Does Accruals Quality Influence Management Choice on Disclosure Contents?[*]

Kwang-Wuk Oh[a], Kwang-Hwa Jeong[b]

[a]College of Global Business, Korea University, South Korea
[b]College of Business Administration, Kangwon National University, South Korea

Abstract

Purpose - The purpose of this study is to examine the relation between accruals quality and managers' choice on the type of voluntary disclosure.

Design/methodology/approach - Samples of this study are 8,248 firm-year observations listed in Korea Stock Exchange. Poisson regression analysis was hired in order to analyze the association between disclosure frequency and accruals quality because the dependent variables are count data.

Findings - First, this study finds that managers' use of non-earnings-related type of voluntary disclosure is negatively related to accruals quality while their use of earnings-related disclosure is positively related to accruals quality. Second, discretionary accruals quality as well as innate accruals quality is significantly associated with disclosure frequency.

Research implications or Originality - This study extends the line of research by incorporating the content of voluntary disclosure, earnings- and non-earnings-related information. The results of this study suggest that accruals quality may play a role in the choice of disclosure manner when investigating managers' voluntary disclosure.

Ⅰ. Introduction

This study examines the relation between accruals quality and managers' choice on the type of voluntary disclosure. Specifically, we investigate whether the accruals quality measure following Francis et al. (2005) is associated with the selection of voluntary fair disclosure type and further analyze whether this effect varies across the components of accruals quality. Prior research documents the motives for voluntary disclosures, such as capital market transactions, stock-based compensation, and corporate control contests (Beyer et al., 2010). However, there is little empirical evidence to observe whether accruals quality is systematically associated with managers' decision on the type of disclosure.

---

[a] First Author, E-mail: avnini92@korea.ac.kr
[b] Corresponding Author, E-mail: jeong@kangwon.ac.kr

Several studies analytically explain that there is a substitutive relation between accruals quality and inclination in voluntary disclosure, which suggests that poor accruals quality surrogating high information risk accelerates managers' incentive to voluntarily disclose more information in order to mitigate the risk (Grossman and Hart, 1980; Milgrom, 1981; Verrrecchia, 1983). On the contrary, other research supports a complementary relation between accruals quality and voluntary disclosure because managers are reluctant to disclose information with poor accruals quality on which market participants tend to put less credibility (Verrecchia, 1990; Francis et al., 2008). Francis, Nanda and Olsson (2008) show the relations among voluntary disclosure, accruals quality, and cost of capital and report that good accruals quality is related to more expansive voluntary disclosures supporting the complementary relation. Extant research with respect to the relation between accruals quality and voluntary disclosure has conflicting arguments, which could be resulted from the ignorance of disclosure types. The accruals quality-voluntary disclosure relation will vary depending on the type of disclosure. That is, managers may have different incentives across the extent of accruals quality in the process of decision-making as to which type of disclosure to be selected. If accruals quality of a firm is poor, it may not be an effective way to disclose more earnings information in an attempt to reduce information risk because investors regard the information driven by poor accruals as less reliable. Rather, the release of supplementary information may have positive effect on reduction of information risk. Less informative voluntary disclosure such as managers' inaccurate earnings forecasts resulted from low accruals quality may fail to alleviate risk assumed by uninformed investors. Thus, as another way to mitigate the risk, frequent disclosure regarding nonearnings-related information may reduce the gap between a firm's financial numbers and its underlying business fundamentals (Merkley, 2014).

The study extends the line of research by expanding managers' behavior to the choice of disclosure types as to whether managers choose different type of disclosure to convey useful information to a capital market according to the extent of quality of accruals. Most studies in this area focus on analyses with regard to the relationship between accruals quality and voluntary disclosure behavior (Grossman and Hart, 1980; Milgrom, 1981; Verrrecchia, 1983; Verrecchia,, 1990; Francis, Nanda and Olsson, 2008). However, few studies investigate how managers' choice of disclosure type can be affected by the degree of information risk.

In particular, the study examines whether the unique setting in Korea where Regulation Fair Disclosure rule (hereafter, 'Reg FD') states several types of voluntary disclosure affects managers' choice according to the extent of information risk. Although managers' voluntary disclosure is generally known to have impact on economic consequences (Beyer et al., 2010), there are few studies that examine managers' decision on the type of voluntary disclosure driven by the degree of information risk. Therefore, this study specifically examines managers' decision on the type of voluntary disclosure in firms whose accruals quality has cross-sectional differences. We separate types of voluntary disclosure into earnings- and non-earnings-related disclosure. Earnings-related disclosure includes preliminary earnings announcements and management forecasts on a firm's revenue, operating income, and net income while non-earnings-related disclosure consists of business plans and key contracts information, etc.

This study further investigates the extant literature by examining whether the relation between accruals quality and voluntary disclosure varies across the components of accruals quality. This study adds to the understanding of the relation between accruals quality and

the type of voluntary disclosure by exploring whether the components of accruals quality have differential outcomes in voluntary disclosure behavior.

To test these issues, this study covers 8,248 firm-year samples listed in Korea Stock Exchange (KSE) which voluntarily disclose in several forms from 2003 to 2021. The followings are our findings. First, the study finds that managers' use of non-earnings-related type of voluntary disclosure is negatively related to accruals quality while their use of earnings-related disclosure is positively related to accruals quality. This finding implies that high information risk resulted from poor accruals quality can alter managers' choice of non-earnings-related disclosure rather than earnings-related disclosure because non-earnings-related disclosure may bridge the gap between a firm's financial figures and its underlying business prospect. Managers who are afraid of less credible information under high information risk (poor accruals quality) have incentive to change their disclosure behavior based on investors' information need. Second, discretionary accruals quality as well as innate accruals quality is significantly associated with disclosure frequency. This finding implies that performance improvement effect of discretionary accruals quality is more dominant than opportunism effect in terms of voluntary disclosure.

This study makes two contributions to the existing literature by providing additional evidence. First, this study expands the range of investigation by incorporating one of the attributes of voluntary disclosure. To be specific, this study breaks down voluntary fair disclosure into earnings- and non-earnings-related disclosure. Francis, Nanda and Olsson (2008) provide the empirical evidence that better accruals quality leads to more expansive voluntary disclosures (a substitutive relation). However, their evidence is limited by the fact that they do not consider disclosure types. In this regard, our argument that accruals quality without addressing disclosure types may have mixed relations to managers' voluntary disclosure behavior can add further implication on whether accruals quality leads managerial incentive to the choice on the type of information to be disclosed. Second, this study uses unique data on Reg FD in Korea to check managers' behavior of disclosure type, while previous related studies (Lev and Penman, 1990; Brown, Lo and Hillegeist, 2004) use only a particular type of voluntary disclosure, such as management forecasts, preliminary earnings announcements, or conference calls. However, this study includes various types of voluntary disclosure and shows managers' incentive in selecting the types of voluntary disclosure according to the degree of information risk. The study suggests that accruals quality (proxy of information risk) may play a role in the choice of disclosure manner when investigating managers' voluntary disclosure.

