Does Information Risk Really Matter?

An Analysis of the Determinants and Economic Consequences of Financial Reporting Quality

Daniel A. Cohen*

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ABSTRACT

I investigate the determinants and economic consequences associated with financial reporting quality. I find evidence of a positive association between investors' demands for firm-specific information and financial reporting quality. In addition, the evidence suggests that higher proprietary costs (proxied by capital intensity, product market competition, and growth opportunities) are associated with a lower quality of financial information. Controlling for the firm-specific characteristics determining financial reporting quality, I find evidence of a negative association between firms' total risk and financial reporting quality. Decomposing total risk into a systematic component and an idiosyncratic one, the results imply that firms providing financial information of higher quality do not necessarily enjoy a lower cost of equity capital. However, a significant negative relation is documented between reporting quality and idiosyncratic risk. This suggests that the quality of accounting information cannot be characterized as an additional systematic priced risk factor, but rather as an idiosyncratic one, once the firm-specific characteristics determining information quality are controlled for. These results demonstrate the importance of explicitly controlling for the determinants of financial reporting quality when investigating the associated economic consequences and question recent empirical evidence on the association between reporting quality and the cost of equity capital.

*Stern School of Business, New York University, New York NY 10012; E-Mail: dcohen@stern.nyu.edu.
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1. Introduction

I investigate the determinants and economic consequences of cross-sectional variation concerning the quality of financial reporting.

Whether disclosure policies and financial reporting affect a firm's cost of equity capital is one of the most interesting and important questions in the accounting and finance literature today. To date, there is a growing body of evidence that information quality and disclosure policy lowers the equity cost of capital (e.g., Botosan [1997], Easley and O'Hara [2004]). However, this evidence is troubling for two reasons. First, classical asset pricing theory shows that diversifiable risks are not priced, and there are a paucity of compelling arguments for why information risk is diversifiable (e.g. Hughes, Liu and Liu [2005]). Second, most existing empirical studies take disclosure policy and financial reporting quality to be exogenous, although it is generally agreed that firms optimize their disclosure policy. Furthermore, the specific characteristics of firms that provide a certain quality of financial information may also affect the consequences of financial reporting. The purpose of this study is to extend prior literature by carefully identifying the determinants of firms' financial reporting quality and investigating whether there is evidence that information risk affects the cost of equity capital once the firm-specific characteristics of this information risk are controlled for.

Economic theory suggests that, ceteris paribus, increasing the quality of financial information reduces information asymmetries and hence lowers the cost of capital (e.g., Glosten and Milgrom [1985], Amihud and Mendelson [1986], Diamond and Verrecchia [1991], and Easley and O'Hara [2004]). A firm can reduce information asymmetries between itself and market participants and between informed and uninformed investors by providing information that helps investors in their decision making process. Consistent with these theoretical models, empirical studies using indirect measures of disclosure document that a firm's disclosure quality/level is positively associated with capital markets valuation benefits (Welker [1995], Healy et al. [1999]), and, in particular, is inversely related to its equity cost of capital (e.g., Botosan [1997], Botosan and Plumlee [2002]). Using more direct measures of accounting information quality, recent empirical work focuses on the association between earnings quality and the cost of capital (e.g., Barone [2002], Barth and Landsman [2003], Bhattacharya, Daouk and Welker [2003], and Francis et al. [2004, 2005]).

A significant shortcoming of numerous empirical disclosure studies is the failure to address the endogenous nature of disclosure quality. If researchers do not control for the determinants of disclosure policy, their inferences regarding the economic consequences of disclosure quality may be spurious (Core [2001], Fields et al. [2001]). For example, recent evidence by Hou and Robinson [2005] suggests that firms in industries that are more concentrated have lower cost of equity capital. Theory (e.g., Verrecchia [2001]) and empirical evidence (e.g., Bamber and Cheon [1998], Harris [1998]) suggest that the level of product market competition affects disclosure policies. Taken together with the recent evidence in Hou and Robinson [2005], this suggests that the level of industry competition is an important correlated omitted variable in any study investigating the association between disclosure/information quality and the cost of capital. Such considerations, among other firm-specific characteristics that determine the quality of financial information, for example, demands for capital, litigation costs, and incentive costs, make it difficult to interpret the association between information risk and capital markets valuation benefits documented in prior research. The research design used in this study specifically addresses these concerns by identifying the factors that determine the variation in financial reporting quality and the associated economic consequences.

In line with recent studies on consequences of financial reporting quality (e.g., Francis et. al [2004, 2005]), I measure reporting quality as the mapping between earnings and operating cash flows (Dechow and Dichev [2002]). These measures represent abnormal deviations between accounting earnings and cash flows. Such deviations result in larger forecast errors on future operating cash flows which impair this mapping, resulting in lower quality and increasing information risk.

I find evidence that higher investors' demands for firm-specific information are associated with higher quality of financial reporting. In addition, the results suggest that higher proprietary costs constrain the quality of financial information. My findings also indicate that firms with high-quality financial reporting policies have lower uncertainty, lower idiosyncratic risk, and lower estimation risk. However, I do not find evidence that firms providing high-quality financial information necessarily enjoy a lower cost of equity capital. The results documented imply that although information quality is associated with total risk, it is the idiosyncratic diversifiable component which drives this relation, rather than the systematic undiversifiable component.

I first replicate prior findings and provide evidence consistent with the results documented in concurrent studies [e.g. Francis et al. [2005]). I document that failure to control for firm characteristics that lead firms to have a certain quality of accounting information and enjoy a lower equity cost of capital may wrongly attribute the cost of capital benefit to information quality rather than to the underlying characteristics. In other words, the evidence suggests that the link found in previous research between a firm's quality of accounting information and its equity cost of capital results from a failure to consider the underlying factors determining the quality of financial reporting.

My analysis implies that the information risk associated with the quality of financial reporting does not necessarily constitute an additional systematic non-diversifiable risk factor, but rather is an idiosyncratic one. This finding suggests that capital markets participants are not likely to price the documented uncertainty as other risk factors, such as beta, size and book-to-market ratios. This finding is consistent with recent theoretical work by Hughes, Liu, and Liu [2005]. Hughes et al. [2005] principal result demonstrates that in economies with a large number of assets, idiosyncratic risk arising from the quality of information is fully diversifiable and does not affect risk premiums.

The major contribution of this study is that it accounts for the underlying firm-specific characteristics related to the quality of their financial reporting when investigating the associated economic consequence. I show that the failure to do so affects the inferences made and conclusions drawn by previous studies. In addition, this study's findings have important implications for research on the consequences of firms' disclosure policies. The evidence I present suggests that the variation in financial reporting quality depends not only on the benefits firms expect to derive from disclosure, but also on other firm-specific attributes. Future work on determinants and consequences of financial reporting policies should thus consider not only the capital market benefits associated with financial reporting policies, but other firm-specific characteristics, such as product market characteristics, which constrain the quality of reported earnings.

The remainder of the paper is organized as follows. Section 2 provides a literature review and presents the theoretical background on the determinants and consequences associated with financial reporting policies. Section 3 describes the research design and addresses methodological issues. Section 4 presents the sample selection criteria and discusses the empirical results. Section 5 concludes.

2. Relation to Prior Research

Theoretical research investigating the link between disclosure and a firm's cost of capital suggests a negative association between the two. The first stream of research arguing for this association concludes that firms with increased levels of disclosure reduce the cost of capital arising from information asymmetries, either between a firm and its stockholders, or between potential traders in the firm's shares. Examples of theoretical work in this area are Copeland and Galai [1983], Glosten and Milgrom [1985], and Diamond and Verrecchia [1991]. Diamond and Verrecchia [1991] suggest that higher disclosure reduces the amount of information revealed by a large trade in a firm's securities, thereby reducing the negative price impact associated with such large trades. In this scenario, investors would have relatively large positions in a particular firm's securities. There would be a higher demand for the firm's securities, which would increase the price of the firm's stock, thereby reducing the equity cost of capital.

Empirical work by Amihud and Mendelson [1986] suggests that firms whose stocks have a higher bid-ask spread have a higher cost of equity capital because investors demand compensation for the added transaction costs. The authors contend that firms that provide more public information can reduce the adverse selection component of the bid-ask spread, and thus reduce their cost of equity capital.

A second stream of research focuses on the link between estimation risk and the cost of capital (e.g., Barry and Brown [1985]). This research suggests that a firm can reduce the estimation risk associated with its payoff distribution by providing more disclosures. If investors price the estimation risk, providing more information will reduce the firm's cost of capital.

In recent work, Easley and O'Hara [2004] demonstrate a link between information structure (private versus public information) and the cost of capital. Developing a rational expectations asset pricing model, they argue that more private information increases the risk faced by uninformed investors since better informed investors can shift their portfolio weights to adjust for new information. Easley and O'Hara [2004] imply that firms can affect their cost of capital through the precision and quantity of the information they provide investors. Building on the above theory, Francis et al. [2004, 2005] seek to provide evidence consistent with the pricing effects of information quality and claim that accrual quality is a systematic priced risk factor. The evidence documented in Francis et al. [2004, 2005] suggests that information seems to affect the cost of capital. These results are puzzling since the theoretical underpinning behind this finding relies on Easley and O'Hara's [2004] model which is still a prediction of how information asymmetry affects the cost of capital. Hughes et al. [2005] question the theoretical underpinnings of the specifications used in recent empirical studies and show that in large economies, idiosyncratic risk as well as the asymmetric information risk associated with idiosyncratic factors is fully diversifiable and should not affect the cost of capital in a systematic manner. Given the two theoretical models developed in Easley and O'Hara [2004] and Hughes et al. [2005], an empirical question still remains as to whether information quality can be characterized as proxying for idiosyncratic components of assets payoffs which do not affect risk premiums or as a systematic undiversifiable factor which affects the risk premium. It is this main empirical question that I seek to address in this study.

One of the major limitations of empirical studies on corporate disclosures is the difficulty in measuring the quality of disclosure policies (Healy and Palepu [2001]).[1] Using the Association of Investment Management and Research (hereafter, AIMR) rankings as an indirect measure of disclosure quality, numerous empirical studies examine the association between these measures and firm characteristics and capital markets valuation proxies (e.g., Lang and Lundholm [1993], Healy, Hutton, and Palepu [1999], and Welker [1995]). Lang and Lundholm [1993] find a positive association between the AIMR scores and firm size, firm performance, and security issues, and a negative association between the AIMR scores and the correlation between earnings and returns. Welker [1995] finds that firms with higher AIMR scores have lower information asymmetry, as proxied by bid-ask spreads. Healy, Hutton, and Palepu [1999] find that firms with sustained improvements in analysts' ratings of disclosure quality (AIMR scores) show an increase in stock liquidity, analyst following, institutional ownership, and stock performance.

Previous empirical research has documented mixed and limited evidence that disclosure reduces the cost of capital. Botosan [1997] finds that manufacturing firms with a low security analyst following have a negative association between a self-constructed

[1] The difficulty in measuring disclosure quality has led some researchers to focus on management forecasts (e.g., Coller and Yohn [1997], Pownall, Wasley, and Waymire [1993]). Others examine disclosure quality ratings, for example, Lang and Lundholm [1996], Healy, Hutton, and Palepu [1999], and Welker [1995].

index of disclosure level and the cost of equity capital. In a related empirical study Sengupta [1998] provides evidence that high disclosure ratings (AIMR) are inversely associated with the cost of debt. Botosan and Plumlee [2002] find a negative relation between the annual report disclosure level (as measured by the AIMR ratings) and the cost of capital. Yet they also document that the cost of capital is positively associated with the levels of disclosures in quarterly reports (this finding is contrary to the prediction of the theory). As mentioned before, recent empirical studies (e.g., Barone [2002] and Francis et al. [2004, 2005], among others) document that earnings quality is associated with the cost of capital, suggesting that lower quality of accruals (and thus earnings) translates into a higher cost of capital.

