost of capital estimates | Earnings quality measures |
|---|---|---|
| Francis et al. (2004) | Cost of equity capital is derived from price target and dividend data provided in Value Line reports. | Accrual quality: the standard deviation (SD) of a firms residuals from a regression of current accruals on lagged, current and future cash flows from operations. |
| Francis et al. (2005) | Cost of debt: Interest exp $_{t+1}$/ [Average interest bearing debt ($_t$ and $_{t+1}$)/2] Cost of equity capital: (i) Industry adjusted E/P ratio (ii) One factor asset pricing model (iii) Three-factor asset pricing model. | Accrual quality: the SD of a firm's residuals from a regression of current accruals on lagged, current and future cash flows from operations. |
| Barone (2003) | OJN (2003) and Easton (2002) models for calculating the implied cost of equity capital. | Fundamental information signals used in the earnings quality measure by Lev and Thiagarajan (1993) and author-developed earnings quality measure. |
| Cohen (2003) | OJN (2003) version for estimating the cost of equity capital. | Financial reporting quality is the residual from regressing year-ahead cash flow from operations on current cash flow and accruals components. |
| Hribar and Jenkins (2004) | Gebhardt et al. (2001) RIV model, Gode and Mohanram (2003) | General Accounting Office (GAO) database of accounting restatements. |

Table 4.1 (Continued)

Taxonomy of the financial reporting quality and the cost of capital measures

| Author(s) | Cost of capital estimates | Earnings quality measures |
|---|---|---|
| | implementation of OJN (2003) model and Easton and Monahan (2003) basic price to forward earnings model. | |
| Mikhail et al. (2004) | Implied cost of capital is calculated based on the short horizon form of the dividend discount model. | Dummy variable taking on 1 for surprise firms and zero otherwise. Earnings surprise is calculated as the difference between consensus analyst forecast and actual earnings. |
| Bhattacharya et al. (2003) | Cost of equity capital is measured by (i) dividend yields approach, and (ii) the ICAPM. | Earnings aggressiveness: higher than median accruals at country level. Loss avoidance: [Number of firms with small positive earnings - number of firms with small negative earnings]/ [Number of small positive + number of small negative.] Earnings smoothing: The correlation between change in accruals and change in cash flows both deflated by lagged total assets. |

Table 4.2

Summary of Research on the Financial Reporting Quality and the Cost of Capital

| Author(s) | Objective | Sample | Results |
|---|---|---|---|
| Francis et al. (2004) | To investigate the association between seven "accounting-based" and "market-based" earnings attributes and the cost of equity capital. | An average of 1,471 firms from 1975 to 2001. However, the Value Line (VL) sample is limited to an average of 790 firms. | After controlling for innate determinants of earnings attributes like, size, the σ of CFO, operating cycle, negative earnings etc. and traditional determinants of cost of equity capital like B/M ratio, beta size, etc. managerial discretionary portion of earnings attributes are significantly related to the cost of equity capital in the predicted directions. Overall result suggests that accounting-based earnings attributes explain more of the cross-sectional variation in the cost of equity estimates. Further, AQ is the dominant attribute with respect to the cost of equity capital effects. |
| Francis et al. (2005) | To explore the relationship between (i) accruals quality and the cost of debt and equity capital, and (ii) disentangle the cost of capital effect of innate versus discretionary components of AQ. | 76,195 firm-year observations from 1970–2001 for cost of debt regressions and 8,881 firms with at least 18 monthly returns for cost of equity capital estimates. | (a) The mean coefficient on AQ suggests a difference of 126 basis points in realized cost of debt between the worst and the best AQ decile. (b) In both one-factor and three-factor asset pricing model, AQ enters the regression with a positive sign and statistically significant coefficient. (c) Cost of debt effect for innate AQ is six times as large as the mean coefficient on discretionary AQ (0.24 versus 0.04). The same effect is also evident for cost of equity capital (0.23 versus 0.10). |
| Barone (2003) | To explore the relationship between the perceptions of earnings quality and the cost of capital estimates. | 10,097 firm-year observations from 1991–2000 | Multivariate regression results show that both measures of the cost of capital estimates are negatively and statistically significantly related to the perceived earnings quality score after controlling for other known risk factors known to affect the implied cost of equity capital. |

Table 4.2 (Continued)