The remainder of this study is organized as follows. Section II provides the review of previous studies and develops our hypotheses. Section III discusses research design and sample selection. Section IV presents empirical results, and Section V concludes.

II. Prior Literature and Hypotheses Development

1. Information Risk and the Types of Voluntary Disclosure

Extant literature suggests several incentives for which managers voluntarily provide information to favorably raise external capital (Lang and Lundholm, 2000; Jo and Kim, 2007), to maximize managers' stock-based compensation (Aboody and Kasznik, 2000; Nagar, Nanda

and Wysocki, 2003; Cheng and Lo, 2006), and to explain poor performance (Warner, Watts and Wruck, 1988; Weisbach, 1988).

The degree of information risk can affect managers' voluntary disclosure behavior when informed firm insiders withhold more private information. One strand supports that providing more information can reduce information risk that is priced by uninformed investors (Brown, 1979; Barry and Brown, 1984, 1985; Easley and O'Hara, 2004). The predictions of these studies have similarities regarding the viewpoint that managers use voluntary disclosure to make up information risk.[1]

Verrecchia (1983) theoretically demonstrates that managers who have inside information may engage in voluntary disclosure, even if disclosure is costly, to correct undervaluation by the market participants. The Glosten and Milgrom's (1985) model also shows that information asymmetry by inside information decreases as the level of corporate disclosure increases. Welker (1995) provides evidence on these theoretical expectations. His findings imply that not only bid-ask spread, a proxy of information asymmetry, is reduced but also market liquidity shows positive correlation with corporate disclosure behavior. Taken together, a series of studies consistently support that firm's voluntary disclosure beyond requirement of GAAP and other reporting standards (mandatory disclosure) can reduce information asymmetry (Barry and Brown, 1984; Merton, 1987; Diamond and Verrecchia, 1991).

As information risk, source of information such as operating environment may have effect on managers' business projection. Further, operating environment may affect precision of performance measure that is inversely related to variance of noise of information (Feng, Gu and Li, 2009). For example, as a component of net income, accruals quality can play an important role in yielding significant difference to variance of noise of information because accruals are more subject to errors of estimation than cash flows (Sloan, 1996). Thus, accruals quality (less variance of noise) is an important factor to precision of information.

Lennox and Park (2006) find that a manager is more likely to provide earnings-related forecasts when investors believe that forecasted earnings are more informative (magnitude of earnings news and/or strength of the market's reaction to each unit of news) on stock price. This implies that information asymmetry decreases when investors believe managers' forecasts as reliable.

Gong, Li and Xie (2009) argue that accruals generated under uncertain environment lead more biased managers' forecast in the direction of optimism. Also, managers' true belief for accruals of firms in industries with greater correlation between accruals and growth-related activities may mislead their forecast for earnings projection. Their findings indicate that managers are more likely to disclose biased earnings forecasts from source of uncertain inside information.

Managers' forecast credibility (i.e. accuracy) affects the decision of investors and analyst as well as managers. Pownall and Waymire (1989) suggest that credibility of management forecasts significantly influences security prices. In other words, voluntary disclosure with lower

---

1) Two theories take different approaches with respect to the association between quality of accounting information and cost of capital. While mispricing theory assumes that quality of accounting information is diversifiable factor which cannot affect stock price (Lambert et al., 2007), theory of information risk identifies that quality of accounting information is non-diversifiable risk factor (Easley and O'Hara, 2004). Therefore, reduction of non-diversifiable risk factor can effectively lower cost of capital. In this regard, Easley and O'Hara (2004) suggest an important role of the accuracy of accounting information in asset pricing.

credibility will be discounted (i.e. have less information content) in marking security prices. Their findings indicate that managers' decision to voluntary disclosure depends on how good the forecast is. Hutton and Stocken (2007) show that investors are more responsive to management forecast news when a firm has built a reputation of issuing accurate forecasts. Ball, Jayaraman and Shivakumar (2012) suggest that higher credibility by an independent audited report is positively associated with frequency, specificity, timeliness, and accuracy of management forecasts. Feng, Gu and Li (2009) suggest that cost of equity capital is negatively related to managers' forecast accuracy. Particularly, these results are primarily robust for firms with relatively poor information environments. Taken together, previous studies have revealed that, if managers convey less informative voluntary disclosure, uninformed investors still demand risk premium, and hence, managers will have incentive to find another way of voluntary disclosure to reduce investors' ex-ante risk premium.

Variation in a firm's reported earnings performance may increase investors' demand for disclosing more information and induce managers to provide it (Bagnoli and Watts 2007). In such a case, different type of voluntary disclosure can be another channel for managers to convey contextual information to a capital market. That is, if managers are willing to reduce information risk using another type of voluntary disclosure rather than less credible information, they will have incentive to change their disclosure behavior based on investors' information need.

Amir and Lev (1996) find that when financial information (earnings, book values and cash flows) is combined with non-financial information, these variables contribute to the explanation of stock prices and returns. Specifically, they observe that non-financial information such as market population size (POPS) and market penetration shows a more significant relation to stock prices than required financial statement information, implying that investors view such voluntary disclosures as credible.

Using voluntary non-financial disclosure information (corporate social responsibilities, hereafter 'CSR'), Dhaliwal et al. (2011) find that firms with more CSR disclosure enjoy a subsequent reduction in the implied cost of equity capital, attract dedicated institutional investors, induce analyst followings and raise more equity capital than firms with less CSR disclosure, which indicates that greater disclosure can lead to reduced information asymmetry among investors or between managers and investors.[2]

Merkley (2014) finds that managers are more likely to adjust the type of disclosure on R&D plan to a narrative way in order to provide more relevant information. He also finds that managers tend to use narrative disclosure more frequently to mitigate information risk by documenting the positive relation between sell-side analyst behavior and disclosure information contents. His results imply that managers have incentive to adjust the type of disclosure based on the extent of information asymmetry and to complementally highlight the role of non-earnings-related disclosure. In this regard, there is a need for more research using non-earnings-related voluntary disclosure to capture managers' incentive to convey information on underlying business prospect although this type of disclosure can be subjective in nature.