A separate but complementary branch of analytical research examines the costs, especially the proprietary ones, associated with disclosures. Models such as Dye [1985b, 1986], Verrecchia [1983, 1990], Darrough and Stoughton [1990], Wagenhofer [1990], and Hayes and Lundholm [1996] argue that, all things being equal, the probability of disclosure decreases as the associated proprietary costs increase. Most of these proprietary costs borne by firms arise from interaction with other parties - the costs of competitive disadvantage from disclosing information to their competitors and regulators, of bargaining disadvantages with both suppliers and consumers, and of litigation that might follow informative disclosure are three such examples.[2]

As Fields et al. [2001] suggest, the empirical evidence presented in studies like Botosan [1997] and Sengupta [1998] provides interesting insights, but these studies suffer from noteworthy limitations. Most importantly, these studies do not consider the related costs of higher disclosure quality and whether these costs affect the disclosure decision. Firms measure the valuation benefits of providing higher quality earnings against the associated costs. If the costs outweigh the market valuation benefits, the firm will choose to provide a lower quality of reported earnings, which will be less informative in predicting future performance. This strongly motivates my examination of the costs and benefits, among other firm-specific determinants, associated with disclosure policies. Although Francis et al. [2004, 2005] distinguish between what they refer to as “innate” earnings quality and “discretionary” earnings quality, they do not address whether

[2] Other costs related to disclosure are the costs of developing and presenting financial information. These costs, which are non-proprietary, are of second-order effect. This study focuses only on third party related costs, which are assumed to be proprietary.

proxies for proprietary costs, in particular, current product market competition, capital intensity, growth opportunities, and litigation costs, constrain the quality of reported earnings. Given the empirical evidence in Hou and Robinson [2005], not controlling for the level of industry competition in examining the relation between information quality and the cost of capital creates an omitted correlated variables problem which introduces bias in the analysis.[3]

Recognizing the endogenous nature of financial reporting quality policies, I first model the factors determining these policies. In particular, I test whether investors' demands for firm-specific information, demands for capital, litigation costs, and proprietary cost factors affect the variation in financial reporting quality. As for the economic consequences of financial reporting quality, I test whether higher quality reporting is associated with various proxies for firm risk, both systematic and idiosyncratic.

3. Research Design

Firms' financial reporting quality policies are likely to be endogenous. If factors influencing cross-sectional variation in the reporting policies also influence the association between the economic consequences and the quality of the reported accounting information, failing to control for these factors may lead to erroneous inferences (Maddala [1983]). Specifically, an OLS regression of empirical measures for the equity cost of capital on firm characteristics and a reporting quality measure would result in inconsistent and biased coefficients. To address this issue, I use a two-stage estimation method (Wooldridge [2002], chapter 5). I first discuss my empirical measures of reporting quality and then address the factors determining financial reporting quality and its economic consequences.

3.1 Measurement of Financial Reporting Quality

In order to measure financial reporting quality I use two methods. Across these methods, the focus is on the association between accruals and cash flows. A larger deviation between accruals and cash flows is interpreted as lower quality of accounting information, reflecting higher information risk.

[3] Hou and Robinson [2005] show that firms in more concentrated industries have a lower cost of capital. Based on their findings, they infer that firms in highly concentrated industries face a lower distress risk due to the less competitive environment in which they are competing in. Taken together with the empirical evidence in Harris [1998] that firms disclose less in more concentrated industries, one should control for the level of industry competition when investigating the relation between disclosure/information quality and the cost of capital.

The first method relies on the model presented in Barth et al. [2001]. Consider the following setting: (i) Firms have an objective to maximize their expected value, (ii) At the end of period (t-1), firms release an audited annual earnings report. Aggregate earnings for period (t-1) and its components (cash flow from operations and accruals) are used by various parties (e.g., capital markets participants, customers, suppliers, and current and potential competitors) to predict firms' future cash flows at time t, (t+1), etc.

Analytical models (e.g., Admati and Pleiderer [2000], Baiman and Verrecchia [1996], and Easley and O'Hara [2004]) take the disclosed public information's precision as the measure of its quality. The precision is interpreted as achieving a given level of predictability of expected future cash flows under the flexibility and discretion permitted by GAAP. Thus, the higher the precision, the higher the quality of reported earnings, and the more accurately future cash flows may be predicted.

To measure the level of precision empirically, I focus on the residuals obtained from a regression of future operating cash flows on previous period earnings components. The first measure of reporting quality is based on the residuals obtained from estimating the model specified in equation (1) using ordinary least squares:

$$CFO_{i,t+1} = \alpha_0 + \beta_1 CFO_{i,t} + \beta_2 \Delta AR_{i,t} + \beta_3 \Delta INV_{i,t} + \beta_4 \Delta AP_{i,t} + \beta_5 DEPR_{i,t} + \beta_6 OTHER_{i,t} + \varepsilon_{i,t+1} \quad (1)$$

Where:

$CFO_{i,t}$	Cash flow from operations for firm i at year t (Compustat annual data item #308) minus the accrual portion of extraordinary items and discontinued operations per the statement of cash flows (Compustat annual data item #124);
$\Delta AR_{i,t}$	Change in accounts receivable account per the statement of cash flows (Compustat annual data item #302);
$\Delta INV_{i,t}$	Change in inventory account per the statement of cash flow (Compustat annual data item #303);
$\Delta AP_{i,t}$	Change in accounts payable and accrued liabilities account per the statement of cash flows (Compustat annual data item #304);
$DEPR_{i,t}$	Depreciation and Amortization Expense (Compustat annual data item #125);
$OTHER_{i,t}$	Net of all other accruals, calculated as EARN – (CFO+ΔAR+ΔINV-ΔAP-DEPR), where EARN is income before extraordinary items and discontinued operations (Compustat annual data item #18);[4]

[4] If Compustat annual data items #302, #303, or #304 are missing, ΔAR, ΔINV, and ΔAP are calculated using data from the balance sheet, i.e., accounts receivable (Compustat annual data item #2), inventory (Compustat annual data item #3), and accounts payable (Compustat annual data item #70 plus accrued expenses (Compustat annual data item #153)).

All variables are deflated by average total assets.[5]

In order to obtain the financial reporting quality metric, I estimate equation (1) for each fiscal year t for each two-digit SIC industry code. I focus on the residuals obtained from estimating equation (1). These provide a firm-specific residual for each fiscal year t. The first empirical measure of reporting quality is the absolute value of these residuals: FQ1 $= | e_{i,t+1} |$.[6] These residuals reflect the magnitude of future operating cash flows unrelated to current disaggregated earnings. In the empirical analysis that follows, I interpret lower absolute value as representing a higher quality of financial reporting, which corresponds to a higher level of cash flow predictability. The second empirical measure FQ2 $= \sigma(e_i)_t$ is the standard deviation of firm i's residuals calculated over years t-4 through t. A larger standard deviation of residuals indicates a lower quality of reported earnings. It should be noted that a firm which has frequently large residuals will have a low standard deviation implying little uncertainty about the quality of earnings. In such a case, one should not expect for this to translate into any priced uncertainty.

To be consistent with current research, the second method of measuring reporting quality is based on the Dechow and Dichev [2002] method as implemented in Francis et al. [2005]. Under this approach, reporting quality is measured by the extent to which working capital accruals map into cash flow realizations. I estimate the following regression for each year t for each two-digit SIC code:

$$\Delta WC_{i,t} = \gamma_0 + \gamma_1 CFO_{i,t-1} + \gamma_2 CFO_{i,t} + \gamma_3 CFO_{i,t+1} + \gamma_4 \Delta REV_{i,t} + \gamma_5 PPE_{i,t} + \varepsilon_{i,t} \qquad (2)$$

Where:

$\Delta WC_{i,t}$ =The change in working capital for firm i at year t which is computed as the change in accounts receivable (Compustat annual data item #302) plus the change in inventory (Compustat annual data item #303) less the change in accounts payable (Compustat annual data item #304) less the change in taxes payable (Compustat annual data item #305) plus the change in other net assets (Compustat annual data item #307);

$\Delta REV_{i,t}$ =The change in sales revenues (Compustat annual data item #12) between year t-1 and year t;

$PPE_{i,t}$ = Gross value of property, plant and equipment (Compustat annual data item #7) in year t;

[5] This specification is used because it has the highest predictive ability compared to models that include multiple lags of cash flows from operations and accruals components (see Barth et al. [2001]).

[6] An alternative firm-year specific measure of reporting quality is the squared residual for that year. The correlation between this measure and the absolute value of residuals used in the study is 0.881 (p-value< 0.0001) which suggests that these measures are highly correlated. The tenor of the results is very similar under this alternative specification.

The model estimated in equation (2) is based on McNichols [2002] who suggests that adding changes in sales revenues and PPE (property plant and equipment) significantly increases the model's explanatory power and reduces measurement error. Using this modified Dechow and Dichev model leads to a better specified model and sequence of residuals.

The absolute value of the residuals obtained from estimating equation (2) form the third measure of reporting quality: FQ3, while FQ4 is the standard deviation of the residuals obtained from estimating equation (2) calculated over years t-4 through t.

3.2 Determinants of Financial Reporting Quality

The choice firms make about the quality of the financial information they report in their public financial statements reflects an analysis that weighs the expected benefits against the associated costs of disclosing high-quality information. Given the expected benefits of providing information of higher quality, one would expect firms to choose to provide the highest quality of financial information possible, absent any costs of disclosing such information. Thus, one would expect to observe a corner solution where the maximum reporting quality is chosen. In reality, this does not occur, implying that there are costs associated with disclosure, such as direct costs (non-proprietary), litigation costs, and proprietary costs. Given such costs, firms would select an interior solution to financial reporting quality. Therefore, when investigating the factors that determine a firm's reporting strategy decision, this trade-off has to be considered.

In addition to these specific factors affecting firms' financial reporting quality decisions, I rely on cross-sectional determinants of firms' disclosure policies used by prior literature (e.g., Lang and Lundholm [1993, 1996], Bushee et al. [2003], Butler et al. [2003], and Barton and Waymire [2004]). The above studies, among others, have provided evidence that disclosure decisions are associated with financing needs, the firm's information environment, incentive costs, firm performance, litigation costs, and ownership dispersion. Building on these identified determinants, I present below the empirical model and outline the measures I use for firm-specific explanatory variables determining the variation in financial reporting quality. A discussion of the control variables used in the analysis follows.

In the first stage of the analysis, I estimate the following model based on the variables discussed below:

$$FQ_{i,t+1} = \phi_0 + \phi_1 OWNER_{i,t} + \phi_2 GROWTH_{i,t} + \phi_3 CAPITAL_{i,t} + \phi_4 A\_HERF_{i,t} + \phi_5 ISSUE_{i,t} + \phi_6 LIT_{i,t} + \phi_7 LEVERAGE_{i,t} + \phi_8 MARGIN_{i,t} + \phi_9 OC_{i,t} + \phi_{10} N\_SEG_{i,t} + \phi_{11} SIZE_{i,t} + \phi_{12} AGE_{i,t} + \xi_{i,t+1} \quad (3)$$

Where:

$FQ_{i,t+1}$ Financial reporting quality measure, as described in the previous section;

$OWNER_{i,t}$ Natural log of the number of shareholders of firm i in year t (in thousands; Compustat annual data item #100) minus natural log of the mean number of shareholders (in thousands) in the firm's size decile;

$GROWTH_{i,t}$ Current year's growth in sales, calculated as net sales for year t (Compustat annual data item #12) less net sales of year t-1, scaled by net sales for year t-1;

$CAPITAL_{i,t}$ Net plant, property and equipment (Compustat annual data item #8) divided by total assets (Compustat annual data item #6);[7]

$A\_HERF_{i,t}$ The weighted (by segment sales) average Herfindahl-Hirshman Index for the industries in which firm i reports business segment sales. The Herfindahl-Hirschman Index is calculated as the sum of squares of market shares in the industry. $HERF = \sum_{i=1}^{n}[s_i/S]^2$, where s_i is the firm's sales and S is the sum of sales for all firms in the industry (defined by the two-digit SIC code), and n is the number of firms in the industry;

$ISSUE_{it}$ Dummy variable equal to one if the company issued debt or equity during the current fiscal year or the next two fiscal years, and zero otherwise;

LIT_{it} Dummy variable equal to one if the firm is in a "high-litigation" industry, zero otherwise; [8]

$LEVERAGE_{i,t}$ Long-term debt (Compustat annual data item #9) plus debt in current liabilities (Compustat annual data item #34) divided by firm value (Compustat annual data item #199 times Compustat annual data item #25);

$MARGIN_{i,t}$ Gross margin percentage, calculated as the year t net sales (Compustat annual data item #12) less cost of goods sold for the year (Compustat annual data item #41), scaled by net sales;

$OC_{i,t}$ Operating cycle for firm i at time t, measured in days as $\frac{(AR_t + AR_{t-1})/2}{(Sales/360)} + \frac{(INV_t + INV_{t-1})/2}{(COGS/360)}$, where AR is the firm's accounts receivable, INV is the firm's inventory, and COGS is the firm's cost of goods sold;

$N\_SEG_{i,t}$ Number of two-digit SIC code industries that the firm is engaged in year t;

$SIZE_{i,t}$ Natural logarithm of market capitalization at the end of the fiscal year (year t), calculated as the closing price at fiscal year-end times the number of shares outstanding at fiscal year-end (Compustat annual data item #199 times Compustat annual data item #25);

[7] When the reporting quality measure is FQ3 and FQ4, I do not include the variables CAPITAL and MARGIN as a determinant to avoid any mechanical association given that PPE and a variation of MARGIN is used as an explanatory variable in equation (2).