Summary of Research on the Financial Reporting Quality and the Cost of Capital

| Author(s) | Objective | Sample | Results |
|---|---|---|---|
| Cohen (2003) | To investigate the determinants and economic consequences (cost of equity capital effect) of firms' financial reporting choices. | 16,664 firm-year observations representing 2,363 firms from 1987-01. | (i) Investors' demands for financial information and monitoring devices influence the likelihood of firms providing high-quality information. (ii) After controlling for the endogenous nature of the reporting choices, Cohen (2003) fails to find any significant effect of high-quality reporting choices on the cost of equity capital. |
| Hribar and Jenkins (2004) | To investigate the effect of accounting restatements on the expected cost of equity capital. | 292 restatement samples from GAO database over 1997 to 2002. | All of the estimation methods show a significant increase in the cost of equity capital following the restatements. Median relative change in the three measures are 6.86%, 5.99% and 9.04% respectively. Multivariate regression result shows that increases in the cost of equity capital are greater for restatement that are initiated by the auditor. |
| Mikhail et al. (2004) | To document the cost of earnings surprises by investigating the cost of equity capital of firms that consistently fail to meet expectations. | Sample period 1980-96. 225 surprise3 firm and 163 matched no-surprise sample observations. | (i) After controlling for the known risk factors like, beta, size, leverage growth and dispersion, surprise firms have a cost of equity capital (COEC) estimate that is 500 bp higher than no-surprise firms. (ii) Surprise firms have a higher COEC than on surprise firms regardless of the sign of the earnings surprise. However, the COEC is highest for all negative earnings surprise sub-classifications. (iii) Even after incorporating analyst following factor, COEC continues to be higher for surprise firms. |
| Bhattacharya et al. (2003) | To investigate the relationship between earnings opacity and the cost of equity capital in an international setting. | 58,653 firm-year observations from 34 countries from 1986-98. | Overall earnings opacity score is positive and statistically significant vis-à-vis cost of capital measures. However, when considered individually, earnings aggressiveness is positively and statistically signi- |

Table 4.2 (Continued)

Summary of Research on the Financial Reporting Quality and the Cost of Capital

| Author(s) | Objective | Sample | Results |
|---|---|---|---|
| Bhattacharya et al. (2003) | | | ficantly related to the cost of capital estimate based on the dividend yield approach. Loss avoidance is also positively and significantly related to ICAPM at 1% level. No other opacity measure is significant. |

valuation models) or only the expected uncertainty surrounding those payoffs (the denominator) or both.

Cohen [2003] considers the endogenous nature of the firm's financial reporting choices and then goes on to examine the impact of this choice on the firm's cost of capital. Although providing high quality financial reports reduces information asymmetries and ultimately the cost of capital, many firms decide against the maximum reporting quality because of the proprietary nature of many disclosures. Cohen [2003] does not find evidence that firms choosing to provide high-quality financial information necessarily enjoy lower cost of capital after taking endogenous nature of the reporting choices into consideration. Cohen [2003] suggests that:

> ..the link found in previous research between a firm's quality of accounting information and its cost of capital results from a failure to consider factors determining the quality of financial reporting chosen by the reporting firm. ..[The] analysis implies that the information risk associated with the quality of financial reporting does not necessarily constitute an additional risk factor, but rather is a firm-specific uncertainty characteristic. This finding suggests that capital market participants are not likely to price the documented uncertainty as other risk factors, such as beta, size and book-to-market ratios. In other words the information risk associated with financial reporting quality choice is an idiosyncratic risk factor rather than a systematic one priced by investors [p. 4].

Barth et al. [2005] investigate whether firms with more transparent financial statements enjoy a lower cost of capital. Financial statements transparency is measured as the extent to which earnings and change in earnings covary contemporaneously with stock returns (return-earnings relation). Particularly, they measure financial statements transparency (FST) as the sum of $R^2$s from industry commonality regression component (FSTI) and industry neutral component (FSTIN)[9]. Using 48,326 firm-year observations from 1974 to 2000 and Fama and French [1993] three-factor model as the proxy for expected cost of equity capital, they find FST is negatively related to subsequent return and expected cost of capital. This leads them to conclude that, "a significant negative relation between financial statement transparency and both subsequent returns and expected cost of capital indicates that the Fama-French three factors model do not reflect all of the pricing effects associated with financial statement transparency" [p.30]. Further, they find that FSTIN exhibits stronger negative association with the expected cost of capital than FSTI.

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[9] They argue that estimating the return-earnings relation by industry is not likely to fully capture differences across firms in the return-earnings relation. "First, some accounting practices that affect the returns-earnings relation apply to firms in all industries...Second, accounting amounts can differ in the extent to which they reflect management's information and thus the underlying economic condition of the firm. Thus, two firms from different industries...may be more alike in terms of their return-earnings relation if their managers reveal through earnings similar amounts of private information. ...Because there likely are cross-sectional differences in the returns-earnings relation that are not captured fully by industry estimation, there is opportunity to identify additional cross-sectional similarities in the returns-earnings relation by estimating industry-neutral relations"[p. 16].