---

2) Contrary to the finding of Dhaliwal et al.(2011), Richardson and Welker(2001) find positive relation between non-financial disclosure (social disclosures) and the implied cost of equity capital. For this, Dhaliwal et al. (2011) interpret that effect of social disclosure on the implied cost of capital may differ considerably in institutions related to information disclosure because more stringent regulations such as the U.S. and the associated higher level of litigation risk generally require higher level of disclosure credibility.

As mentioned previously, this study extends the related line of research by categorizing voluntary disclosure items into two types and testing cross sectional variation: managers' earnings-related voluntary disclosure (*VD(E)*) and non-earnings-related voluntary disclosure (*VD(N)*). The study expects that managers are likely to increase frequency of non-earnings-related voluntary disclosure to complement for the poor credibility of earnings-related information. If the mapping ability of accruals into cash flows is relatively low and earnings information is forecasted from poor accruals quality, we expect that earnings disclosure has little effects on benefits from its disclosure (Warner, Watts and Wruck, 1988; Weisbach, 1988; Aboody and Kasznik, 2000; Lang and Lundholm, 2000; Nagar, Nanda and Wysocki, 2003; Cheng and Lo, 2006). In such a case, the firms will release more non-earnings-related information that bridges the gap between a firm's financial figures and its underlying business prospect. Followings are hypotheses to test the association between accruals quality and the types of voluntary disclosure decisions stated in the alternative form:

H1a: If all other things being equal, accruals quality is positively related to the frequency of earnings-related type of voluntary disclosure.

H1b: If all other things being equal, accruals quality is negatively related to the frequency of non-earnings-related type of voluntary disclosure.

2. Innate Accruals Quality and Discretionary Accruals Quality

Firm-specific information risk (fundamental firm-specific risk) is a pertinent detail to investors' pricing decision. Yee (2006) theoretically explains that, in the absence of fundamental information risk, earnings quality may not serve to any effect on cost of capital. That is, only fundamental information risk can contribute to the increase of cost of capital.

Chen, Dhaliwal and Trombly (2008) define that a fundamental component of accruals is information risk that is associated with a firm's particular business model, types of business, and the organizational structure. In contrast, the remainder of accruals component shows a weak association with economic consequences. As they expected, only poor accruals quality (high fundamental risk) raises cost of capital and the effect of accruals quality on cost of capital is weaker for firms with low fundamental risk.

Francis et al. (2005) decompose accruals quality into two factors: innate factor and discretionary factor. Innate accruals quality is linked to a firm's business model and operating environment such as firm size, standard deviation of cash flows, standard deviation of revenues, length of operating cycle, and frequency of negative earnings realizations. The remainder excluding innate accruals quality is assumed to be discretionary accruals quality whose source is management intervention. Francis et al. (2005) and Kim and Qi (2010) consistently document that the pricing effects of innate accruals quality are more pronounced than those of discretionary accruals quality. Their findings imply that property of innate accruals quality is from a firm's business model or operating environment, which has a dominant effect on firm value. Therefore, innate accruals quality has only one-sided effect to increase the variability of future cash flows.[3]

---

3) In Francis et al. (2005) model, the variable of innate accruals quality is an inverse measure, thus increasing the variability of future cash flows.

Unlike innate accruals, discretionary accruals have two conflicting attributes: (1) performance improvement effect and (2) managerial opportunism effect. Specifically, managers may use accruals to convey their private information to a capital market, which improves earnings quality; however, the discretionary attribute of accruals may represent managers' opportunistic behavior to manipulate earnings. Consequently, distorted accruals which are discretionarily managed can reduce the ability of accruals to map into cash flows and thus, increase information risk. Similarly, if a discretionary component of accruals quality has mixed effects of performance improvement and managerial opportunism, its effect on costs of capital will be relatively smaller than that of innate accruals quality. In other words, information risk from innate accruals quality plays more important role than discretionary accruals quality (Francis et al., 2005).

This study posits that the attributes of accruals quality show discriminatory acts to managers' voluntary disclosure decisions. If innate accruals quality facilitates firms' private information to a capital market, the association between innate accruals quality and voluntary disclosure will be significant. Based on the discussion above, we present our second hypotheses as follows:

H2a: If all other things being equal, innate accruals quality is positively (negatively) related to the frequency of earnings-related (non-earnings-related) type of voluntary disclosure.

H2b: If all other things being equal, discretionary accruals quality has no significant relation with the frequency of earnings-related and/or non-earnings-related type of voluntary disclosure.

Ⅲ. Research Methodology and Sample Selection

1. Research Design

To test our hypotheses, the following regression model is specified. Specifically, the model uses three dependent variables which are a frequency of fair disclosure (VD), a frequency of earnings-related voluntary disclosure ($VD(E)$), and a frequency of non-earnings-related voluntary disclosure ($VD(N)$). Since the dependent variables are count data and include many zeros, we employ the Poisson regression model rather than OLS to avoid biased and inefficient estimates. The explanatory variables are accruals quality (AQ), innate accruals quality ($InnateAQ$), and discretionary accruals quality ($DiscAQ$), respectively.

$$Disc(VD, VD(E), VD(N))_{j,t} = \alpha_0 + \alpha_1 AQ_{j,t} + \alpha_2 Mgt_{j,t} + \alpha_3 Foreign_{j,t} \qquad (1)$$
$$+ \alpha_4 Lsize_{j,t} + \alpha_5 Margin_{j,t} + \alpha_6 Lev_{j,t}$$
$$+ \alpha_7 Sgrow_{j,t} + \alpha_8 Lhor_{j,t} + \alpha_9 Big_{j,t}$$
$$+ IndustryDummy + YearDummy + \epsilon_{j,t}$$

Where,

The subscript j denotes firm j, VD is the frequency of voluntary fair disclosure; $VD(E)$ is the frequency of earnings-related voluntary disclosure; $VD(N)$ is the frequency of non-earnings-related voluntary disclosure; AQ is accruals quality measured by Francis et al. (2005);

Mgt is a senior management's ownership variable; *Foreign* is a foreign investors' ownership variable; *Lsize* is the natural logarithm of total assets; *Margin* is defined as the firm's income from continuing operations before income taxes; *Lev* is a firm's capital structure, defined as total liabilities to total equity; *Sgrow* is sales growth, defined as the change of sales deflated by prior year's sales; *Lhor* is the natural logarithm of the number of days since a firm's initial public offering; *Big* takes 1 if the auditor belongs to Big 4 accounting firms, 0 otherwise.