[8] Following Kasznik and Lev [1995] I define "high-litigation" industry as: high-technology firms (SIC codes 2833-2836, 8731-8734, 7371-7379, 3570-3577,3600-3674). Using the definitions in Francis et al. [1994] produces identical results.

AGE The firm's age, natural logarithm of number of months the company has been listed on CRSP;

I estimate the model in equation (3) both across firms and time, resulting in a pooled cross-sectional time-series specification.[9]

Firms have incentives to respond to investors' demands for firm-specific information since reducing information asymmetries between the firm and its investors can lower their cost of capital (Healy and Palepu [2001] and Verrecchia [2001]). External demands for firm-specific financial information are expected to vary with the level of ownership concentration. Higher potential information asymmetry, especially among investors, and demands for firm-specific information is expected for firms with a highly dispersed investor base. Therefore, outsiders' demands for financial information from these firms is expected to be higher than for firms with high levels of ownership holdings. To capture the effect of ownership dispersion on the quality of financial reporting, I use the variable OWNER, which is the log of the number of shareholders of the firm adjusted by the log of the mean number of shareholders in the firm's size decile. The use of this exact variable is motivated by Bushee et al. [2003] who used this explanatory variable as a determinant of a firm specific disclosure decision (holding an open versus closed conference call).

To proxy for the proprietary costs associated with the reporting decision, I use measures of a firm's capital intensity, growth opportunities, and characteristics of its product market. If a product market's barriers to entry are relatively high, the associated costs of disclosure should be relatively low. High capital intensity is generally interpreted as a major barrier of entry (Piotroski [2003], Hou and Robinson [2005]). Therefore, capital intensity is thought to be positively associated with the quality of financial information.[10] High entry costs to a market, as reflected by high capital requirements, create situations in which a large fraction of the capital costs are already sunk for incumbent firms, but are decision relevant to potential entrants. To capture the feature of capital intensity as a barrier to entry, I use the variable CAPITAL, which

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[9] As an alternative specification, I have estimated also a firm-specific time series specification for firms with more than 15 years of data. Under this method, the standard deviation of the residuals obtained from the firm-specific regressions were used as a measure of reporting quality. While this alternative estimation procedure decreased substantially the number of firms in the sample (1,476 firms), the results based on this alternative specification are not significantly different from the reported results.

[10] In examining the effects of proprietary costs on segment disclosures, Piotroski [2003] uses capital intensity as a proxy for barriers to entry and shows that it is positively associated with the fineness of segment reporting.

comprises net property, plant and equipment scaled by total assets.[11] Capital intensity proxies also for financing needs (Leuz and Verrecchia [2000]), thus, consistent with the literature to date, it is expected that more capital intense firms which have higher financing needs will provide higher quality of financial information.

Another measure of proprietary costs relates to the firm's growth opportunities. The more innovative a market is and the more heavily it relies on intangible knowledge, the more a firm should invest to retain its unique status and preserve future opportunities. Given that these future opportunities are positively associated with proprietary costs, I use GROWTH, which I define as the current year's percentage change in sales, as a proxy for future opportunities that the firm needs to protect. I expect that it will be negatively associated with the level of future cash flow predictability.[12]

The literature identifies existing competition in a firm's product market as being associated with proprietary costs. Competition thus influences a firm's disclosure decisions. In order to account for product market competition, I measure the concentration rate of each industry using the Herfindahl-Hirschman Index. I calculate the Herfindahl-Hirschman Index as $HERF = \sum_{i=1}^{n}[s_i/S]^2$, where s_i is the firm's sales, S is the sum of sales for all firms in the industry (defined by the two-digit SIC code), $\frac{s_i}{S}$ is the market share of firm i, and n is the number of firms in the industry.[13] Since the concentration ratio is an industry measure, I use a weighted average degree of concentration (competition) the firm faces in order to capture the effect of competition of firms' decision to provide a certain level of information quality. The weighted average Herfindahl-Hirshman Index is the sum of the industry concentration ratios for all the industries the firm is engaged in (i.e., specific segment data is disclosed in the annual report), each weighted by the ratio of specific segment sales to total sales.[14]

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[11] As a sensitivity analysis, I repeated the analysis by using capital expenditures, a flow variable. The reported results are not affected by this change.

[12] As an alternative measure, I used R&D expenses and advertising expenses. However, for many firm-year observations, Compustat data item # 46 (R&D Expenses) is missing which decreased the sample by 70%. For the reduced sample, I find that this variable is more strongly and significantly associated with the quality of financial information in the predicted direction. In addition, none of the results of the second stage analysis are different using this reduced sample.

[13] One can argue that the Herfindahl-Hirshman Index is a good proxy of pre-entry competition in a particular industry. For example, in concentrated industries where barriers to entry are low, one can expect competition to increase within a short period of time.

[14] As an alternative explanatory variable, I have used the firm's market share based on total sales (total assets). The firm's market share is defined as the firm's total sales revenues (total assets) divided by the

Given different analytical models' suggestions, I do not have a specific prediction about the association between the quality of financial information and the level of competition, as captured by the concentration ratio. On the one hand, higher concentration ratios proxy for monopoly rents, but on the other hand, this may be one reason why the industry is highly concentrated. Thus the concentration ratio is likely to be a proxy for high entry costs (high barriers to entry). However, if the concentration ratio is a good proxy for post-entry competition (consistent with Verrecchia [1983]), then one would expect a positive relation between financial reporting quality and the level of industry concentration. Such an expectation implies a negative relation between the level of competition within an industry and financial reporting quality.

To be consistent with the literature that suggests that performance is an important determinant of disclosures (e.g., Lang and Lundholm [1993]), I include the variable MARGIN, defined as sales revenue net of cost of goods sold, scaled by net sales. As Lang and Lundholm [1993] discuss, theoretical and empirical studies provide mixed evidence on the relation between disclosure policies and firm performance but do not offer a specific prediction on the relation between the two. It is agreed, however, that the two are related. On one hand, more profitable firms with higher gross margins attract future competition and face higher threats of potential entrants. Thus the higher the firm's profitability, captured by its gross margin, the more the cost of providing higher quality of financial information is expected to be. On the other hand, a positive relation between disclosure and firm performance is implied by an adverse selection argument.

Litigation costs have been suggested by prior studies (e.g., Francis et al. [1994], Skinner [1994], and Lev and Kasznik [1995]) as a determining factor of financial reporting strategies. I define the dummy variable LIT to take the value of 1 if the firm operates in a "high-litigation" risk industry. If lower precision of accounting information is costly to firms, I expect that when litigation costs are higher, the quality of information is higher.

The presence of agency costs gives rise to demand for monitoring, and the information a firm's financial statements provide may be used to mitigate agency costs (Jensen and Meckling [1976]). Highly leveraged firms have higher agency costs and thus

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sum of total sales revenues (total assets) of all sample firms in the same two-digit SIC code. The results reported using this alternative variable are not affected and are similar.

a greater demand for monitoring.[15] Therefore, I predict reporting quality to vary with a firm's capital structure (Watts [1977], Smith and Warner [1979], Leftwich et al. [1981], Butler et al. [2003], and Barton and Waymire [2004]). In a recent study, Barton and Waymire [2004] provide evidence that managers' incentives to supply high quality financial statements increase with the level of shareholder-debtholder agency conflicts as proxied by the amount of leverage in the firm's capital structure. They show a significant positive association between firms' leverage and the quality of public accounting information and interpret this finding as consistent with debt contracting influencing financial reporting. If the financial information provided in the firm's annual report is complementary to the monitoring information debt providers use, I expect more leveraged firms to provide financial information of higher quality. However, if debt providers use substitute information channels to acquire monitoring information, this will decrease the likelihood that the previous prediction holds true. Following Leftwich et al. [1981], I use the variable LEVERAGE, which is the firm's total debt to firm value, to capture this determinant on financial reporting quality.[16]

Motivated by the empirical evidence in prior research that security issuance is associated with disclosure policies (e.g., Lang and Lundholm [1993]), I include the variable ISSUE as an additional determinant of financial reporting quality.

Control Variables:

Differences across firms could influence the future performance and predictability of their future cash flows. Dechow, Kothari and Watts [1998] show that ability of earnings to predict future cash flows depends on the firm's operating cash cycle. Dechow and Dichev [2002] claim that longer operating cycles induce more uncertainty, making accruals noisier and less helpful in predicting future cash flows. To control for the uncertainty associated with the operating environment of the firm, I include in equation (3) a proxy for the length of the operating cycle (OC), where OC = $\frac{(AR_t + AR_{t-1})/2}{(Sales/360)} + \frac{(INV_t + INV_{t-1})/2}{(COGS/360)}$ (measured in days). The operating cycle variable captures variation in future cash flow predictability that is likely not predetermined. To further

[15] There is no consensus in the corporate finance literature whether firms that are highly leveraged have higher agency costs (Jensen [1986]). It can be argued that debt holders provide additional monitoring and incentives that lower agency costs. Consistent with the studies cited above, I expect a positive association between LEVERAGE and financial reporting quality.

[16] Capital structure is an endogenous variable for the firm as well. To address this concern, the specification of equation (3) uses lagged values of the explanatory variables in contrast to a contemporaneous specification.

address how the complexity of the firm's operating environment affects variation in information quality, I also include the number of line of businesses that a firm engages in (N_SEG).

Consistent with previous empirical studies, I control for the firm's informational environment, by including the firm's size. The variable SIZE is defined as the natural logarithm of market capitalization at the end of the fiscal year. In addition, I include the variable AGE, conjecturing that younger firms have a lower quality of accounting information.

3.3 Economic Consequences of Financial Reporting Quality

I use four proxies for capital markets consequences of financial reporting quality: 1) the firm's cost of equity capital (using both implied cost of capital estimates and the Fama-French [1993] three factor model, 2) the firm's standard deviation of stock returns, 3) the firm's idiosyncratic risk, estimated as the residual variance from a regression of stock returns on the market's return (using the traditional market model), and 4) the dispersion in analysts' earnings forecasts (a proxy for uncertainty and estimation risk). The main hypothesis that I test is whether providing financial information of higher quality is associated with capital markets valuation benefits. To do so, I estimate the following pooled cross-sectional time-series model:

$$R_{i,t} = \alpha_0 + \beta_1' X_{it} + \beta_2' FQ_{i,t} + \varepsilon_{i,t} \tag{4}$$

In equation (4) the dependent variable is one of the four proxies for capital markets consequences, X_{it} represents a vector of control variables, and $FQ_{i,t}$ is an empirical measure of reporting quality. As discussed previously, FQ is likely to be correlated with the error term ε, which creates an endogeneity problem. This endogeneity is generally due to omitted correlated variables. As shown in the previous section, financial reporting quality may be determined by factors that are not captured by the control vector X.

This endogeneity problem can be solved through an instrumental variables approach. Following this approach, the researcher must identify a vector of observable variables that do not appear in equation (4) and are not correlated with the error term ε, but are correlated in part with the variable FQ. The variables identified in section 3.2 meet this requirement.

I estimate a two-stage procedure (see Wooldridge [2002], chapter 5), in the first stage of which I estimate a financial reporting quality model. Using the fitted values from the first stage model as an instrumental variable for the quality measure (IV), I estimate in the second stage an OLS regression of capital markets/valuation benefits proxies on firm characteristics and this instrumental variable.[17] Following Maddala [1983, p. 118-121], I do not include in the first stage model [equation (3)] a variable that proxies for any of the capital markets benefits that I use in the second OLS regression. Including the dependent variable of the second stage equation in the first stage model will lead to a logically inconsistent specification, unless the second stage dependent variable coefficient is restricted to be equal to zero.[18] This methodology is similar to the approach undertaken by Barton and Waymire [2004] who adopt an instrumental variables approach to control for the endogenous nature of financial reporting decisions when testing the capital market's reaction to the stock crash of 1929.

The following specific models are estimated across firms and time:

$$R_{e_{i,t}} = \rho_0 + \rho_1 BETA_{i,t} + \rho_2 SIZE_{i,t} + \rho_3 LEVERAGE_{i,t} + \rho_4 DISP_{i,t} + \rho_5 LTG_{i,t} + \\ + \rho_6 B\_M_{i,t} + \rho_7 INDS_{i,t} + \rho_8 FQ_{i,t} + \vartheta_{i,t} \tag{4a}$$

$$STDRET_{i,t} = \chi_0 + \chi_1 SIZE_{i,t} + \chi_2 B\_M_{i,t} + \chi_3 FQ_{i,t} + \zeta_{i,t} \tag{4b}$$

$$IDIOS_{i,t} = \lambda_0 + \lambda_1 SIZE_{i,t} + \lambda_2 B\_M_{i,t} + \lambda_3 FQ_{i,t} + \pi_{i,t} \tag{4c}$$

$$DISP_{i,t} = \varpi_0 + \varpi_1 SIZE_{i,t} + \varpi_2 SURP_{i,t} + \varpi_3 ANALYST_{i,t} + \varpi_4 FQ_{i,t} + \psi_{i,t} \tag{4d}$$

Where:

$R_{e_{i,t}}$	Cost of equity capital for firm i, year t;
$BETA_{i,t}$	The market beta for firm i in year t, estimated using a rolling window of five years of monthly returns where the CRSP value-weighted market return is used as the market return;
$SIZE_{i,t}$	Natural logarithm of market capitalization for firm i, at the end of the fiscal year t, calculated as the closing price at fiscal year-end times the number of shares outstanding at fiscal year-end (Compustat annual data item #199 times Compustat annual data item #25);

[17] In order to derive correct inferences, the standard errors are adjusted to address the correlation between the error term of the first stage choice model and the error term in the second stage equation.