Hribar and Jenkins [2004] use implied cost of capital techniques to estimate directly the effect of a restatement[10] on the firm's cost of capital. Accounting restatements reduce the market value because of (i) revisions in expected earnings due to the non-existence of past earnings, (ii) revisions in expected growth rates, (iii) uncertainty regarding managerial competence and integrity, and (iv) perceptions about overall earnings quality. Some of these factors directly affect the discount rates that investors attach to the expected future cash flows. The authors report a relative percentage increase in the estimated cost of capital of 7.65% after restatement announcements. This finding is robust across several estimation procedures and over different time horizons. Mikhail, Walther and Willis [2004] investigate the cost of earnings surprises [actual earnings realizations – consensus analysts' forecasts] for a group of firms that consistently fail to meet market expectations. If surprise firms are characterized to have higher cost of equity capital, then managerial effort to meet market expectations makes sense. Empirical result shows that, surprise firms have a cost of equity capital approximately 500 bp higher, on average, than control firms regardless of the sign of the earnings surprise. Further, firms with negative earnings surprises experience the highest cost of equity capital.

Bhattacharya et al. [2003], in an international setting, explore the relationship between earnings opacity (poor correspondence between observable accounting earnings and unobservable economic earnings) and cost of equity in a broad cross-section of firms. Three dimensions of earnings opacity are constructed, (i) earnings aggressiveness, (ii) loss avoidance and (iii) earnings smoothing. Results show that, overall earnings opacity measure is positively and statistically significantly related to cost of equity measured using both dividend yield approach of estimating cost of capital (significant at 1% level) and IAP model of estimating cost of capital (significant at 10% level). Bharath et al. [2004] study the impact of reporting quality on the loan contract terms. Firms with poorer reporting quality (measured by unsigned abnormal accruals) face substantially higher loan spreads as well as non-price components of the loan. Their evidence is consistent with the hypothesis that poor accounting/reporting quality reflects limited information about the borrowers' future operating cash flow and this limited information risk is priced.

## 4.3   Corporate Governance Risk and the Cost of Capital

Separation of ownership and control in corporate organizations creates information asymmetry problems between shareholders and managers. Information asymmetry gives rise to moral hazard problem where managers pursue self-interested behavior at the expense of shareholder wealth. Information

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[10] Palmrose et al. [2004] and Anderson and Yohn [2002] document a significant negative cumulative abnormal return surrounding the announcement of a restatement. Palmrose et al. [2004] find more negative returns when they are due to fraud, affect multiple accounts, decrease reported income, or are initiated by auditors or management. However, they fail to find any evidence of an increase in bid-ask spread around the restatement announcement, whilst Anderson and Yohn [2002] find an increase in the bid-ask spread.

asymmetry also creates adverse selection problems where investors can not discern the true economic value of the firm. Both these factors expose shareholders to higher agency risks and rational investors demand a premium for bearing this risk. Firms with better governance structure reduce firm's cost of equity capital by mitigating agency risks. Weak governance, on the other hand, exposes shareholders to greater agency risks. This additional risk due to weak governance could be referred to as governance risk [Ashbaugh et al., 2004a, p.5]. Governance literature primarily focused on agency risks arising due to information asymmetry resulting from ownership dispersion. However, with the path breaking works of La Porta et al. [1997, 1998, 1999, 2000], researchers began to focus on agency risk arising from concentrated control. In highly concentrated structure, dominant owners expropriate minority shareholders because of the wedge between control rights and cash flow rights. This makes outside investors discount shares of such companies [Classens et al., 2002; Lins, 2003; Dyck and Zingales, 2003; Nenova, 2003]. Further, larger wedge between control rights and cash flow rights gives rise to increased earnings management propensities [Haw et al., 2004]. Empirical research findings on the association between corporate governance risk and the cost of capital are presented in Table 5.