This study uses three estimates for *Disc*: *VD*, *VD(E)* and *VD(N)*. *VD* is the total frequency of voluntary fair disclosure in a firm. *VD(E)* is the sum of frequency for earnings-related disclosure, preliminary earnings announcements and management forecasts. *VD(N)* is the sum of frequency for non-earnings-related information, future business plans and mandatory disclosure-related information. Several studies use disclosure frequency as a proxy for attribute of firms' disclosure. For example, Lang and Lundholm (2000) use disclosure frequency and changes in disclosure frequency to proxy for the level and the activity of disclosure. Schrand and Verrecchia (2004) and Feng, Gu and Li (2009) use disclosure frequency as the number of disclosures to capture quality of management forecasts. Jo and Kim (2007) also measure disclosure quality with the number of distinct press releases, asserting that disclosure frequency is one of the proxies currently used in the literature.

2. Proxy of Accruals Quality

To measure accruals quality (a proxy of information risk), we use the model by Francis et al. (2005). Their measurement begins from Dechow and Dichev (2002)'s definition of accruals quality reflecting the extent to which working capital accruals map into operating cash flow realization. Francis et al. (2005) add a change in revenues ($\triangle Rev$) and a property and plant, and equipment (*PPE*). Following is the model to calculate accruals quality by Francis et al. (2005) (all variables are scaled by average assets):

$$TCA_{j,t} = \phi_0 + \phi_1 CFO_{j,t-1} + \phi_2 CFO_{j,t} + \phi_3 CFO_{j,t+1} + \phi_4 \triangle Rev_{j,t} \\ + \phi_5 PPE_{j,t} + \upsilon_{j,t} \tag{2}$$

Where,

The subscript *j* denotes firm *j*, $TCA_{j,t}$ is total current accruals in year *t*; $CFO_{j,t}$ is firm *j*'s cash flow from operations in year *t*; $\Delta Rev_{j,t}$ is firm *j*'s change in revenues between year *t-1* and year *t*; $PPE_{j,t}$ is firm *j*'s gross value of PPE in year *t*.

Following Francis et al. (2005), the model (2) is a year-specific regression to produce five consecutive years' standard deviation of the residuals. Variability of the residuals in working capital (*TCA*) represents an inverse measure of accrual quality: That is, greater variability of working capital indicates poor accrual quality, which means that the firm's accruals lack in ability to map into cash flows. We multiply the variability of the residuals by negative one in order to improve understanding of the coefficient on the interest variable (therefore, the higher *AQ* indicates the better accruals quality).

Francis et al. (2005) argue that innate accrual quality includes a firm's business model and

operating environment, such as firm size (*Size*), standard deviation of cash flows ($\sigma(CFO)$), standard deviation of sales ($\sigma(Sales)$), length of operating cycle (*OperCycle*), and frequency of negative earnings realizations (*NegEarn*). The following model (3) separates accrual quality (*AQ*) into an innate part (*InnateAQ*) and a discretionary part (*DiscAQ*):

$$AQ_{j,t} = \lambda_0 + \lambda_1 Size_{j,t} + \lambda_2 \sigma(CFO)_{j,t} + \lambda_3 \sigma(Sales)_{j,t} + \lambda_4 OperCycle_{j,t} \qquad (3)$$
$$+ \lambda_5 NegEarn_{j,t} + \mu_{j,t}$$

Where,

The subscript *j* denotes firm *j*, $\sigma(CFO)_{j,t}$ is the standard deviation of firm *j*'s *CFO*, calculated over the past 10 years; $\sigma(Sales)_{j,t}$ is the standard deviation of firm *j*'s sales, calculated over the past 10 years; $OperCycle_{j,t}$ is the log of firm *j*'s operating cycle; $NegEarn_{j,t}$ is the number of years, out of the past 10, where firm *j* reported net loss.

As mentioned above, innate accruals quality reflects a firm's business model and operating environment while the discretionary component of accruals quality represents managerial choices. The study obtains innate accruals (*InnateAQ*) and discretionary accruals (*DiscAQ*) from the predicted values of explanatory variables and the residuals of the model (3), respectively.[4] Also, we multiply the each variable from Francis et al. (2005), *InnateAQ* and *DiscAQ*, by negative one for the reason described above.

$$InnateAQ_{j,t} = -[\hat{\lambda}_0 + \hat{\lambda}_1 Size_{j,t} + \hat{\lambda}_2 \sigma(CFO)_{j,t} + \hat{\lambda}_3 \sigma(Sales)_{j,t} + \hat{\lambda}_4 OperCycle_{j,t} \qquad (4)$$
$$+ \hat{\lambda}_5 NegEarn_{j,t}]$$

$$DiscAQ_{j,t} = -\hat{\mu}_{j,t} \qquad (5)$$

From the regression model (1), the relation between accruals quality (*AQ*, *InnateAQ*, *DiscAQ*) and voluntary disclosure (*VD*, *VD(E)*, *VD(N)*) can be inferred from the coefficient estimates on *AQ*, *InnateAQ* and *DiscAQ*, respectively. If hypothesis 1a and 1b are supported, the coefficient estimates on the *AQ* will be significantly positive and negative for *VD(E)* and *VD(N)*, respectively. Also, if hypothesis 2a and 2b are supported, the coefficient estimates on the *InnateAQ* and *DiscAQ* will be significantly positive and negative for *VD(E)* and *VD(N)*, respectively, in each type of disclosure (earnings- or non-earnings-related disclosure).

3. Control Variables

Model (1) includes several control variables to capture the variation of managers' disclosure decision. First, the model includes variables indicating corporate governance, such as *Mgt* and *Foreign* which can affect managers' disclosure decisions. Eng and Mak (2003) suggest that decrease in management ownership is correlated with increase in voluntary disclosure. However, Nagar, Nanda and Wysocki (2003) observe that higher managers' ownership in-

---

4) Similar with *AQ*, *InnateAQ* and *DiscAQ* in Francis et al. (2005) represent an inverse measure of accrual quality, respectively. That is, greater variability of these variables indicates poor accruals quality. To avoid misunderstanding of the variables, we multiply *AQ*, *InnateAQ* and *DiscAQ* by negative one, respectively.

creases voluntary disclose behavior to disseminate their private information. Considering these conflicting arguments, this study does not predict a sign on *Mgt*.

Larger foreign ownership has positive effect on managers to disclose more information (Healy, Palepu and Sweeney, 1999; Bushee and Noe, 2000). Also, foreign investors have been known to perform an important monitoring role in Korea after the Asian financial crisis (Kang and Baek, 2001). Thus, the coefficient estimation on *Foreign* will have a positive sign. Stakeholders' interest increases in firm size (*Lsize*) (Botosan, 1997). Also, firm size (*Lsize*) can control a number of omitted variables, which detect managers' disclosure decisions. *Margin* surrogating firms' profitability is expected to have a positive sign because managers of firms with good performance have incentive to voluntarily disclose (Lang and Lundholm, 1993). Higher *Lev* indicates the degree of influence of debt holders' decisions. Therefore, managers of firms with higher debt need to provide more information to debt holders through voluntary disclosure (Hope and Thomas, 2008). Sales growth (*Sgrow*) captures firms' growth and is expected to have a positive effect on managers' disclosure behavior (Francis, Nanda and Olsson, 2008).