[18] As an alternative estimation procedure, I have estimated the probability that the quality of financial information for a given firm is above the industry median using a Probit model. Using the fitted probabilities of this first stage estimation as an instrumental variable, I repeated the second stage analysis in which the association between this instrument and the capital markets benefits variables was investigated. The results using this alternative procedure provide similar results to those reported in the current version of the paper. These results are available from the author upon request.

$B\_M_{i,t}$ Book-to-Market ratio, where market value of equity is calculated as the closing price at fiscal year-end times the number of shares outstanding at fiscal year-end (Compustat annual data item #199 times Compustat annual data item #25), divided by the book value of common equity (Compustat annual data item #60);

$LEVERAGE_{i,t}$ Long-term debt (Compustat annual data item #9) plus debt in current liabilities (Compustat annual data item #34) divided by firm value (Compustat annual data item #199 times Compustat annual data item #25);

$LTG_{i,t}$ Expected long term growth in earnings, defined as the percentage change in the mean two-year ahead earnings forecast (obtained from IBES) from the current earnings realization (Compustat annual data item #58);

$STDRET_{it}$ Firm i's standard deviation of daily holding period return averaged over the 12 months starting as of June subsequent to fiscal year t;

$IDIOS_{it}$ The residual variance from a regression of firm-specific returns on the returns of the CRSP value-weighted market index over the 12 months starting as of June subsequent to fiscal year t;

$DISP_{i,t}$ Standard deviation of analysts' forecasts of year t earnings per share (IBES) for firm i, measured in June following fiscal year t-1, scaled by beginning of period price;

$INDS_{i,t}$ Average industry implied equity cost of capital;

$SURP_{i,t}$ Absolute value of the difference between current year's earnings per share (Compustat annual data item #58) and the previous year earnings per share, scaled by average total assets of the firm;

$ANALYST_{i,t}$ Number of analysts issuing forecasts at the same time DISP was calculated (IBES);

$\zeta_{i,t}, \upsilon_{i,t}, \pi_{i,t}, \psi_{i,t}$ Error terms assumed to have zero mean and constant variance.

Equation (4a) is specified similarly to the cross-sectional regression of the implied risk premium in Gebhardt et al. [2001, Table 7] and includes similar controls. Using this particular specification makes the analysis from an asset pricing perspective more relevant since we can learn which of the firm characteristics are more important and significant determinants of the implied equity cost of capital.

Equations (4a-4d) are estimated using both pooled cross-sectional time-series regressions and Fama-MacBeth regressions. I report the results of the Fama-MacBeth regressions, for which I run cross-sectional regressions annually and then average the annual coefficients across the sample years from 1987-2003. I use the standard deviation of the coefficients across the seventeen sample years to compute the t-statistics: $t = \frac{\bar{\beta}}{\sigma_\beta / \sqrt{n}}$; where $\bar{\beta}$ is the average coefficient based on the yearly regressions, σ_β is the time-series standard deviation corresponding to each coefficient, and n is the number of years. Since the autocorrelation between the coefficients in the annual regressions can affect the true standard errors and thus inflate the t-statistics, I correct the t-statistics in a manner consistent with Bernard [1995].

Next, I discuss each one of the economic consequences models as specified in equations (4a-4d).

3.4 Financial Reporting Quality and Risk

3.4.1 Cost of Equity Capital

Following Barone [2002] and Francis et al. [2004, 2005], lower quality financial reporting leads to greater uncertainty and ultimately to higher information risk. If this risk cannot be diversified away, it will result in a higher cost of equity capital.

Following this rationale, I test the association between the empirical measures of reporting quality outlined in section 3.2 and an implied equity cost of capital estimated using the models presented in Claus and Thomas [2001], Gebhardt et al. [2001], Ohlson and Juettner-Nauroth [2005] as implemented in Gode and Mohanram [2003], and Easton [2004]. Previous studies have used different measures for the equity cost of capital. Since the cost of capital is not an observed phenomenon, one needs to estimate it. Some of the estimation methods used in the literature are based on the Fama-French three-factor model (Fama and French [1993]). As Fama and French [1997] point out, equity cost of capital estimates based on the three-factor model are imprecise, both at the firm level and the industry level. Another alternative is to proxy for the equity cost of capital by using realized stock returns. This approach has problems too, given that the correlations between expected returns and ex post realized returns are weak (Elton [1999]). These approaches have led researchers to infer ex ante equity cost of capital rates using an implied approach. Following this approach, assuming a valuation model, one estimates the implicit equity cost of capital using the current stock price and observable proxies for market expectations of future cash flows or earnings (usually analysts' earnings forecasts).

The specific models differ in terms of the assumptions made regarding growth rates, terminal values, and forecast horizons. I summarize the specific models used in the Appendix. While there is a debate about the merits of various ex ante measures (e.g., Gode and Mohanram [2003], Guay et al. [2003]), I take no position, but use a variety of accepted methods to calculate the implied equity cost of capital to ensure that the documented results are robust and convincing. Similar to Hail and Leuz [2004], I average the four proxies to reduce any measurement error in the equity cost of capital proxies and use R_{AVG} as the dependent variable in equation (4a). Furthermore, I have performed the analysis using the four individual models and obtained very similar results to the one I report. In addition to the four implied equity cost of capital estimates, as a sensitivity test, I use a stock-return metric based on the Fama-French three factor model.[19] All in all, due to the lack of consensus in the literature which measure is the best one or even whether these empirical proxies can be evaluated, I believe that using these varieties of procedures ensures the reader that the results documented in the study are robust and convincing.

While the main focus of the analysis is to examine the association between financial reporting quality and the cost of equity capital, the extant literature has identified a number of factors that are associated with the firm's cost of capital. The Capital Asset Pricing Model (CAPM) implies that the firm's expected returns are positively associated with its market beta. I include BETA in equation (4a) to control for this risk factor. A positive relation is expected between BETA and the equity cost of capital.

Given the evidence documented in the finance literature, in order to proxy for the firm's total information environment, I include a measure of the firm's size in equation (4a). I use the firm's market capitalization and expect a negative association between SIZE and the equity cost of capital since previous research suggests that smaller firms are more risky than large firms.

Fama and French [1992] find that, compared to lower book-to-market firms, higher book-to-market firms earn higher realized returns. To control for risk factors associated with this measure, I include in equation (4a) B_M, the firm's book-to-market ratio, and expect a positive association between this variable and the equity cost of capital.

Leverage is included as an additional explanatory variable since the firm's risk increases with the firm's financial leverage. I expect a positive association between financial leverage and the equity cost of capital.

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[19] I provide asset-pricing tests using the Fama-French three factor model in Table 6.

3.4.2 Standard Deviation of Stock Returns

Standard deviation of stock returns is a commonly used measure of risk in the literature. Stock price volatility has been identified as a proxy for uncertainty and information asymmetry between the firm and its shareholders and among capital markets participants (e.g., Lang and Lundholm [1993]). High levels of uncertainty and information asymmetries suggest higher levels of volatility, i.e., higher standard deviation of stock returns. Analytical research has shown that, in addition to the release of public financial information, the quality of disclosures affects the levels of uncertainty and information asymmetry in the capital markets (e.g., Diamond and Verrecchia [1991]). To examine whether uncertainty is affected by the quality of public financial statements, I estimate equation (4b). I measure volatility as the standard deviation of daily stock-returns calculated over the 12 months following June of year t. I include as control variables two firm characteristics which have been shown to be associated with the standard deviation of stock returns: the firm's size and the book-to-market ratio.

3.4.3 Idiosyncratic Risk

The standard deviation of stock returns is a measure of total risk, which includes both systematic and idiosyncratic components. Stock returns which are tied to common factors or market wide returns are the source of systematic risk. Non-systematic or idiosyncratic risk results from innovations that are specific to a particular stock. To better understand whether financial reporting risk can be characterized either as a systematic priced factor or as an idiosyncratic risk factor, I estimate equation (4c). I assume, consistent with the asset-pricing literature, that the return on every stock is driven by a common factor and a firm-specific component ε_i. Assuming a simple market model in the return generating equation one gets:

$$R_{i,t} - r_{f,t} = \beta_i (R_{m,t} - r_{f,t}) + \varepsilon_{i,t} \qquad (5)$$

where $R_{i,t}$ is the return on stock i, $R_{m,t}$ is the market return, $r_{f,t}$ is the risk-free rate, and $\varepsilon_{i,t}$ is the idiosyncratic return. The CAPM implies that investors can earn the risk free rate by investing in a risk-free asset and $\beta_i (R_{m,t} - r_{f,t})$ is the required risk premium for asset i. Since $\beta_i (R_{m,t} - r_{f,t})$ is common to all the assets in the economy, β_i is the only factor specific to asset i determining the expected rate of return and thus the required risk premium. The CAPM does not account for the component $\sigma^2_{\varepsilon_i}$ and suggests that this idiosyncratic risk does not affect risk premiums since in an economy with a large number of assets, it can be diversified away by holding a well-diversified portfolio.[20]

The dependent variable in equation (4c), IDIOS, is defined as the residual variance from a firm-specific regression of stock returns on the CRSP-value weighted market index over a 12 month period. I use a value weighted market index given the recent empirical evidence in the finance literature on the pricing effect of idiosyncratic risk. On one hand, Goyal and Santa-Clara [2003] argue that idiosyncratic risk matters and base their analysis on equal-weighted average stock volatility measures. On the other hand, Bali et al. [2004] show that the equal weighted average stock volatility used by Goyal and Santa-Clara [2003] predicts future returns because of its co-movements with overall stock market volatility. In addition, Bali et al. [2004] find no significant evidence that a value-weighted average stock volatility is related to future returns.

3.4.4 Analysts' Forecasts Dispersion

Financial statements that provide higher quality information are predicted to reduce investor uncertainty and lower the information risk for a specific firm. In equation (4d), I test the effect of reporting quality on the standard deviation of analysts' annual earnings estimates for a given year.

The focus on analyst forecast dispersion is motivated by Barry and Brown [1985], who argue that this variable is an appropriate proxy for uncertainty and estimation risk. Firms have incentives to reduce the dispersion among analysts, and hence the overall dispersion in capital markets earnings expectations. Given the existing literature's findings, I include variables identified as being associated with the variation in analysts' forecasts dispersion: SIZE, SURP, and ANALYST. Firm size and the number of analysts following a firm have been found to be positively related to analyst forecast accuracy (negatively associated to forecast dispersion). SURP is included in equation (4d) to capture the difficulty in forecasting earnings.

[20] I have repeated the analysis assuming the Fama-French three factor model as the relevant asset pricing model as an alternative to the CAPM and focused on the firm-specific idiosyncratic component under this specification. The reported results and interpretations in the paper are not affected by this alternative method.

4. Data and Empirical Results

4.1 Sample Selection

I base my analysis on data obtained from the following sources: the 2004 COMPUSTAT annual industrial and research files, the 2004 CRSP files, and I/B/E/S data for 1987-2003. Previous studies (e.g. Collins and Hribar [2002], Dechow, Kothari, and Watts [1998]) document and discuss how using balance sheet accounts to derive cash flow from operations can lead to problems like noisy and biased estimates. The cash flow from operations reported in the statement of cash flows subsequent to the Statement of Financial Accounting Standard No. 95 (SFAS No. 95) is likely to have less measurement error. I therefore use the 1987-2003 period since cash flow from operations (Compustat annual data item #308) calculated from the statement of cash flows only becomes available in 1987, following SFAS No. 95.[21]

I exclude firms in SIC codes 6000-6999 (financial institutions, insurance, and real estate companies) since the cash flow predictability empirical model developed does not reflect their activities. Next, I restrict the analysis to firms that do not have any missing data for the variables used in the empirical analysis, and I exclude observations with the most extreme one percent value of their distributions.[22] I require that each firm has at least one year of past and future cash flow from operations. These criteria yield a primary sample of 18,264 firm-year observations, representing 2,857 firms.

4.2 Descriptive Statistics

Table 2, Panel A reports summary statistics of the reporting quality measures for the sample of firms. Given that all the reporting quality metrics capture variation in components of accruals, it is not surprising that all the metrics have similar mean and median values. The pairwise correlations in Table 2, Panel B suggest that the empirical measures of reporting quality are highly and significantly positively correlated.