In the U.S.A context, Ashbaugh et al. [2004a] investigate the impact of governance attributes on the firm's cost of equity capital. Governance attributes are classified into (i) financial information quality (ii) ownership structure (iii) shareholder rights, and (iv) board structure. Empirical results show that financial information quality is negatively related to the cost of capital estimates. Independence of the board and the percentage of the board that owns stock are negatively related to cost of capital. Finally, concentrated ownership in the form of the number of blockholders is positively related to cost of capital. Better governed firms, on average, have a cost of capital that is 88 bp lower than firms with weaker governance. Regression results also suggest that governance affects firms' cost of capital directly, as well as indirectly via β, since most of the governance measures are significantly associated with β.[11]

Huang [2004] investigates the impact of firm-level variation in shareholder rights on the ex-ante cost of equity capital estimates. Shareholder rights reflect the shareholders' ability to replace managers. Weak shareholder rights place strong restrictions on the shareholders' ability to replace current managers and lead to the entrenchment effect leading to higher cost of capital. On the other hand, job security stemming from weak shareholder rights reduces managerial myopia and allows managers to invest in long-term value maximizing projects. This, in turn, lowers the cost of capital. Using 8,836 firm-year observations, Huang [2004] finds a positive and significant relationship be-

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[11] Garmaise and Liu [2005] argue that managerial dishonesty destroys firm value, in part, through higher exposure to systematic risk. When dishonest managers have privileged access to information and control (control model), dishonest managers hide bad outcomes and therefore set the investment level consistently too high. Since shareholders do not have control, they can not adjust the firm's investment downward to account for the false signal. In a cross-country setting they find that more corrupt countries (proxy for managerial dishonesty) tend to have higher betas.

Table 5.1

Corporate governance proxies and the cost of capital

| Author(s) | Cost of equity capital estimates | Governance variables |
|---|---|---|
| Ashbaugh et al. (2004) | Average annual Value Line 3 to 5 year expected return over the 12 months encompassing the firm-year observation's fiscal year. | Financial information quality; Ownership structure; Shareholder rights ; Board structure; |
| Huang (2004) | OJN (2003) abnormal earnings- based valuation model. | G score: compiled by Gompers, Ishi and Metric (2003) through an analysis of publications by the Investor Responsibility Research Centre. Control for governance risk like, duality of CEO and Chairman, CEO stock ownership and incentive-based compensation. |
| Hail and Leuz (2004) | Claus and Thomas (2001), GLS (2001), OJN (2003) and Easton (2004) models. | DISREQ: arithmetic mean of several sub-indices scoring disclosure requirements at the country's largest stock exchange in the areas of prospectus requirements, directors' compensation, ownership structure. SECREG: La Porta et al (2003) sub-indices including the level of public and private enforcement. LAW: La Porta et al. (1997) rule of law index. |

Table 5.1 (Continued)
Corporate governance proxies and the cost of capital

| Author(s) | Cost of equity capital estimates | Governance variables |
|---|---|---|
| Bhattacharya and Daouk (2002) | (i) Descriptive return data as a measure of cost of equity capital. (ii) IAPM (iii) dividend yield (DY) method (iv) country credit risk model of measuring the cost of equity capital. | Insider trading (IT) laws: changes from zero to 1 in the year after the IT laws are initiated. IT enforcement: changes from 0 to 1 in the year after first prosecution. Liberalization variables: changes from 0 to 1 in the month after the official liberalization date. |
| Chen, Chen and Wei (2003) | Implied cost of equity capital based on the residual income valuation models. | CLSA surveys in 2001 and 2002 for disclosure and NDCG variables. Country- level investor protection data is based on La Porta et al. (2003). |
| Hail and Leuz (2004) | Claus and Thomas (2001), the GLS (2001), the OJN (2003) implemented by Gode and Mohanram (2003) and Easton (2004) ex ante cost of capital estimate models. | American Depository Receipts (ADR) observations compriseplacements under Rule 144A,traded shares in the OTC market and NYSE, NASDAQ or AMEX exchange listings. |

Table 5.2

Summary of Literature on Corporate Governance Risk and the Cost of Capital

| Author(s) | Objective | Sample | Results |
|---|---|---|---|
| Huang (2004) | To investigate the impact of firm-level shareholder rights on the implied cost of equity capital. | Sample of 8,836 firm-year observations with data to calculate the cost of equity capital and shareholder rights variables. | (i) Both pooled and the cross-sectional regression result shows that weak shareholder rights (as proxied by higher G) is associated with higher COEC. (ii) Two-stage instrumental variable regression (to alleviate the concern of endogeneity) provide stronger positive association. (iii) Change in governance score is positively and statistically significantly associated with change in the COEC. Two stage approach suggests a 160 hp increase in COEC to a one point increase in G score. |
| Ashbaugh et al. (2004) | To examine whether governance mechanisms that are intended to mitigate agency risks, affect firms' cost of equity capital. | 5,306 firm-year observations from 1996 to 2002. | Firms with better governance reduce the cost of equity capital. (i) Firms reporting larger abnormal accruals and less transparent earnings have a higher cost of equity capital, whereas firms with more independent audit committees have lower cost of equity capital. (ii) Firms with a greater proportion of shares held by activist institutions receive a lower cost of equity but firms with more block holders have higher cost of equity capital. (iii) Cost of equity capital and independence of board members and the percentage of the board owning stock is negatively related. |
| Bhattacharya and Daouk (2002) | To investigate the relationship between the existence and the enforcement of insider trading laws and the cost of equity capital. | 103 countries around the world with stock markets. | (i) Liquidity increases and raw return decreases with the initiation and enforcement of IT laws. However, the coefficient on IT enforcement is more significant. (ii) Using an ICAPM version, the authors find that the coefficient on IT enforcement variable is negative and statistically significant. (iii) using the dividend-yield |