Newly established firms have strong incentive for voluntary disclosure because they are relatively small-sized and under poor information environment. In such a case, *Lhor* indicating firm age will have a negative sign (Barry and Brown, 1984).

Big N auditors (*Big*) are expected to have better audit quality and, in turn, enhance financial information quality (Becker et al., 1998). Therefore, *Big* is expected to be negatively correlated with voluntary disclosure. Finally, the model includes year and industry dummies to capture the cross-sectional differences in year and industry composition.

4. Sample

We use the sample of the 8,248 firm-year that listed on Korea Stock Exchange (KSE) for the period from 2003 to 2021. The data on Reg FD are obtained from Korea Investor's Network for Disclosure System (KIND) database.[5] The sample excludes financial institutions whose accounting standards and regulations are very different from other industries.

Ⅳ. Empirical Results

1. Descriptive Statistics and Correlation Matrix

Table 1. Sample Distribution by Year

Year	# of firms
2003	348
2004	360
2005	370
2006	378
2007	397

---

5) The database is operated by the KRX.

2008	403
2009	400
2010	430
2011	423
2012	425
2013	436
2014	440
2015	457
2016	476
2017	483
2018	495
2019	499
2020	508
2021	520
Total	8,248

〈Table 1〉 shows sample distribution by year. As seen in the table, the number of observations in this study is increasing across the years.

Table 2. Descriptive Statistics

	N	Mean	Std. dev	Min	25%	Median	75%	Max
VD	8,248	1.148	2.371	0	0	0	1	13
VD(E)	8,248	0.937	2.073	0	0	0	1	12
VD(N)	8,248	0.187	0.572	0	0	0	0	3
AQ	8,248	-0.062	0.046	-0.276	-0.077	-0.049	-0.032	-0.010
InnateAQ	7,588	-0.063	0.035	-0.221	-0.073	-0.054	-0.042	-0.011
DiscAQ	7,588	0.000	0.032	-0.118	-0.013	0.003	0.019	0.084
Mgt	8,248	0.145	0.152	0	0.001	0.102	0.248	0.587
Foreign	8,248	0.101	0.134	0	0.010	0.044	0.139	0.646
Lsize	8,248	19.840	1.469	17.007	18.844	19.653	20.645	24.255
Margin	8,248	0.030	0.093	-0.377	0.004	0.034	0.074	0.271
Lev	8,248	0.424	0.209	0.024	0.261	0.430	0.577	0.929
Sgrow	8,248	0.054	0.257	-0.729	-0.058	0.037	0.140	1.287
Lhor	8,248	8.968	0.557	7.586	8.620	9.070	9.404	9.829
Big	8,248	0.652	0.476	0	0	1	1	1

Notes: 1. The data on Reg FD in Korea are obtained from KIND database (http://kind.krx.co.kr) and financial data are from TS2000 database (http://www.kocoinfo.com).
2. *VD* is the frequency of voluntary fair disclosure; VD(E) is the sum of frequency for management forecasts for financial performance and preliminary earnings announcements (earnings-related voluntary disclosure); VD(N) is the sum of frequency for future business plan and information related to mandatory disclosure (non-earnings-related voluntary disclosure); AQ, InnateAQ and DiscAQ are accruals quality, innate accruals and discretionary accruals quality, measured by Francis et al. (2005) and multiplied by negative one (i.e. -1), Mgt is senior management's ownership of a firm; Foreign is foreign investors' ownership; Lsize is the natural logarithm of total assets; Margin is defined as the firm's income from continuing operations before income taxes; Lev is a firm's capital structure, defined as total liabilities to total equity; Sgrow is sales growth, defined as the change of sales deflated by prior year's sales; Lhor is the natural logarithm of the number of days since a firm's initial public offering; Big takes 1 if the auditor belongs to Big 4 accounting firms, 0 otherwise.

〈Table 2〉 presents descriptive statistics of the variables used in the study.[6] The mean value of the frequency of voluntary disclosure is 1.148. Also, the mean values of firms' disclosure frequency on earnings- and non-earnings-related information are 0.937 and 0.187, respectively. The mean (median) value of AQ, $InnateAQ$ and $DiscAQ$ are -0.062 (-0.049), -0.063 (-0.054), and 0.000 (0.003), respectively.[7] On average, 14.5% of a firm's outstanding stocks are held by managers (Mgt). The mean value of $Foreign$ is 10.1%. The mean (median) value of $Lsize$, is 19.840 (19.653) indicating that log transformation approximate to normal distribution. The mean (median) value of $Margin$, Lev and $Sgrow$ are, 0.030 (0.034), 0.424 (0.430), and 0.054 (0.037), respectively. Finally, almost 65% of the firms engaged external audit with Big N auditors during the sample period.

Table 3. Pearson Correlation Coefficients between Main Variables

	VD	VD(E)	VD(N)	AQ	InnateAQ	DiscAQ
VD(E)	0.955					
	<.0001					
VD(N)	0.533	0.288				
	<.0001	<.0001				
AQ	0.051	0.081	-0.066			
	<.0001	<.0001	<.0001			
InnateAQ	0.071	0.104	-0.064	0.702		
	<.0001	<.0001	<.0001	<.0001		
DiscAQ	0.006	0.011	-0.016	0.635	-0.084	
	0.581	0.347	0.154	<.0001	<.0001	
Lsize	0.328	0.318	0.182	0.246	0.328	-0.014
	<.0001	<.0001	<.0001	<.0001	<.0001	0.221

Notes: 1. Variables definitions: see 〈Table 2〉
  2. p-values are provided below the coefficient values.

〈Table 3〉 reports Pearson's correlation coefficients between main variables. This study finds that the association between accruals quality and voluntary disclosure shows consistent correlation as expected. AQ ($InnateAQ$) reports correlation estimates with $VD(E)$ and $VD(N)$ as 0.081 and -0.066 (0.104 and -0.064), respectively. This implies that firms with good accruals quality are more likely to provide earnings-related voluntary disclosure, which is consistent with Francis, Nanda and Olsson (2008). On the other hand, firms with poor accruals quality are inclined to disclose non-earnings-related information. Interestingly, this study finds that discretionary accruals component ($DiscAQ$) does not show significant correlations with the disclosure

---

6) All variables presented are winsorized at the 1% and 99%, respectively.