Consistent with findings in Gebhardt et al. [2001] that implied cost of equity capital estimates based on accounting valuation models are lower than estimates based on ex post stock returns, the estimates based on the Fama-French three factor model are higher than the implied based estimates. The correlation between the equity cost of capital estimates are consistent with the evidence presented in Hail and Leuz [2004] and

[21] SFAS No. 95 requires firms to present a statement of cash flows for fiscal years ending after July 15, 1988. Some firms early-adopted SFAS No. 95, so my sample begins in 1987. This sample selection is consistent with Barth et al. [2001].

[22] The results and inferences reported are not affected by eliminating the extreme values of the distribution.

Guay et al. [2003] and provide evidence that the four proxies are highly and significantly correlated (Table 2, Panel D). This is not surprising since the models rely on similar valuation inputs and constructs. It can be observed that since the Fama-French estimate is based on a very different estimation technique, its correlation with the implied estimates is not as high.

An examination of the descriptive statistics reported in Table 2, Panel E suggests that the sample firms are large relative to the COMPUSTAT population, with mean (median) total assets of $1,549 million ($238 million) and mean (median) market value of equity of $1,756 million ($278 million), profitable (return on assets of about 0.018), and growing (median sales growth of 0.068).

The operating cycle (OC) has a mean of 138 days and a standard deviation of 77 days. This indicates that the majority of the firms in the sample have an operating cycle of less than one year. This finding is consistent with the fact that most accruals reverse within one year (Dechow and Dichev [2002]). The mean (median) of A_HERF (the concentration ratio) is 0.28 (0.25), indicating that the sample represents rather competitive industries.

4.3 Multivariate Analysis – Determinants of Financial Reporting Quality

As discussed in section 3, I first examine the determinants of reporting quality. The results of a multivariate analysis from estimating the model specified in equation (3) using the different quality measures are reported in Table 3.

I interpret the significance of OWNER as consistent with investors' demands for financial information influencing the quality of this information. This finding is consistent with Bushee et al. [2003] evidence that conference calls properties are affected by the structure of the investor base. Firms that are more leveraged (LEVERAGE) are significantly more likely to provide high-quality financial information. This is consistent with debt contracting and monitoring influencing the quality of financial information (Watts [1977]) and the empirical evidence in Barton and Waymire [2004]. The significant results for OWNER and LEVERAGE appear not to depend on a particular quality measure.

In addition, I find evidence that proprietary costs affect the reporting quality choice. In particular, the results indicate that the overall competition the firm faces measured by A_HERF (the weighted Hefindahl-Hirshman Index), affects reporting quality. The coefficients of A_HERF are significantly positive, suggesting that firms in less competitive industries are less likely to report high-quality information. This result is consistent with the findings in Harris [1998], who demonstrates that firms are less likely to disclose operations in less competitive industries as business segments. In other words, a higher quality of information prevails in more competitive environments. This result is consistent with theoretical models predicting less disclosure in less competitive markets (e.g., Hayes and Lundholm [1996]). On the other hand, this result is not consistent with disclosure models that predict that firms respond to higher levels of competition by providing less information (e.g., Verrecchia [1983]).

CAPITAL has a significant positive effect on reporting quality, which suggests that more capital-intensive firms provide financial information that more precisely predicts future cash flows. One explanation for this finding is that capital intensity acts as a barrier to entry for future competitors in the product market. Therefore, such firms incur fewer costs in providing financial information which is more informative regarding future performance. In addition, CAPITAL proxies for financing needs. This suggests that more capital intense firms have more financing needs, inducing a higher quality of information. Consistent with Lang and Lundholm [1993], I find that firms that are more active in issuing securities choose to provide high quality information. The variable ISSUE is positively associated with the quality of financial information provided. The coefficient on GROWTH is significant at conventional levels, only when the dependent quality variable is FQ1**.**

The results indicate that the larger the firm, the higher the quality of its financial reporting. This finding is consistent with previous research documenting a positive relation between firm size and disclosure policy decisions (e.g., Lang and Lundholm [1993]). The significant coefficient on MARGIN (columns 1 and 2) bears out the hypothesis that more profitable firms (as reflected in higher realized margins) have the higher proprietary costs associated with lower reporting quality. The positive coefficient on MARGIN is consistent with the findings in Piotroski [2003], who interprets MARGIN as a proxy for proprietary costs, but inconsistent with previous findings that firm performance is positively related to disclosure policies (e.g., Lang and Lundholm [1993]).

The litigation variable (LIT) is not significant at conventional levels, suggesting that it is not associated with the quality of financial information. One explanation for this finding results from the nature of the quality measure which proxies for precision of information, rather than the specific type of information, i.e., good news versus bad news (see for example Skinner [1994], Kasznik and Lev [1995]).

The coefficient on OC is positive and significant across all the model specifications in Table 3, consistent with the findings in Dechow and Dichev [2002]. This suggests that firms with higher operating cycles have lower quality of financial reporting. The control variable AGE is in general not significant in explaining variation in quality choices.

4.4 Economic Consequences of Financial Reporting Quality

In this section, I examine the capital markets consequences associated with financial reporting quality policies. First, for each one of the specifications, I estimate an OLS regression, treating reporting quality as exogenous. Next, I use the instrumental variables from the first stage as proxies for reporting quality and repeat the analysis. Such an analysis examines whether information risk is associated with any of the economic consequences variables once the specific factors determining this information risk are modeled.

4.4.1 Earnings-Price Ratios

Table 4 presents the results of examining whether reporting quality explains the variation in industry-adjusted Earnings-Price ratios. All four columns in Table 4, Panel A support the assertion that E/P is negatively associated with long-term growth (LTG).[23] This relation is expected, since the E/P ratio equals the risk premium minus the growth rate. The results in Table 4, Panel A suggest that firms with lower quality of financial reporting have larger E/P ratios, after controlling for other factors determining E/P ratios. This result is consistent with the results presented in Table 2 in Francis et al. [2005] and suggests that as the quality of information decreases, so does the amount investors are willing to pay for a dollar of reported earnings, implying a higher equity cost of capital for firms with low quality information. However, after controlling for the firm-specific characteristics determining information quality (Table 4, Panel B), I find that reporting quality is not significantly associated with the E/P ratio. This finding suggests that lower

[23] The particular specification tested in Table 4 is very similar to Table 2, Panel C in Francis et al. [2005].

financial reporting quality does not necessarily imply a higher risk-premium once the determinants of reporting quality are controlled for.

4.4.2 Equity Cost of Capital

Table 5 presents the results of examining whether reporting quality explains the variation in firm-specific equity cost of capital estimates. Replicating prior studies' findings, Table 5, Panel A reports the results of estimating equation (4a), using FQ1-FQ4 as empirical measures of reporting quality. All four earnings quality metrics are significantly associated with the equity cost of capital after controlling for other factors associated with the equity cost of capital as identified in the accounting and finance literature. These results imply that firms providing high-quality accounting information enjoy a lower equity cost of capital. Based on these results, one could conclude that the reporting quality is an information risk factor which is systematically priced by capital markets participants, over and beyond additional risk factors priced by the market, such as beta, size, and book-to-market.

The results listed in Panel B of Table 5, however, suggest that this conclusion does not hold up when one acknowledges the firm-specific factors affecting financial reporting quality. If the specification estimated in Panel A is subject to a correlated omitted variables problem, the estimated value of the coefficient corresponding to the particular treatment effect may be biased and inconsistent. Once all these factors are controlled for, the reporting quality coefficients are not significant (the coefficients on the instrumental variables IV1-IV4 decrease and approach zero) in explaining the cross-sectional variation in the equity cost of capital estimates over and above previously documented risk factors which influence the equity cost of capital. Consistent with findings in the literature, I find that the equity cost of capital is associated with firm size, the book-to-market ratio, and financial leverage. These results demonstrate the importance of accounting for the underlying factors affecting variation in financial reporting quality. Failing to do so significantly affects the conclusions researchers draw from empirical analyses. The discrepancy between the significant associations reported in Panel A and the results reported in Panel B may be due to omitted correlated firm-characteristics affecting information risk. Once these factors are accounted for, any conclusions and inferences must reflect the results reported in Panel B.

In summary, the results in this section suggest that the reporting quality measures used in the analysis are not an additional priced risk factor over and beyond previously documented risk factors. In other words, lower financial reporting quality does not necessarily result in a significant higher equity cost of capital, once the firm-specific characteristics determining reporting quality have been accounted for.

Measurement Error in the Implied Equity Cost of Capital Estimate

Implied equity cost of capital estimates make use of analysts' earnings forecasts of both short-term and long-term earnings. Using analysts' forward looking information might provide better estimates of the equity cost of capital than estimates obtained from asset pricing models (e.g., CAPM or the three-factor Fama-French models). The use of analysts' forecasts does come with a cost, however. Analysts' earnings forecasts potentially have problems that might affect the precision of the equity cost of capital estimates. For instance, Lys and Sohn [1990] find that analyst short-term earnings forecasts only contain roughly 66% of the information reflected by security prices prior to the forecast-release date. If analysts do not revise their forecasts in response to recent stock prices changes, which proxy for changes in the overall capital market expectation of future earnings, using those forecasts as inputs in valuation models to estimate the implied cost of capital introduces systematic error into these estimates. These errors are therefore correlated with recent stock price performance. In particular, if analysts' earnings forecasts are slower to reflect revisions in the capital market's expectation than stock prices, then the ex ante implied equity cost of capital estimate will be too low (high) when recent stock returns have been high (low).[24]

Guay et al. [2003] discuss these problems in detail and report evidence that errors in analysts' earnings forecasts are negatively correlated with recent stock returns. Guay et al. [2003] propose two solutions that address the predictable error in the implied equity cost of capital estimates: use recent stock returns as a control variable, and estimate the implied equity cost of capital using different stock prices within a calendar year. To control for the negative correlation between the implied equity cost of capital estimates and recent stock returns, I re-estimate equation (4a) controlling for RETURN, defined as

[24] The intuition behind this prediction is the following: when earnings forecasts are too low, for example after recent positive stock returns, the implied cost of capital derived from using the current stock price and the present value of future earnings will be too low.

stock returns measured over the one year period prior to the July 1st measurement date of the implied equity cost of capital estimate.

The results (not reported) provide evidence consistent with Guay et al. [2003]'s findings that the implied equity cost of capital estimates are significantly negatively associated with recent stock returns. However, even after controlling for recent stock returns, the association between the equity cost of capital estimates and reporting quality squares with the results reported in Table 5, suggesting that financial reporting quality is not significantly associated with the equity cost of capital.

Guay et al. [2003] also recommend a different estimation procedure for calculating the implied equity cost of capital, one that allows analysts more time to make use of recent price movements in their earnings forecasts. This procedure estimates the implied equity cost of capital using the stock price as of January instead of July 1st. Although I use this different stock price, I still continue to use analysts' earnings forecasts from June. This alternative approach does not affect the previously documented results. Controlling for the endogenous character of financial reporting quality, reporting quality is not significantly associated with a firm's equity cost of capital.

Asset-Pricing Equity Cost of Capital Estimates

To further address concerns regarding the validity of implied equity cost of capital estimates, I also estimated the equity cost of capital using the Fama and French [1993] three-factor model, where the size factor is defined as small minus large firm returns *SML*, the book-to-market factor is defined as high minus low book-to-market firm returns *HML*, and the market factor is defined as the excess return on the CRSP value weighted portfolio (R_m - R_f). I obtain monthly time-series returns on the three factors, *SML*, *HML*, R_m - $R_{f,}$ from Kenneth French's website. The loadings on the factors, b, s, and h, are slope coefficients estimated from the following regression model for firm i:

$$E(R_{FF}) = R_{f0} + b_0[R_m - R_f] + s_0 SML + h_0 HML \qquad (6)$$

I re-estimate the three-factor model each year for each firm using a rolling window of five years of monthly returns ending in the month of June. Firm i's estimated loadings, i.e., estimated b, s, and h coefficients, multiplied by the average returns for the three factors provides the equity cost of capital estimate the for firm i (see Fama and French [1997]). Next, I annualize this number which is an equity cost of capital proxy as of the month of June. This consists of the fifth proxy for the equity cost of capital. The procedure described above is similar to the one used in Guay et al. [2003]. Next I estimate the following regression:[25]

$$R_{FF\,i,t} = \rho_0 + \rho_1 BETA_{i,t} + \rho_1 SIZE + \rho_3 B\_M_{i,t} + \rho_4 FQ_{i,t} + \vartheta_{i,t} \qquad (7)$$

As with the prior analysis, I estimate equation (7) using the standard Fama-MacBeth [1973] methodology. The results from estimating equation (7) are reported in Table 6. Panel A reports the results of estimating equation (7) using FQ1-FQ4, while Panel B reports the results using the instrumental variables. Consistent with the previously reported results, reporting quality does not appear to be an additional priced factor, once the firm-specific characteristics determining reporting quality have been accounted for.