Table 5.2 (Continued)

*Summary of Literature on Corporate Governance Risk and the Cost of Capital*

| Author(s) | Objective | Sample | Results |
|---|---|---|---|
| | | | approach (country risk variable), they find that IT enforcement coefficient to be significantly negative (positive). |
| Hail and Leuz (2004a) | To investigate the effect of U.S. cross-listings on cost of equity capital. | 3,790 ADR firm-year observations from 1992 to 2001. | (i) Cost of equity capital (COEC) of private placement dummy (exchange listing dummy) is positive (negative) and the results remain robust to a variety of control variables and alternate model specifications. (ii) comparing the COEC of pre-post ADR scenarios, authors show that after an exchange listing firms enjoy a significantly lower cost of capital by about 100 to 170 bp. ADRs in OTC (private placements) experience a reduction (increase) of 20 to 60 bp and (50 to 130 bp) respectively. |
| Hail and Luez (2004b) | To provide evidence on the role of effective securities regulation, disclosure, and legal systems on the cost of equity capital. | 35,118 firm-year observations from 1992 to 2001. | (i) Implied cost of equity capital is positively and significantly related to (a) inflation risk (b) return variability (c) market-to-book ratio and (d) macroeconomic variability and negatively related to size (ii) Disclosure regulation (DISREG) and securities regulation (SECREG) are negatively related to the cost of equity capital when regressed separately after controlling for the risk factors. Further, when DISREG is combined with the rule of law [DISREG and LAW] and [SECREG and LAW] the negative relationship holds. |

Table 5.2 (Continued)
Summary of Literature on Corporate Governance Risk and the Cost of Capital

| Author(s) | Objective | Sample | Results |
|---|---|---|---|
| Chen, Chen and Wei (2003) | To explore the impact of firm-level disclosures, corporate governance and country-level investor protection variables on the cost of equity capital. | Five hundred forty five (545) firm observations in 2001 and 2002 from Asia's nine economies. | (i) Overall firm-level disclosure scores are negatively related to the cost of equity capital, (ii) Non-disclosure related corporate governance variables (NDCG), too, are negatively related to the cost of equity capital. In the presence of NDCG, coefficient on overall disclosure scores become weaker (from -0.12 to -0.07). (iii) Country-level investor protection (LEGAL) affects the cost of equity capital in a negative and statistically significant way and makes disclosure coefficient insignificant. |

tween shareholders rights (G score) and the cost of equity capital and also between the change in G score and the change in cost of equity capital. Overall, the result suggests that weak shareholder rights increase agency costs and the market is efficient in impounding such effect into the cost of equity capital.

Bhattacharya and Daouk [2002] investigate whether the existence and enforcement of insider trading laws affect the cost of equity capital. They identify two sources that could make free insider trading to have a cost of equity effect. First is the liquidity problem, i.e., shareholders would price protect themselves by increasing the sell price and decreasing the buy price. This will increase the transaction costs and consequently will have a cost of equity capital effect. A second reason is that controlling large shareholders could easily be tempted by management to make profits from stock tips rather than profits from hard-to-do monitoring. Using four different approaches of measuring the cost of equity capital, the authors find that insider trading enforcement (not the mere existence of insider trading laws) is associated with a significant decrease in the cost of equity capital.

Hail and Leuz [2004a] investigate the impact of cross-listings on the U.S. exchanges on the cost of equity capital of the cross-listed firms. Since cross-listed firms are required to substantially increase their disclosures, and cross-listings are known to improve investor recognition and enlarge a firm's investor base, COEC is expected to decrease for the cross listed firms. Using 3,790 firm-year observations from 1992 to 2001, authors show that exchange listing reduces the COEC the most (between 40 and 130 bp) followed by U.S. over-the-counter (OTC) listings (between 20 and 40 bp). However, private placement by cross-listed firms actually increases the COEC. They argue that:

> ..private placements under Rule 144A require private communications with selected institutional investors. If such private communications lead to information asymmetries among investors, an increase in the cost of capital is not unexpected. An alternative explanation is that investors view the decision to initiate a private placement as a "bad signal" in the sense that the firm reveals an interest in raising capital in the U.S. but shuns the legal consequences associated with a cross-listing in the OTC market or on a stock exchange [p. 19].