7) Francis et al. (2005) report mean (median) value of AQ as 0.0442 (0.0313). However, as described previously, we multiply the variable from Francis et al. (2005), AQ, by negative one and thus mean(median) value are 0.062(0.049), which slightly higher than that of Francis et al. (2005). We conjecture that if Reg FD guides firms to disclose material information to all investors, those firms may have a material event or business issue that has to be disclosed. Because of this nature, those firms with voluntary disclosure tend to have volatile earnings or cash flows. In such a situation, it is probable that accruals are less likely matched with cash flows and show higher standard deviation.

variables (*VD*, *VD(E)* and *VD(N)*). This result indicates that a discretionary component of accruals quality may have mixed effects of performance improvement and managerial opportunism. Consistent with extant literature, larger firms (*Lsize*) tend to increase the voluntary disclosure.[8]

2. Multivariate Results

Model (1) is estimated using the full sample of 8,248 firm-years. 〈Table 4〉 presents the results of regression model (1) to test hypothesis 1a and 1b on the association between accrual quality (*AQ*) and voluntary disclosure behavior (*VD*, *VD(E)*, and *VD(N)*).

Table 4. Tests of the Relation between Voluntary Disclosure Level and Accruals Quality

	Pred. sign	Disc=VD	Disc=VD(E)	Disc=VD(N)
		Coefficient (Prob ChiSq)	Coefficient (Prob ChiSq)	Coefficient (Prob ChiSq)
Intercept	+/-	-5.243 ***	-5.561 ***	-7.414 ***
		(<.0001)	(<.0001)	(<.0001)
AQ	+/-	1.153 ***	3.153 ***	-4.050 ***
		(<.0001)	(<.0001)	(<.0001)
Mgt	+/-	-1.310 ***	-1.354 ***	-0.739 ***
		(<.0001)	(<.0001)	(0.001)
Foreign	+	1.285 ***	1.394 ***	0.672 ***
		(<.0001)	(<.0001)	(0.0003)
Lsize	+	0.296 ***	0.270 ***	0.417 ***
		(<.0001)	(<.0001)	(<.0001)
Margin	+	1.092 ***	2.099 ***	-2.104 ***
		(<.0001)	(<.0001)	(<.0001)
Lev	+	0.707 ***	0.856 ***	0.138
		(<.0001)	(<.0001)	(0.378)
Sgrow	+	0.290 ***	0.255 ***	0.306 ***
		(<.0001)	(<.0001)	(0.002)
Lhor	-	-0.024	0.018	-0.181 ***
		(0.203)	(0.387)	(0.0001)
Big	-	0.054 *	0.101 ***	-0.099
		(0.066)	(0.002)	(0.147)
Industry Dummy		Included	Included	Included
Year Dummy		Included	Included	Included
Pearson χ^2		25,079.39	24,699.13	9,873.08
Number of Obs.		8,248	8,248	8,248

Notes: 1. Variables definitions: see 〈Table 2〉
   2. */**/*** indicate statistical significance at the 10%, 5%, and 1% level, respectively, based on two-tailed tests.

---

8) Untabulated results report that more profitable firms (*Margin*) and highly leveraged firms (*Lev*) increase the voluntary disclosure. Also, the ownership by foreign investors (*Foreign*) and Big N auditors (*Big*) show positively correlated estimates with voluntary disclosure.

As shown in the column 4 and 5 of ⟨Table 4⟩, the coefficient estimates on the test variable (*AQ*) support the hypothesis 1a and 1b. Specifically, the study observes the expected association between accruals quality and voluntary disclosure (*VD(E)* and *VD(N)*): the coefficient estimates (3.153) on *AQ* for *VD(E)* are positive at 1% level of significance, while the coefficient estimates (-4.050) on *AQ* for *VD(N)* are negatively significant. Consequently, the column 3 of ⟨Table 4⟩ shows the coefficient estimates (1.153) on *AQ* for *VD* are positively significant. The result implies that managers with good (poor) accruals quality decide to release more earnings-related (non-earnings-related) information to respond to investors who regard accruals information as more (less) credible. That is, managers mitigate the consequences of poor accruals quality by voluntarily increasing non-earnings-related information because they believe that increase in accruals-related disclosure has little effect on mitigation of information risk.

Other determinants of disclosure behavior generally show the predicted signs that are consistent with prior literature. The sign of coefficient estimates on *Foreign* is consistently positive at 1% level of significance. This is because informed investors such as foreign investors prefer more information. The coefficient estimates on *Lsize* are positive and statistically significant, indicating that larger firms provide more information through voluntary disclosure. *Margin* has different signs and its coefficient is significantly positive for *VD(E)* and significantly negative for *VD(N)*. This result corroborates our arguments that managers use voluntary disclosure containing non-earnings-related information to explain poor performance (Healy and Palepu, 2001). That is, a manager has less incentive to increase non-earnings-related disclosure if a firm's operating performance is good. Finally, the coefficient estimate on *Sgrow* shows positively significant coefficients.

As discussed previously, managers' incentive to use accruals has two conflicting attributes: (1) performance improvement effect and (2) managerial opportunism effect. In particular, managers may use accruals to convey their private information to a capital market to improve earnings quality; meanwhile, they may opportunistically use accruals to mislead investors' decision. To test hypothesis 2a and 2b, the study regresses model (1) using 7,588 firm-years with *InnateAQ* and *DiscAQ*. Using the method used in the ⟨Table 4⟩, ⟨Table 5⟩ presents the result by decomposing accruals attributes.

Table 5. The Effects of the Innate and Discretionary Components of AQ on Voluntary Disclosure

	Pred. sign	Disc=VD Coefficient (Prob ChiSq)	Disc=VD(E) Coefficient (Prob ChiSq)	Disc=VD(N) Coefficient (Prob ChiSq)
Intercept	+/-	-5.261 *** (<.0001)	-5.499 *** (<.0001)	-7.340 *** (<.0001)
InnateAQ	+/-	0.933 ** (0.012)	3.793 *** (<.0001)	-5.496 *** (<.0001)
DiscAQ	+/-	2.022 *** (<.0001)	3.093 *** (<.0001)	-1.564 ** (0.038)
Mgt	+/-	-1.300 *** (<.0001)	-1.353 *** (<.0001)	-0.770 *** (0.001)
Foreign	+	1.273 ***	1.378 ***	0.668 ***

		(<.0001)		(<.0001)		(0.0006)	
Lsize	+	0.301	***	0.272	***	0.413	***
		(<.0001)		(<.0001)		(<.0001)	
Margin	+	0.996	***	1.954	***	-1.968	***
		(<.0001)		(<.0001)		(<.0001)	
Lev	+	0.601	***	0.766	***	0.038	
		(<.0001)		(<.0001)		(0.816)	
Sgrow	+	0.371	***	0.348	***	0.357	***
		(<.0001)		(<.0001)		(0.001)	
Lhor	–	-0.030		0.017		-0.188	***
		(0.132)		(0.424)		(0.0002)	
Big	–	0.064	**	0.106	***	-0.077	
		(0.030)		(0.001)		(0.266)	
Industry Dummy		Included		Included		Included	
Year Dummy		Included		Included		Included	
Pearson χ^2		23,133.35		22,674.66		9,050.65	
Number of Obs.		7,588		7,588		7,588	

Notes: 1. Variables definitions: see <Table 2>
2. */**/*** indicate statistical significance at the 10%, 5%, and 1% level, respectively, based on two-tailed tests.