4.4.3 Reporting Quality and Risk

Table 7 presents the results regarding the association between reporting quality and the standard deviation of stock returns. The results in Table 7 indicate that higher reporting quality, even after controlling for reporting quality determinants leads to significantly lower stock returns volatility. As discussed in section 3, the standard deviation of stock returns proxies for the firm's total risk. By examining the evidence in Table 8, one can distinguish between the effects of reporting quality on both the systematic and idiosyncratic risk components of stock return volatility. The results in Table 8 suggest that once the firm-specific characteristics determining the quality of financial reporting quality have been accounted for, information quality is significantly associated with idiosyncratic risk. This last set of results help us reconcile the evidence regarding the overall pricing effects of financial reporting quality. To summarize, the reported results suggest that reporting quality is significantly associated with the firm's total risk and the idiosyncratic component, but not with the equity cost of capital, the systematic component that translates into higher expected required risk premiums. Taken together, the evidence suggests that, although reporting quality may proxy for uncertainty or information risk, this type of firm-specific information risk does not seem to be priced by investors, and it does not increase the firm's equity cost of capital. In other words, the firm-specific uncertainty regarding the estimation of future payoffs does not translate into a higher cost of equity capital. This evidence is consistent with the theoretical predictions

[25] This particular specification was used by Easley et al. [2002, equation (7), p. 2210] in determining the effect of information based trading on asset returns.

advanced by Hughes et al. [2005] regarding the systematic and idiosyncratic pricing effects of information quality.

4.4.4 Reporting Quality and Analyst Earnings Forecasts

As reported in Table 9, after controlling for both the determinants of analyst forecast dispersion and reporting quality, all the empirical measures of financial reporting quality display a significant association in the predicted direction with analyst forecast dispersion. This finding suggests that firms providing high-quality financial information enjoy a lower level of dispersion, which implies that investors form more precise beliefs about future earnings. Interpreting dispersion as a proxy for estimation risk and uncertainty, firms enjoy lower estimation risk by reporting accounting numbers of higher quality. This result is consistent with findings in Lang and Lundholm [1996] who document a negative association between AIMR scores as proxies for firms' disclosure policies and analyst forecast dispersion. The sign and significance of the remaining estimated coefficients in Table 9 tally with findings documented in previous studies (e.g., Piotroski [2003]).

The evidence on the relation between analyst forecasts dispersion and financial reporting quality suggests that by providing high-quality financial information, a firm can reduce its information and estimation risk as proxied by the forecast dispersion (Barry and Brown [1985]). These results are in line with the previous evidence discussed above on the uncertainty and firm-specific nature of reporting quality.

5. Conclusion

This paper provides empirical evidence on the determinants and consequences associated with the quality of financial reporting policies. The evidence suggests that the information risk arising from the quality of financial reporting does not affect the equity cost of capital once the endogenous nature of this information risk has been accounted for. These results suggest that reporting quality is not necessarily an additional systematic risk factor which investors price, but rather an idiosyncratic one. Although financial reporting quality is not significantly associated with the systematic components of assets returns, as proxied by the equity cost of capital, it is associated with firm-specific uncertainty and estimation precision. These findings are consistent with the theoretical predictions of Hughes et al. [2005] who argue that idiosyncratic risk is a diversifiable phenomenon and should not affect risk premiums in large economies.

The results documented in this study contribute to the extant accounting literature in several ways. First, the study contributes to the body of research analyzing the consequences of financial reporting quality policies. In particular, the results illustrate the importance of explicitly modeling the specific factors determining financial reporting quality when investigating the associated economic consequences. Failing to do so may lead to spurious inferences, as indicated by the results. Second, this study's findings show the importance of accounting not only for the benefits associated with financial reporting policies, but also for the constraining factors and other firm-specific characteristics affecting financial reporting policies.

Appendix: Measuring the Implied Equity Cost of Capital

Ohlson and Juettner-Nauroth Model [2005]: R_{OJ}

$$P_0 = \frac{eps_1}{r_{OJ}} + \frac{eps_2 - eps_1 - r_{OJ}(eps_1 - dps_1)}{r_{OJ}(r_{OJ} - g)}$$

Assumptions: Consistent with Gode and Mohanram [2003] the short term growth rate is estimated using forecasted earnings for year t+1 and year t+2.
The long-term growth is g = r_f - 3%.

PEG model, Easton [2004]: R_{PEG}

$$P_0 = \frac{[eps_2 + r_{PEG}\, dps_1 - eps_1]}{r_{PEG}^2}$$

This represents a special case of the Ohlson and Juettner-Nauroth model. The model assumes that abnormal earnings persist in perpetuity. To implement this model, one needs positive changes in forecasted future earnings.

Gebhardt, Lee and Swaminathan Model [2001]: R_{GLS}

$$P_0 = BV_o + \sum_{i=1}^{T-1} \frac{E_0[(ROE_i - r_{GLS})\, BV_{i-1}}{(1+r_{GLS})^i} + TV$$

$$TV = \frac{E_0[(ROE_T - r_0)\, BV_{T-1}}{r_{GLS}(1+r_{GLS})^{T-1}}$$

This model is based on residual income valuation. The main assumption is that ROE (return on equity) fades linearly to the industry median by year 12. From year 12, the abnormal earnings are assumed to be constant and earned in perpetuity.

Claus and Thomas [2001]: R_{CT}

$$P_0 = BV_o + \sum_{i=1}^{T} \frac{eps_i - r_{CT}\, BV_{i-1}}{(1+r_0)^i} + TV$$

$$TV = \frac{(eps_T - r_{CT} BV_{T-1})(1+g)}{(r_{CT} - g)(1+r_{CT})^T}$$

This model is based on residual income valuation. It is assumed that the growth rate after year 5 is set equal to the inflation rate, i.e., g = r_f - 3%.

The implied equity cost of capital is the internal rate of return that solves the valuation expressions.

All the calculations and assumptions made are consistent with prior studies which used implied cost of equity measures, such as Guay et al. [2003], and Hail and Leuz [2004].

Notation:

P_0 = Price per share at date 0;

dps_t = Dividends per share at time t;

eps_t = Forecasted Earnings per share at time t, and

BV_t = Forecasted book value of equity per share: $BV_t = BV_{t-1} + eps_t - dps_t$

r = Implied equity cost of capital estimate.

Table 1: Variable Definitions

FQ1	The absolute value of residuals obtained from a regression of future operating cash flows on current operating cash flows and accrual components, based on Barth et al. [2001].
FQ2	Standard deviation of firm i's residuals obtained from a regression of future operating cash flows on current operating cash flows and accrual components based on Barth et al. [2001] calculated over years t-4 through t.
FQ3	The absolute value of residuals obtained from a modified Dechow and Dichev [2002] model based on McNichols [2002].
FQ4	Standard deviation of the residuals obtained from a modified Dechow and Dichev [2002] model based on McNichols [2002] calculated over years t-4 through t.
R_{OJ}	Equity cost of capital based on the Ohlson and Juttner-Nauroth [2005] approach.
R_{PEG}	Equity cost of capital based on the PEG ratio model of Easton [2004].
R_{GLS}	Equity cost of capital based on Gebhardt, Lee and Swaminathan [2001].
R_{CT}	Equity cost of capital based on Claus and Thomas [2001].
R_{AVG}	The average of the four implied equity cost of capital estimates.
R_{FF}	Expected return calculated using Fama and French three factor model.
E_P RATIO	Industry-adjusted earnings-price ratio. Annual earnings per share before discontinued operations and extraordinary items (Compustat annual item #58) divided by the July 1st price.
IDIOS	Idiosyncratic risk defined as the residual variance from a regression of firm specific stock returns on the value-weighted CRSP stock index for 12 months following June of year t.
STDRET	Standard deviation of daily holding period returns averaged over the 12 months following June of year t.
DISP	Standard deviation of analysts' forecasts of year t earnings per share (IBES) for firm i, measured in June following fiscal year t-1, scaled by beginning of period price;
BETA	The market beta for firm i in year t, estimated using a rolling window of five years of monthly returns where the CRSP weighted market return is used as the market return.
CFO	Cash flow from operations for firm i at year t (Compustat annual data item #308) minus the accrual portion of extraordinary items and discontinued operations per the statement of cash flows (Compustat annual data item #124);
ΔAR	Change in accounts receivable account per statement of cash flows (Compustat annual data item #302).
ΔINV	Change in inventory account per the statement of cash flows (Compustat annual data item #303).
ΔAP	Change in accounts payable and accrued liabilities account per the statement of cash flows (Compustat annual data item #304).
DEPR	Depreciation and Amortization Expense (Compustat annual data item #125).
OTHER	Net of all other accruals, calculated as EARN – (CFO+ΔAR+ΔINV-ΔAP-DEPR).
ASSETS	Total assets (Compustat annual data item #6).
ROA	Return on assets, defined as EARN (Compustat annual data item #18) divided by total assets (Compustat annual data item #6).

B_M	Book-to-Market ratio, where the book value of common equity (Compustat annual data item #60) is divided by market value of equity (calculated as the closing price at fiscal year-end times the number of shares outstanding at fiscal year-end (Compustat annual data item #199 times Compustat annual data item #25)).
GROWTH	Current year's growth in sales, calculated as net sales for year t (Compustat annual data item #12) less net sales of year t-1, scaled by net sales for year t-1.
LIT	A dummy variable equal to one if a firm's SIC code is 2833-2836, 8731-8734, 7371-7379, 3570-3577,3600-3674; zero otherwise.
A_HERF	The weighted (by segment sales) average Herfindahl-Hirshman Index for the industries in which firm i reports business segment sales. The Herfindahl Index is calculated as the sum of squares of market shares in the industry: $HERF = \sum_{i=1}^{n}[s_i/S]^2$, where s_i is the firm's sales and S is the sum of sales for all firms in the industry (defined by the two-digit SIC code), and n is the number of firms in the industry.
LEVERAGE	Long-term debt (Compustat annual data item #9) plus debt in current liabilities (Compustat annual data item #34) divided by firm value (Compustat annual data item #199 times Compustat annual data item #25);
CAPITAL	Net plant, property and equipment (Compustat annual data item #8) divided by total assets (Compustat annual data item #6).
OC	Operating Cycle (in days), calculated as $\frac{(AR_t + AR_{t-1})/2}{(Sales/360)} + \frac{(INV_t + INV_{t-1})/2}{(COGS/360)}$.
N_SEG	Number of two-digit SIC code industries that the firm is engaged in.
MARGIN	Gross margin percentage, calculated as the year t net sales (Compustat annual data item #12) less cost of goods sold for the year (Compustat annual data item #41), scaled by net sales.
LTG	Expected long term growth in earnings, defined as the percentage change in the mean two-year ahead earnings forecast (obtained from IBES) from the current earnings realization (Compustat annual data item #58).
OWNER	Natural log of the number of shareholders of a firm (Compustat item #100) minus the natural log of mean number of shareholders (in thousands) in the firm's size decile.
AGE	Natural logarithm of number of months the firm has been listed on CRSP.

Table 2
Descriptive Statistics

This table presents descriptive statistics for the total sample of 18,264 firm-year observations. Variables are defined in Table 1.

Panel A: Financial Reporting Quality Metrics

	MEAN	MEDIAN	STD. DEV.
FQ1	0.0551	0.0362	0.064
FQ2	0.0487	0.0341	0.052
FQ3	0.0614	0.0484	0.058
FQ4	0.0511	0.0389	0.067

Panel B: Pairwise Correlation Coefficients among Financial Reporting Quality Metrics

VARIABLE	FQ1	FQ2	FQ3	FQ4
FQ1		0.691 (0.0001)	0.863 (0.0001)	0.685 (0.0001)
FQ2	0.621 (0.0001)		0.911 (0.0001)	0.632 (0.0001)
FQ3	0.723 (0.0001)	0.854 (0.0001)		0.891 (0.0001)
FQ4	0.651 (0.0001)	0.691 (0.0001)	0.617 (0.0001)	

FQ1 = absolute value of residuals estimated using Barth et al. [2001] model; FQ2 = standard deviation of residuals estimated using Barth et al. [2001] model calculated over years t-4 through t; FQ3 = absolute value of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002]; FQ4 = standard deviation of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002] calculated over years t-4 through t;

Panel B reports Pearson (Spearman) correlations above (below) the diagonal line, significance levels are in parentheses.