Further, firms from countries with weaker institutions seem to enjoy the larger cost of capital effects. Hail and Leuz [2004b] investigate whether the effectiveness of securities regulation and supporting legal institutions affects firm's cost of equity capital. They find that (i) country factors capturing differences in inflation rate and macroeconomic variability are significantly related to international cost of capital difference, (ii) firms in countries with strong disclosure and securities regulation and effective legal systems display a significantly lower cost of capital and (iii) the effects of the disclosure and legal systems are strongest for capital markets that are least integrated. Using 35,118 firm-year observations from 40 countries from 1992 to 2001 authors find that going from the 25th to the 75th percentile of disclosure requirements index, cost of capital reduces by 90 basis points. For securities regulation the comparable reduction is 60 basis points. Regarding market segmentation test,

estimated effects of securities regulation is over 220 basis points going from the 25th to the 75th percentile of the variable.[12]

Chen, Chen and Wei [2003] investigate the role of disclosure levels, firm-level corporate governance (non-disclosure corporate governance NDCG) and country-level investor protection in reducing the cost of equity capital among nine Asian countries. Using two newly released surveys from Credit Lyonnais Securities Asia (CLSA) and using the RIV model to estimate the implied cost of equity capital, the authors show that firm-level disclosure score is negatively and significantly related to the cost of equity capital. However, compared to the disclosure level, the NDCG scores have a more pronounced effect in reducing the cost of equity capital (1.26 percentage points versus 0.47 percentage points, respectively). In addition to the firm-level governance variables, country-level investor protection (captured by the construct LEGAL) also impacts the cost of equity capital negatively. The coefficient on disclosure, however, loses significance but firm-level governance variables continue to be negative and statistically significant at 1% level.

Khurana and Raman [2004] test the hypothesis that higher audit quality as perceived by investors should result in lower cost of equity capital. An audit ameliorates the valuation problem caused by private information and that the reputation of the auditor can reduce investor uncertainty and lower perceived risk. Using PEG approach for estimating the ex-ante cost of equity capital, they find that high quality auditors (Big 4) are associated with reduced cost of capital effect for U.S.A. firms but not firms in Australia, Canada and U.K. This led them to conclude that "it is litigation exposure rather than reputation protection that drives perceived audit quality"[p. 492].

### Corporate Governance and the Cost of Debt

Recent research has started to focus on the corporate governance impact on the cost of debt in the U.S.A market. Since cost of debt is positively associated with the likelihood of default and availability of credible information for accurately estimating the default risk is important for bondholders, it is interesting to explore whether governance mechanisms can influence the assessment of default likelihood. Bhojraj and Sengupta [2003] find that firms with greater institutional ownership and stronger outside control of the board enjoy lower bond yields and higher ratings on their new bond issues. However, as the institutional ownership gets concentrated, the firms face lower ratings and higher bond yields. Ashbaugh et al. [2004b] document that firm credit ratings are, (i) negatively associated with the number of blockholders that own at least

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[12] Daouk et al. [2005] use detailed data from individual stock exchanges to develop a composite capital market governance (CMG) index that captures three dimensions of security laws: (i) the degree of earnings opacity; (ii) the enforcement of insider trading laws; and (iii) the effect of removing short selling restrictions. They use three proxies of market performance, namely (i) market liquidity; (ii) cost of equity capital and (iii) pricing efficiency (stock price synchronicity and IPO underpricing). Thus, their governance index as well as market performance proxies are broader than that employed by Hail and Leuz. They, too, find evidence that CMG index are associated with decrease in the cost of equity capital, increase in market liquidity and increase in pricing efficiency.

5% ownership in the firm; (ii) positively related to weaker shareholder rights (proxied by anti takeover provisions); (iii) positively related to the degree of financial transparency; and (iv) positively related to over-all board independence, board stock ownership and board expertise. They also find that CEOs of firms with speculative grade credit ratings are overcompensated to a greater degree than their counterparts at firms with investment grade ratings and this partially explains why some firms continue to operate with weaker governance.