As shown in the column 4 and 5 of ⟨Table 5⟩, the coefficient estimates on *InnateAQ* are positively significant for *VD(E)* and negatively significant for *VD(N)* at 1% level of significance, respectively. Also, the coefficient estimates on *DiscAQ* are positively significant for *VD(E)* at 1% and negatively significant for *VD(N)* at 5%. This result suggests that managers are slightly more responsive to an innate component rather than a discretionary component of accruals quality in conveying more information to a capital market, which supports our assumptions.

Although accruals quality (*AQ*) can stand for a proxy of information risk associated with financial earnings, an innate component of accruals quality (*InnateAQ*) reflects "economic fundamentals - business model and operating environment - and a discretionary component represents managerial choices" (Francis et al., 2005). Unlike an innate component, prior studies discriminately construe that a discretionary component of accruals can represent performance improvement effect as well as opportunism effect (Guay, Kothari and Watts, 1996; Subramanyam, 1996; Francis et al., 2005). This study demonstrates that *DiscAQ* as well as *InnateAQ* is significantly associated with *VD(E)* and *VD(N)*, which implies that performance measurement effect is more dominant than opportunism effect in terms of voluntary disclosure.[9]

---

9) We did additional robustness analyses. First, we restricted our sample to the IFRS period (i.e. 2011 and subsequent years). The results are qualitatively similar, except that both innate and discretionary components of accruals quality are not significantly associated with non-earnings-related voluntary disclosure (H2a, H2b). Second, we re-analyzed our observations using OLS rather than Poisson regression. The results are also qualitatively similar. However, innate component of accruals quality is not significantly associated with earnings-related voluntary disclosure (H2a). Nonetheless, our main result remains still strongly that disclosure contents vary depending on accruals quality (H1a, H1b).

Ⅴ. Summary and Conclusion

This study investigates whether accruals quality, a proxy for information risk, influences managers' disclosure behavior using accruals quality metric from Francis et al. (2005) and Reg FD information from Korea Investor's Network for Disclosure System (KIND) database. In addition, this study decomposes accruals quality into two components: innate accruals quality and discretionary accruals quality and tests whether the relation varies across the properties of accruals quality.

Using the sample of 8,248 Korea Stock Exchange (KSE) firm-years from 2003 to 2021, this study hypothesizes whether firms with good (poor) accruals quality increase the frequency of earnings-related (non-earnings-related) fair disclosure and whether this association varies by accruals quality attributes: (1) an innate accruals component and (2) a discretionary accruals component.

As predicted, the study finds that accruals quality is positively (negatively) related to earnings-related (non-earnings-related) voluntary disclosure. This study also finds that the relation is slightly more pronounced in the innate component than the discretionary component of accruals quality. These findings suggest that the type of disclosure needs to be considered when we examine whether there is a relation between accruals quality and voluntary disclosure. Also, our results imply that firms with good (poor) accruals quality utilize earnings-related (non-earnings-related) information to mitigate information risk because market participants consider earnings-related information from poor accruals quality as less credible.

This study contributes to the literature on disclosure by providing additional evidence that release of the supplementary non-earnings-related information may have positive effect on reduction of information risk when firms' innate financial information is poor. However, it should be interpreted with caution because the results in this study are from one single country.

References

Aboody, D. and R. Kasznik (2000), "CEO Stock Option Awards and the Timing of Voluntary Disclosures", *Journal of Accounting and Economics,* 29, 73-100.

Amir, E. and B. Lev (1996), "Value-relevance of Nonfinancial Information: the Wireless Communications Industry", *Journal of Accounting and Economics,* 22, 3-30.

Bagnoli, M. and S. Watts (2007), "Financial Reporting and Supplemental Voluntary Disclosures", *Journal of Accounting Research,* 45, 885-913.

Ball, R., S. Jayaraman and L. Shivakumar (2012), "Audited Financial Reporting and Voluntary Disclosure as Complements: a Test of the Confirmation Hypothesis", *Journal of Accounting and Economics,* 53, 136-166.

Barry, C. and S. Brown (1984), "Differential Information and the Small Firm Effect", *Journal of Financial Economics,* 13, 283-294.

Barry, C. and S. Brown (1985), "Differential Information and Security Market Equilibrium", *Journal of Financial and Quantitative Analysis,* 20, 407-422.

Becker, C., M. DeFond, J. Jiambalvo and K. Subramanyam (1998), "The Effect of Audit Quality on Earnings Management", *Contemporary Accounting Research,* 15, 1-24.

Beyer, A., D. A. Cohen, T. Z. Lys and B. R. Walther (2010), "The Financial Reporting Environment: Review of the Recent Literature", *Journal of Accounting and Economics,* 50, 296-343.

Brown, S. (1979), "The Effect of Estimation Risk on Capital Market Equilibrium", *Journal of Financial and Quantitative Analysis,* 15, 215-220.

Brown, S., K. Lo and S. Hillegeist (2004), "Conference Calls and Information Asymmetry", *Journal of Accounting and Economics,* 37, 343-366.

Botosan, C. (1997), "Disclosure Level and the Cost of Equity Capital", *The Accounting Review,* 72, 323-349.

Bushee, B. and C. F. Noe (2000), "Corporate Disclosure Practices, Institutional Investors and Stock Return Volatility", *Journal of Accounting Research,* 38, 171-202.

Chen, L. H., D. S. Dhaliwal and M. A. Trombly (2008), "The Effect of Fundamental Risk on the Market Pricing of Accrual Quality", *Journal of Accounting Auditing and Finance,* 23, 471-492.

Cheng, Q. and K. Lo (2006), "Insider Trading and Voluntary Disclosures", *Journal of Accounting Research,* 44, 815-848.

Dechow, P. and I. Dichev (2002), "The Quality of Accruals and Earnings: the Role of Accrual Estimation Errors", *The Accounting Review,* 77(Supplement), 35-59.