Table 2 (continued)

Panel C: Descriptive Statistics of Equity Cost of Capital Estimates

	MEAN (%)	MEDIAN (%)	STD. DEV. (%)
R_{OJ}	13.1	12.7	3.68
R_{PEG}	11.8	10.4	3.25
R_{GLS}	10.9	9.7	2.98
R_{CT}	11.1	10.8	2.84
R_{AVG}	12.3	10.5	3.11
R_{FF}	15.4	14.2	2.18

Panel D: Pairwise Correlation Coefficients among Equity Cost of Capital Estimates

VARIABLE	R_{OJ}	R_{PEG}	R_{GLS}	R_{CT}	R_{FF}
R_{OJ}		0.914 (0.0001)	0.561 (0.001)	0.825 (0.0001)	0.181 (0.0001)
R_{PEG}	0.891 (0.0001)		0.524 (0.0001)	0.897 (0.0001)	0.156 (0.0001)
R_{GLS}	0.523 (0.0001)	0.468 (0.0001)		0.635 (0.0001)	0.114 (0.0001)
R_{CT}	0.814 (0.0001)	0.854 (0.0001)	0.685 (0.0001)		0.135 (0.0001)
R_{FF}	0.162 (0.0001)	0.109 (0.0001)	0.125 (0.0001)	0.124 (0.0001)	

Variable definitions: R_{OJ} = Equity cost of capital based on the Ohlson and Juttner-Nauroth [2005] approach; R_{PEG} = Equity cost of capital based on the PEG ratio model of Easton [2004]; R_{GLS} = Equity cost of capital based on Gebhardt, Lee and Swaminathan [2001]; R_{CT} = Equity cost of capital based on Claus and Thomas [2001; R_{AVG} = The average of the four implied equity cost of capital estimates; R_{FF} = Expected return calculated using Fama and French three factor model.

Panel D reports Pearson (Spearman) correlations above (below) the diagonal line, significance levels are in parentheses.

Table 2 (continued)

Panel E: Descriptive Statistics for Sample Firms

VARIABLE	MEAN	MEDIAN	STD. DEV.
SIZE *($mil)*	1756.82	278.37	4856.72
ASSETS *($mil)*	1549.42	238.42	3865.49
ROA	0.018	0.038	0.167
GROWTH	0.068	0.059	0.321
A_HERF	0.281	0.253	0.107
LEVERAGE	0.173	0.154	0.182
OC *(days)*	138.12	126.70	76.70
N_SEG	2.86	1.00	2.81
DISP	0.0139	0.0062	0.032

Size = Natural logarithm of market capitalization at the end of the fiscal year (year t), calculated as the closing price at fiscal year-end times the number of shares outstanding at fiscal year-end (Compustat annual data item #199 times Compustat annual data item #25); Assets = Total assets (Compustat annual data item #6); ROA = Return on assets, defined as EARN (Compustat annual data item #18) divided by total assets (Compustat annual data item #6); GROWTH = Current year's growth in sales, calculated as net sales for year t (Compustat annual data item #12) less net sales of year t-1, scaled by net sales for year t-1; A_HERF = The weighted (by segment sales) average Herfindahl-Hirshman Index for the industries in which firm i reports business segment sales. The Herfindahl Index is calculated as the sum of squares of market shares in the industry: $HERF = \sum_{i=1}^{n}[s_i/S]^2$, where s_i is the firm's sales and S is the sum of sales for all firms in the industry (defined by the two-digit SIC code), and n is the number of firms in the industry. LEVERAGE = Long term debt (Compustat annual data item #9) plus debt in current liabilities (Compustat annual data item #34) divided by firm value (Compustat annual data item #199 times Compustat annual data item #25); OC = Operating Cycle (in days); N_SEG = Number of two-digit SIC code industries that the firm is engaged in; DISP = Standard deviation of analysts' forecasts of year t earnings per share (IBES) for firm i, measured in June following fiscal year t-1, scaled by beginning of period price;

Table 3
Determinants of Firms' Financial Reporting Quality

$$FQ_{i,t+1} = \phi_0 + \phi_1 OWNER_{i,t} + \phi_2 GROWTH_{i,t} + \phi_3 CAPITAL_{i,t} + \phi_4 A\_HERF_{i,t} + \phi_5 ISSUE_{i,t} + \phi_6 LIT_{i,t} + \\ + \phi_7 LEVERAGE_{i,t} + \phi_8 MARGIN_{i,t} + \phi_9 OC_{i,t} + \phi_{10} N\_SEG_{i,t} + \phi_{11} SIZE_{i,t} + \phi_{12} AGE_{i,t} + \xi_{i,t+1}$$

VARIABLE	PRED.	FQ1	FQ2	FQ3	FQ4
OWNER	-	-0.0092 (-20.37)	-0.0084 (-12.54)	-0.0075 (-11.32)	-0.0054 (-8.54)
GROWTH	+	0.0001 (2.15)	0.0001 (1.47)	0.0000 (0.94)	0.0000 (1.21)
CAPITAL	-	-0.0445 (-18.29)	-0.0342 (-15.68)		
A_HERF	?	0.0089 (3.20)	0.0074 (2.99)	0.0068 (3.32)	0.0054 (3.53)
ISSUE	-	-0.0021 (-8.67)	-0.0045 (-5.45)	-0.0035 (-4.98)	-0.0027 (-5.21)
LIT	-	-0.0001 (-0.95)	-0.0000 (-0.54)	-0.0000 (-0.41)	-0.0002 (-1.02)
LEVERAGE	-	-0.0051 (-6.58)	-0.0048 (-7.98)	-0.0056 (-8.65)	-0.0047 (-5.21)
MARGIN	+/-	0.2631 (30.64)	0.1253 (12.51)		
OC	+	0.0001 (5.25)	0.0000 (3.14)	0.0000 (2.98)	0.0001 (3.25)
N_SEG	?	0.0012 (1.24)	0.0001 (0.75)	0.0001 (0.65)	0.0000 (0.24)
SIZE	-	-0.0025 (-3.84)	-0.0005 (-6.54)	-0.0004 (-5.68)	-0.0002 (-5.21)
AGE	-	-0.0014 (-1.35)	-0.0001 (-0.85)	-0.0001 (-0.74)	-0.0001 (-1.88)
R^2		0.38	0.45	0.48	0.49

T-statistics are reported in parentheses.

FQ1 = absolute value of residuals estimated using Barth et al. [2001] model; FQ2 = standard deviation of residuals estimated using Barth et al. [2001] model calculated over years t-4 through t; FQ3 = absolute value of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002]; FQ4 = standard deviation of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002] calculated over years t-4 through t;

Table 4
Association between Industry-Adjusted E/P Ratio and Reporting Quality

$$E\_P_{i,t+\tau} = \delta_0 + \delta_1 LTG_{i,t} + \delta_2 LEVERAGE_{i,t} + \delta_3 SIZE_{i,t} + \delta_4 BETA_{i,t} + \delta_5 FQ_{i,t} + \upsilon_{i,t+\tau}$$

Panel A: Industry-Adjusted E/P Ratio and Reporting Quality

VARIABLE	**FQ1**	**FQ2**	**FQ3**	**FQ4**
LTG	-0.0038 (-3.65)	-0.0036 (-3.54)	-0.0039 (-3.82)	-0.0041 (-3.55)
LEVERAGE	0.0181 (4.12)	0.0179 (3.92)	0.0165 (4.08)	0.0173 (4.03)
SIZE	-0.002 (-6.56)	-0.003 (-6.33)	-0.002 (-6.82)	-0.003 (-6.67)
BETA	-0.0036 (-2.14)	-0.0033 (-2.53)	-0.0027 (-2.21)	-0.0019 (-2.03)
FQ1	0.0021 (4.78)			
FQ2		0.0018 (4.02)		
FQ3			0.0015 (4.11)	
FQ4				0.0023 (3.85)
Mean Adj. R^2	0.23	0.26	0.28	0.26

T-statistics are reported in parentheses.

Table 4 reports mean coefficients and corresponding t-statistics (corrected for serial-correlation) from yearly OLS regressions.

FQ1 = absolute value of residuals estimated using Barth et al. [2001] model; FQ2 = standard deviation of residuals estimated using Barth et al. [2001] model calculated over years t-4 through t; FQ3 = absolute value of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002]; FQ4 = standard deviation of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002] calculated over years t-4 through t;

Table 4 (Continued)
Association between Industry-Adjusted E/P Ratio and Reporting Quality

$$E\_P_{i,t+\tau} = \delta_0 + \delta_1 LTG_{i,t} + \delta_2 LEVERAGE_{i,t} + \delta_3 SIZE_{i,t} + \delta_4 BETA_{i,t} + \delta_5 FQ_{i,t} + \upsilon_{i,t+\tau}$$

Panel B: Industry-Adjusted E/P Ratio and Instrumented Reporting Quality

VARIABLE	**IV1**	**IV2**	**IV3**	**IV4**
LTG	-0.0029 (-3.17)	-0.0031 (-3.21)	-0.0033 (-3.18)	-0.0036 (-3.07)
LEVERAGE	0.0209 (4.65)	0.0242 (4.19)	0.0201 (4.53)	0.0195 (4.21)
SIZE	-0.001 (-5.12)	-0.002 (-5.41)	-0.002 (-5.04)	-0.002 (-5.87)
BETA	-0.0042 (-2.76)	-0.0052 (-3.01)	-0.0048 (-2.89)	-0.0032 (-2.27)
IV1	0.0011 (1.48)			
IV2		0.0029 (0.98)		
IV3			0.0023 (1.21)	
IV4				0.0018 (1.09)
Mean Adj. R^2	0.24	0.25	0.27	0.26

T-statistics are reported in parentheses.

Table 4 reports mean coefficients and corresponding t-statistics (corrected for serial-correlation) from yearly OLS regressions.

IV1 – IV4 are instrumental variables based on FQ1 – FQ4 respectively.

Table 5
Association between Equity Cost of Capital and Reporting Quality

$$R_{AVG\,i,t} = \rho_0 + \rho_1 BETA_{i,t} + \rho_2 SIZE_{i,t} + \rho_3 LEVERAGE_{i,t} + \rho_4 DISP_{i,t} + \rho_5 LTG_{i,t} + \\ + \rho_6 B\_M_{i,t} + \rho_7 INDS_{i,t} + \rho_8 FQ_{i,t} + \vartheta_{i,t}$$

Panel A: Equity Cost of Capital and Reporting Quality

VARIABLE	FQ1	FQ2	FQ3	FQ4
BETA	0.021 (2.76)	0.025 (2.18)	0.019 (2.11)	0.020 (2.15)
SIZE	-0.041 (-3.87)	-0.039 (-3.72)	-0.037 (-3.69)	-0.040 (-3.65)
LEVERAGE	0.054 (6.25)	0.049 (5.87)	0.044 (5.42)	0.035 (4.99)
DISP	-0.071 (-4.85)	-0.068 (-4.88)	-0.077 (-5.01)	-0.061 (-4.62)
LTG	0.54 (3.85)	0.48 (3.24)	0.44 (4.01)	0.51 (4.98)
B_M	0.85 (6.45)	0.75 (6.57)	0.81 (7.12)	0.76 (6.98)
INDS	0.51 (9.52)	0.48 (8.48)	0.45 (8.55)	0.39 (7.52)
FQ1	0.0051 (3.08)			
FQ2		0.0042 (2.98)		
FQ3			0.0039 (2.78)	
FQ4				0.0044 (3.68)
Mean Adj. R^2	0.45	0.52	0.51	0.48

T-statistics are reported in parentheses.

Table 5 reports mean coefficients and corresponding t-statistics (corrected for serial-correlation) from yearly OLS regressions.

The dependent variable is R_{AVG} = the average of the four implied equity cost of capital estimates.
FQ1 = absolute value of residuals estimated using Barth et al. [2001] model; FQ2 = standard deviation of residuals estimated using Barth et al. [2001] model calculated over years t-4 through t; FQ3 = absolute value of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002]; FQ4 = standard deviation of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002] calculated over years t-4 through t;

Table 5 (Continued)

$$R_{AVG\,i,t} = \rho_0 + \rho_1 BETA_{i,t} + \rho_2 SIZE_{i,t} + \rho_3 LEVERAGE_{i,t} + \rho_4 DISP_{i,t} + \rho_5 LTG_{i,t} + \\ + \rho_6 B\_M_{i,t} + \rho_7 INDS_{i,t} + \rho_8 FQ_{i,t} + \vartheta_{i,t}$$

Panel B: Equity Cost of Capital and Instrumented Reporting Quality

VARIABLE	**IV1**	**IV2**	**IV3**	**IV4**
BETA	0.023 (2.64)	0.027 (2.21)	0.021 (2.08)	0.023 (2.32)
SIZE	-0.039 (-3.75)	-0.036 (-3.62)	-0.034 (-3.55)	-0.036 (-3.47)
LEVERAGE	0.051 (6.31)	0.047 (5.16)	0.041 (5.11)	0.029 (3.99)
DISP	-0.065 (-3.96)	-0.054 (-3.52)	-0.071 (-4.67)	-0.071 (-4.27)
LTG	0.58 (4.03)	0.51 (3.55)	0.42 (4.15)	0.48 (4.53)
B_M	0.81 (6.12)	0.72 (6.08)	0.83 (6.58)	0.71 (6.72)
INDS	0.53 (9.21)	0.47 (8.79)	0.44 (9.01)	0.42 (8.01)
IV1	0.021 (0.80)			
IV2		0.025 (0.98)		
IV3			0.020 (0.87)	
IV4				0.031 (1.01)
Mean Adj. R^2	0.45	0.52	0.51	0.48

T-statistics are reported in parentheses.