Klock et al. [2004] examine the relation between the cost of debt financing and a governance index that contains various antitakeover and shareholder protection provisions. Using data from Investor Responsibility Research Centre (IRRC) for the period from 1990 to 2000, they find evidence that strong antitakeover provisions are associated with a lower cost of debt financing which is exactly opposite the finding from cost of equity capital. Anderson et al. [2004] find that the cost of debt is inversely related to board independence and board size. In addition, fully independent audit committees are associated with a significantly lower cost of debt financing. Similarly, yield spreads are also negatively related to audit committee size and meeting frequency. Mansi et al. [2004b] find that (i) auditor quality and tenure are negatively related to the cost of debt financing, and (ii) the relation between auditor characteristics and the cost of debt is most pronounced in firms with debt that in noninvedstment grade.

Pitman and Fortin [2004] examine whether engaging a Big Six auditor enables young firms to reduce their borrowing costs. Firms in their early years of formation rely more on external financing but market frictions inhibit such firms to have access to external financing. Following this line of reasoning, the authors predict and find evidence that firms engaging Big Six auditor in their early years benefit from reduced cost of debt. However, as firms become known, the influence on firms' interest rates of relying on quality auditor decreases over time, i.e., the economic value of auditor reputation declines with age as borrowers shift toward exploiting their own reputations to reduce information asymmetry.

## 5.0 CONCLUDING REMARKS AND DIRECTIONS FOR FUTURE RESEARCH

Managers, investors, and regulators have a compelling interest in identifying the factors that influence the cost of raising funds from the market. Managers require a precise estimate of their firm's cost of equity capital for capital budgeting. Investors require the same for equity valuation; regulators need to understand the impact of new accounting standards on the cost of raising funds from the market. Theory suggests that increased information reduces the cost of capital through reduced transaction costs and/or reduced estimation risk. Despite the importance of information, traditional asset pricing models do not allow any role for information. Recent research has made considerable progress in delineating the informational role on the cost of capital.

This survey has summarized the archival research regarding the impact of information risk on the cost of capital, in general, and cost of equity capital in particular. Disclosure quality affects the cost of capital. Firms disclosing more

information experience reduction in the cost of capital or asymmetric information component of cost of capital. However, research has shown that not all types of disclosures are associated with reduction in the cost of capital. For example, analysts' disclosures are not significantly associated with the cost of capital implying that analysts lack objectivity because of their well-known ties to corporate management. However, studies on voluntary disclosures suffer from the difficulty in measuring the extent of voluntary disclosure. Healy and Palepu [2001] outline the limitations associated with disclosure proxies used in the extant research [see section 5.2.3., pp. 426-427]. Information risk emanating from financial reporting quality affects the cost of equity capital. However, endogenous nature of financial reporting choice needs to be carefully considered in research design choice since at least one study finds no significant effect of reporting quality on the cost of equity capital once the endogenous nature is controlled. Finally, there is considerable empirical evidence that governance risk affects the cost of capital. Firms with better governance structure reduce firm's cost of equity capital by mitigating agency risks. Weak governance, on the other hand, exposes shareholders to greater agency risks.

## Directions for Future Research

The relationship between extensive voluntary disclosures and the cost of capital has been tested by many researchers over the years. Although theory suggests that extensive disclosures should reduce information asymmetry among investors and consequently reduce the cost of capital, empirical evidence is far from conclusive. Whether this is due to the measurement error in the cost of capital estimates and/or disclosure index remains to be explored. Healy and Palepu [2001, pp.430-431] discuss the limitations of studies of capital market consequences of voluntary disclosures. They identify potential endogeneity to be the most important limitation of the studies. Since disclosure changes and performance changes go hand in hand it is difficult to isolate the impact of disclosure *per se* on the variables of interest, i.e., the cost of capital. Also as long as a reliable model of the relation between performance and disclosure is not developed this problem is likely to plague the researchers.

Regarding measurement error in the cost of equity capital estimates, Botosan and Plumlee [2005] note that:

> All of the models [they consider] utilize analysts forecasts and current stock prices in estimating cost of equity capital, so may be affected by biases in forecasts or market inefficiencies......since each of the cost equity capital estimation models employ different types of forecasts, the vulnerability of the models to certain types of bias varies across models. If one considers the combined effect of estimates on the conglomeration of biases in analysts' forecast and market prices and violations in the models' underlying assumptions, it is easy to understand why some models yield estimates that demonstrate erratic and unstable relationships with firm risk [pp. 48-49].

As described earlier, Kothari and Shu [2004] argue that analysts are sluggish in revising their estimates of future earnings with changes in the stock

price and hence, render the cost of equity capital estimates based on analysts' forecasts imprecise. Consistent with this hypothesis, they fail to find any significant positive relationship between cost of equity capital estimates and one-year-ahead realized returns. They further document that, implied cost of equity capital estimates contain a predictable error attributable to analysts' sluggish revisions of their forecasts. The error correlates negatively with the firm's immediate past price performance and hence cost of equity capital based on analysts forecasts is negatively related to the recent stock price performance. Thus, the determination of cost of capital will remain a fruitful avenue for future researchers.