Dhaliwal, D. S., O. Z. Li, A. Tsang and Y. G. Yang (2011), "Voluntary Nonfinancial Disclosure and the Cost of Equity Capital: the Initiation of Corporate Social Responsibility Reporting", *The Accounting Review,* 86(1), 59-100.

Diamond, D. and R. E. Verrecchia (1991), "Disclosure, Liquidity and the Cost of Equity Capital", *The Journal of Finance,* 46, 1325-1360.

Easley, D. and M. O'Hara (2004), "Information and the Cost of Capital", *The Journal of Finance,* 59, 1553-1583.

Eng, L. L. and Y. T. Mak (2003), "Corporate Governance and Voluntary Disclosure", *Journal of Accounting and Public Policy,* 22, 325-345.

Feng, M., Z. Gu and C. Li (2009), *Management forecast and the cost of equity* (Working Paper 2009-09), University of Pittsburg and University of Minnesota, 1-43. Available from https://ssrn.com/abstract=1471058

Francis, J., R. LaFond, P. Olsson and K. Schipper (2005), "The Market Pricing of Accruals Quality", *Journal of Accounting and Economics,* 39, 295-327.

Francis, J., D. Nanda and P. Olsson (2008), "Voluntary Disclosure, Earnings Quality, and Cost of Capital", *Journal of Accounting Research,* 46, 53-99.

Glosten, L. and P. Milgrom (1985), "Bid, Ask and Transaction Prices in a Specialist Market with Heterogeneously Informed Traders", *Journal of Financial Economics,* 26, 71-100.

Gong, G., L. Y. Li and H. Xie (2009), "The Association between Management Earnings Forecast Errors and Accruals", *The Accounting Review,* 84, 497-530.

Grossman, S. J. and O. D. Hart (1980), "Takeover Bids, the Free-rider Problem and the Theory of the Corporation", *The Bell Journal of Economics,* 11, 42-64.

Guay, W., S. P. Kothari and R. Watts (1996), "A Market-based Evaluation of Discretionary Accrual Models", *Journal of Accounting Research,* 34(supplement), 83-105.

Healy, P. M., K. G. Palepu and A. H. Sweeney (1999), "Stock Performance and Intermediation Changes Surrounding Sustained Increases in Disclosure", *Contemporary Accounting Research,* 16, 485-520.

Healy, P. M. and K. G. Palepu (2001), "A Review of the Empirical Disclosure Literature", *Journal of Accounting and Economics,* 31, 405-440.

Hope, O. and W. Thomas (2008), "Managerial Empire Building and Firm Disclosure", *Journal of Accounting Research,* 46, 591-626.

Hutton, A. and P. Stocken (2007), *Effect of Reputation on the Credibility of Management Forecasts* (Working Paper 2006-06), Dartmouth College, 1-57. Available from

https://agustinazubair.wordpress.com/wp-content/uploads/2013/04/13-effect-of-reputation-on-the-credibility-of-management-forecasts-57.pdf

Jo, H. and Y. Kim (2007), "Disclosure Frequency and Earnings Management", *Journal of Financial Economics,* 84, 561-590.

Kang, J. K. and J. S. Baek (2001), "Determinants of Firm Value and Corporate Restructuring under Economic Shocks", *The Korean Journal of Finance,* 14, 199-250.

Kim, D. and Y. Qi (2010), "Accruals Quality, Stock Returns and Macroeconomic Conditions", *The Accounting Review,* 85, 937-978.

Lambert, R., C. Leuz and R. E. Verrecchia (2007), "Accounting Information, Disclosure and the Cost of Capital", *Journal of Accounting Research,* 45, 385-420.

Lang, M. and R. Lundholm (1993), "Cross-sectional Determinants of Analyst Rating of Corporate Disclosure", *Journal Accounting Research,* 31, 246-271.

Lang, M. and R. Lundholm (2000), "Voluntary Disclosure and Equity Offerings: Reducing Information Asymmetry or Hyping the Stock?", *Contemporary Accounting Research,* 17, 623-663.

Lennox, C. S. and C. W. Park (2006), "The Informativeness of Earnings and Management's Issuance of Earnings Forecasts", *Journal of Accounting and Economics,* 42, 439-458.

Lev, B. and S. H. Penman (1990), "Voluntary Forecast Disclosure, Nondisclosure and Stock Prices", *Journal of Accounting Research,* 28, 49-76.

Merkley, K. (2014) "Narrative Disclosure and Earnings Performance: Evidence from R&D Disclosures", *The Accounting Review,* 89, 725-757.

Merton, R. C. (1987), "A Simple Model of Capital Market Equilibrium with Incomplete Information", *The Journal of Finance,* 42, 483-510.

Milgrom, P. (1981), "Good News and Bad News: Representation Theorems and Applications", *Bell Journal of Economics,* 17, 18-32.

Nagar, V., D. Nanda and P. Wysocki (2003), "Discretionary Disclosure and Stock-based Incentives", *Journal of Accounting and Economics,* 34, 283-309.

Pownall, G. and G. Waymire (1989), "Voluntary Disclosure Credibility and Securities Prices: Evidence from Management Earnings Forecast, 1969-73", *Journal of Accounting Research,* 27, 227-245.

Richardson, A. and M. Welker (2001), "Social Disclosure, Financial Disclosure and the Cost of Equity Capital", *Accounting, Organizations and Society,* 26, 597-616.

Schrand, C. and R. E. Verrecchia (2004), *Disclosure Choice and Cost of Capital: Evidence from Underpricing in Initial Public Offerings* (Working Paper), University of Pennsylvania

Sloan, R. G. (1996), "Do Stock Prices Fully Reflect Information in Accruals and Cash Flows about Future Earnings?", *The Accounting Review,* 71, 289-315.

Subramanyam, K. R. (1996), "The Pricing of Discretionary Accruals", *Journal of Accounting and Economics,* 22, 249-281.

Verrecchia, R. E. (1983), "Discretionary Disclosure", *Journal of Accounting and Economics,* 5, 179-194.

Verrecchia, R. E. (1990), "Information Quality and Discretionary Disclosure", *Journal of Accounting and Economics,* 12, 365-380.

Warner, J., R. Watts and K. Wruck (1988), "Stock Prices and Top Management Changes", *Journal of Financial Economics,* 20, 461-493.

Weisbach, M. (1988), "Outside Directors and CEO Turnover", *Journal of Financial Economics,* 20, 431-461.

Welker, M. (1995), "Disclosure Policy, Information Asymmetry and Liquidity in Equity Markets", *Contemporary Accounting Research,* 11, 801-827.

Yee, K. K. (2006), "Earnings Quality and the Equity Risk Premium: A Benchmark Model", *Contemporary Accounting Research,* 23, 833-877.