Table 5 reports mean coefficients and corresponding t-statistics (corrected for serial-correlation) from yearly OLS regressions.

The dependent variable is R_{AVG} = the average of the four implied equity cost of capital estimates. IV1 – IV4 are instrumental variables based on FQ1 – FQ4 respectively.

Table 6
Asset Pricing Tests of Financial Reporting Quality: Association between Fama-French Three Factor Model Estimates and Reporting Quality

$$R_{FF\,i,t} = \rho_0 + \rho_1 BETA_{i,t} + \rho_1 SIZE + \rho_3 B\_M_{i,t} + \rho_4 FQ_{i,t} + \vartheta_{i,t}$$

Panel A: Fama-French Cost of Equity Estimates and Reporting Quality

VARIABLE	FQ1	FQ2	FQ3	FQ4
BETA	0.018 (1.18)	0.022 (0.98)	0.020 (1.04)	0.024 (1.21)
SIZE	-0.0048 (-4.58)	-0.051 (-5.01)	-0.049 (-4.57)	-0.038 (-4.68)
B_M	0.0024 (2.90)	0.0021 (3.12)	0.0019 (2.94)	0.0018 (2.68)
FQ1	0.024 (3.97)			
FQ2		0.035 (4.87)		
FQ3			0.039 (4.62)	
FQ4				0.021 (3.87)
Mean Adj. R^2	0.08	0.07	0.08	0.09

T-statistics are reported in parentheses.

Table 6 reports mean coefficients and corresponding t-statistics (corrected for serial-correlation) from yearly OLS regressions.

The dependent variable is R_{FF} = expected return estimated using the Fama and French three factor model; FQ1 = absolute value of residuals estimated using Barth et al. [2001] model; FQ2 = standard deviation of residuals estimated using Barth et al. [2001] model calculated over years t-4 through t; FQ3 = absolute value of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002]; FQ4 = standard deviation of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002] calculated over years t-4 through t;

Table 6 (Continued)
Asset Pricing Tests of Financial Reporting Quality: Association between Fama-French Three Factor Model Estimates and Reporting Quality

$$R_{FF\,i,t} = \rho_0 + \rho_1 BETA_{i,t} + \rho_1 SIZE + \rho_3 B\_M_{i,t} + \rho_4 FQ_{i,t} + \vartheta_{i,t}$$

Panel B: Fama-French Cost of Equity Estimates and Instrumented Reporting Quality

VARIABLE	**IV1**	**IV2**	**IV3**	**IV4**
BETA	0.012 (1.06)	0.016 (0.81)	0.012 (0.92)	0.018 (1.06)
SIZE	-0.0042 (-4.16)	-0.038 (-4.25)	-0.041 (-4.27)	-0.036 (-4.12)
B_M	0.0019 (2.87)	0.0020 (3.07)	0.0012 (2.46)	0.0016 (2.70)
IV1	0.019 (0.54)			
IV2		0.024 (0.81)		
IV3			0.021 (0.78)	
IV4				0.014 (0.66)
Mean Adj. R^2	0.09	0.08	0.08	0.09

T-statistics are reported in parentheses.

Table 6 reports mean coefficients and corresponding t-statistics (corrected for serial-correlation) from yearly OLS regressions.

The dependent variable is R_{FF} = expected return estimated using the Fama and French three factor model; IV1 – IV4 are instrumental variables based on FQ1 – FQ4 respectively.

Table 7
Standard Deviation of Stock Returns and Reporting Quality

$$STDRET_{i,t} = \chi_0 + \chi_1 SIZE_{i,t} + \chi_2 B\_M_{i,t} + \chi_3 FQ_{i,t} + \zeta_{i,t}$$

Panel A: Standard Deviation of Stock Returns and Reporting Quality

VARIABLE	**FQ1**	**FQ2**	**FQ3**	**FQ4**
SIZE	-0.0024 (-7.95)	-0.0031 (-8.49)	-0.0018 (-7.41)	-0.0021 (-8.94)
B_M	-0.0041 (-3.43)	-0.0084 (-2.99)	-0.0054 (-3.55)	-0.0079 (-3.14)
FQ1	0.018 (4.17)			
FQ2		0.024 (3.74)		
FQ3			0.015 (3.15)	
FQ4				0.021 (2.99)
Mean Adj. R^2	0.11	0.12	0.12	0.14

T-statistics are reported in parentheses.

Table 7 reports mean coefficients and corresponding t-statistics (corrected for serial-correlation) from yearly OLS regressions.

The dependent variable is the standard deviation of daily holding period returns averaged over the 12 months starting as of June subsequent to fiscal year t; FQ1 = absolute value of residuals estimated using Barth et al. [2001] model; FQ2 = standard deviation of residuals estimated using Barth et al. [2001] model calculated over years t-4 through t; FQ3 = absolute value of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002]; FQ4 = standard deviation of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002] calculated over years t-4 through t;

Table 7 (Continued)
Standard Deviation of Stock Returns and Reporting Quality

$$STDRET_{i,t} = \chi_0 + \chi_1 SIZE_{i,t} + \chi_2 B\_M_{i,t} + \chi_3 FQ_{i,t} + \zeta_{i,t}$$

Panel B: Standard Deviation of Stock Returns and Instrumented Reporting Quality

VARIABLE	**IV1**	**IV2**	**IV3**	**IV4**
SIZE	-0.0017 (-7.41)	-0.0024 (-7.25)	-0.0012 (-6.57)	-0.0015 (-7.05)
B_M	-0.0031 (-3.25)	-0.0054 (-2.45)	-0.0024 (-2.98)	-0.0043 (-2.76)
IV1	0.015 (3.54)			
IV2		0.019 (3.28)		
IV3			0.012 (3.07)	
IV4				0.016 (2.92)
Mean Adj. R^2	0.12	0.12	0.13	0.14

T-statistics are reported in parentheses.

Table 7 reports mean coefficients and corresponding t-statistics (corrected for serial-correlation) from yearly OLS regressions.

The dependent variable is the standard deviation of daily holding period returns averaged over the 12 months starting as of June subsequent to year t;
IV1 – IV4 are instrumental variables based on FQ1 – FQ4 respectively.

Table 8
Idiosyncratic Risk and Reporting Quality

$$IDIOS_{i,t} = \lambda_0 + \lambda_1 SIZE_{i,t} + \lambda_2 B\_M_{i,t} + \lambda_3 FQ_{i,t} + \pi_{i,t}$$

Panel A: Idiosyncratic Risk and Reporting Quality

VARIABLE	**FQ1**	**FQ2**	**FQ3**	**FQ4**
SIZE	-0.0025 (-12.81)	-0.0031 (-11.69)	-0.0038 (-14.51)	-0.0041 (-12.51)
B_M	-0.0011 (-7.31)	-0.0015 (-5.68)	-0.0012 (-4.98)	-0.0014 (-4.66)
FQ1	0.0355 (11.59)			
FQ2		0.0447 (10.89)		
FQ3			0.0551 (9.98)	
FQ4				0.054 (11.05)
Mean Adj. R^2	0.34	0.35	0.36	0.36

T-statistics are reported in parentheses.

Table 8 reports mean coefficients and corresponding t-statistics (corrected for serial-correlation) from yearly OLS regressions.

The dependent variable is the residual variance from a regression of firm specific stock returns on the value-weighted CRSP stock index for 12 months following June subsequent to year t;
FQ1 = absolute value of residuals estimated using Barth et al. [2001] model; FQ2 = standard deviation of residuals estimated using Barth et al. [2001] model calculated over years t-4 through t; FQ3 = absolute value of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002]; FQ4 = standard deviation of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002] calculated over years t-4 through t;

Table 8 (Continued)
Idiosyncratic Risk and Reporting Quality

$$IDIOS_{i,t} = \lambda_0 + \lambda_1 SIZE_{i,t} + \lambda_2 B\_M_{i,t} + \lambda_3 FQ_{i,t} + \pi_{i,t}$$

Panel B: Idiosyncratic Risk and Instrumented Reporting Quality

VARIABLE	**IV1**	**IV2**	**IV3**	**IV4**
SIZE	-0.0038 (-10.87)	-0.0041 (-9.87)	-0.0024 (-12.45)	-0.0031 (-11.89)
B_M	-0.0018 (-6.54)	-0.0021 (-5.03)	-0.0019 (-5.14)	-0.0012 (-4.75)
IV1	0.0381 (10.73)			
IV2		0.0474 (9.87)		
IV3			0.0664 (10.98)	
IV4				0.059 (10.74)
Mean Adj. R^2	0.35	0.35	0.37	0.37

T-statistics are reported in parentheses.

Table 8 reports mean coefficients and corresponding t-statistics (corrected for serial-correlation) from yearly OLS regressions.

The dependent variable is the residual variance from a regression of firm specific stock returns on the value-weighted CRSP stock index for 12 months following June subsequent to year t;

IV1 – IV4 are instrumental variables based on FQ1 – FQ4 respectively.

Table 9
Analyst Forecast Dispersion and Financial Reporting Quality

$$DISP_{i,t} = \varpi_0 + \varpi_1 SIZE_{i,t} + \varpi_2 SURP_{i,t} + \varpi_3 ANALYST_{i,t} + \varpi_4 FQ_{i,t} + \psi_{i,t}$$

Panel A: Analyst Forecast Dispersion and Reporting Quality

VARIABLE	FQ1	FQ2	FQ3	FQ4
SIZE	-0.0007 (-8.87)	-0.0007 (-9.27)	-0.0006 (-6.76)	-0.0004 (-7.25)
SURP	0.0279 (3.19)	0.0281 (3.29)	0.0342 (3.95)	0.0327 (3.49)
ANALYST	-0.003 (-4.98)	-0.003 (-4.57)	-0.0023 (-4.10)	-0.0028 (-3.75)
FQ1	0.0429 (4.33)			
FQ2		0.0547 (3.78)		
FQ3			0.0857 (2.99)	
FQ4				0.0914 (3.08)
Mean Adj. R^2	0.09	0.10	0.09	0.11

T-statistics are reported in parentheses.

Table 9 reports mean coefficients and corresponding t-statistics (corrected for serial-correlation) from yearly OLS regressions.

The dependent variable is the standard deviation of analysts' forecasts of year t earnings per share (I/B/E/S) for firm i, measured in June following fiscal year t-1, scaled by beginning of period price; FQ1 = absolute value of residuals estimated using Barth et al. [2001] model; FQ2 = standard deviation of residuals estimated using Barth et al. [2001] model calculated over years t-4 through t; FQ3 = absolute value of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002]; FQ4 = standard deviation of residuals estimated using a modified Dechow and Dichev [2002] model based on McNichols [2002] calculated over years t-4 through t;

Table 9 (Continued)
Analyst Forecast Dispersion and Financial Reporting Quality

$$DISP_{i,t} = \varpi_0 + \varpi_1 SIZE_{i,t} + \varpi_2 SURP_{i,t} + \varpi_3 ANALYST_{i,t} + \varpi_4 FQ_{i,t} + \psi_{i,t}$$

Panel B: Analyst Forecast Dispersion and Instrumented Reporting Quality

VARIABLE	IV1	IV2	IV3	IV4
SIZE	-0.0006 (-8.12)	-0.0006 (-8.87)	-0.0005 (-6.74)	-0.0005 (-7.04)
SURP	0.0283 (3.23)	0.0285 (3.74)	0.0354 (3.82)	0.0318 (3.24)
ANALYST	-0.003 (-4.25)	-0.003 (-4.11)	-0.0019 (-3.87)	-0.0022 (-3.14)
IV1	0.0521 (3.84)			
IV2		0.0617 (4.06)		
IV3			0.114 (3.15)	
IV4				0124 (4.05)
Mean Adj. R^2	0.10	0.11	0.10	0.12

T-statistics are reported in parentheses.

Table 9 reports mean coefficients and corresponding t-statistics (corrected for serial-correlation) from yearly OLS regressions.

The dependent variable is the standard deviation of analysts' forecasts of year t earnings per share (I/B/E/S) for firm i, measured in June following fiscal year t-1, scaled by beginning of period price;

IV1 – IV4 are instrumental variables based on FQ1 – FQ4 respectively.

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