Is accounting regulation necessary? Do companies provide credible information to market participants even in the absence of regulation?[13] Proponents of a free-market perspective on accounting regulation tend to believe that accounting information should be treated like any other good, and that demand and supply forces should be allowed to determine the optimal supply of accounting information. However, the pro-regulation perspective suggests that regulation is necessary because of market failure for public goods.[14] One way to look at the relative cost versus benefit of a regulatory change is to look at its effect on the cost of capital. Gomes et al. [2004] find that small firms lost, on average, 17% of their analyst following post REG FD, experienced higher forecast error and volatility at earnings announcements. All these contributed to higher cost of equity capital for small firms but not for large firms. Small firms may need selective disclosure of information to maintain and/or attract analyst following, because of very low liquidity that makes cost of obtaining private information higher than the gain from trading on that information. Future research should consider the cost of capital effect of major regulatory revisions, or initiation of new regulation, since now better methods of calculating the cost of capital have been developed.

The impact of audit quality on the cost of capital remains a fruitful area for further research. Auditors provide investors with independent assurance that the firm's financial statements conform to generally accepted accounting principles. Research by Khurana and Raman [2004] show that high quality auditors are associated with lower cost of equity capital only in the U.S.A. but not in Canada, U.K. and Australia. Why is there no reputational effect on the cost of equity capital? Extending this line of research in the emerging markets would provide insightful results. Fan and Wong [2002] find that in the emerging market of East Asia, high quality auditors play a corporate governance role in that firms with high agency conflicts hire high quality auditors. This is consistent with the fact that auditor reputation plays a role in the non-litigious environment and environment characterized by lack of traditional governance

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[13] Barton and Waymire [2004] examine the extent to which managers, absent a regulatory mandate, actually supply higher quality financial reporting that mitigates investor losses during a financial crisis. Using data from 1929 U.S. stock market they find that contracting and control conflicts induce managers to provide high-quality information even in the absence of regulation and firms with high –quality information suffered less during the stock market crash. Greenstone et al. [2003], on the other hand, find positive market reactions to the 1964 Securities Acts amendments in the U.S.A. which is the last major imposition of mandatory disclosure requirements.

[14] For a theoretical perspective on disclosure regulation see Greenstone et al. [2003] and references therein.

mechanisms. However, whether this translates to a tangible benefit in the form of lower cost of equity capital remains unexplored. Since, alternative and traditional governance mechanisms are not developed in emerging markets the role of quality auditor could be more important compared to the developed countries. Further, how does the provision of non-audit services (NAS) affect the cost of equity capital remains unexplored. Whether the provision of NAS by the incumbent auditor impairs independence or increases efficiency is still debated.[15] If market participants perceive that providing NAS impairs auditor independence, then a positive relationship between NAS and cost of equity capital is expected.

Research could also explore the relationship between earnings management and the cost of capital [Bhattacharya et al. 2003] in a setting where the prevalence of family-controlled ownership, close ties between the controlling families and top executives, and the detachment of the controlling owners' control power from their cash flow rights, create a severe agency conflict between minority investors and controlling shareholders. Haw et al. [2004] focus on the pervasiveness of income management induced by the control-cash flow divergence of the ultimate owners, and the role of not only legal but also extra-legal institutions[16] in limiting insider earnings management. They find high level of tax compliance to be particularly effective in curbing earnings management.

A high level of tax compliance subsumes the effects of the other extra-legal factors in limiting income management induced by the control divergence. This evidence is consistent with the argument that effective tax system curbs insider private control benefits because unlike minority shareholders, tax authorities have disciplinary powers and incentives to monitor and enforce their rights and therefore function like a public good [p. 451].

To what extent countries with higher level of tax compliance and/or effective extra-legal institutions enjoy a lower cost of capital benefit? Although cost of capital consists of both cost of equity capital and cost of debt, empirical research has primarily focused on the informational effect on the cost of equity capital. However, despite the fact that debt is the primary means of raising long term capital in many parts of the world, paucity of research on the informational effect on the cost of debt capital is surprising. Recent research has started to explore the role of governance risk on the cost of debt (summarized in section 3.3). However, to date, no research exists that looks at the impact of information on the cost of debt in a cross-country setting. Future research could explore this issue.

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[15] Beattie and Fearnley [2002] provide an extensive review of the literature on auditor independence and non-audit services.

[16] The extra-legal institutions they consider are the extent of product market competition, diffusion of the press and tax compliance.

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