「회계학연구」 제30권, 특별호 제2호, 2005년 12월

Determinants of Voluntary Disclosures in Overview of Operations - Korean Evidence*

영업의 개황을 통한 자발적 공시의 결정요인 - 한국 기업에 대한 실증 연구*

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ABSTRACT: This study examines the economic determinants of voluntary disclosures in the 'Overview of Operations' section of the published annual report. The overview disclosures in Korea provide a unique setting for testing the economic motives of voluntary disclosures because there are no explicit regulations for the overview contents and format in Korea. We measure the level of voluntary disclosures by the number of words and the frequency of value-related keywords in an overview disclosure. We find that the levels of overview disclosure are positively associated with the degree of external financing, industry concentration, firm size, ownership of minority

논문접수: 2005. 8 게재확정: 2005. 12

* We appreciate the helpful comments of an anonymous referee, Bonghee Han, Lee-Seok Hwang, Su-Keun Kwak and Dan Norris. This paper has also benefited from the comments of workshop participants at Seoul National University, Korea University, the 2004 Summer Conference of Korea Accounting Association, the 9th Asia-Pacific Decision Sciences Institute Conference, and the 16th Asian Pacific Conference on International Accounting Issues. We also thank Woo-Jong Lee for his able assistance in writing the keyword counting programs. A previous version of this paper has been circulated with the title "Determinants of Voluntary Disclosures in Management Discussion and Analysis (MD&A): Korean Evidence." Professor Ahn thanks the Management Research Center of Seoul National University for financial support.

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investors, and top management's involvement in the overview disclosures. Meanwhile, we find no consistent association between the level of overview disclosure and firm performance, ownership of largest/institutional/ foreign shareholders, return volatility, return-earnings correlation, and leverage. We find less significant associations when we use change variables instead of level variables or when we control for industry membership. Our results suggest that managers use the overview of operations as an information medium to communicate value-related information to the stakeholders even in the absence of mandatory requirements for the narrative disclosures.

Key words: overview of operations, voluntary disclosure, narrative disclosure, ownership structure.

개요: 본 연구는 사업보고서에 포함된 영업의 개황(Overview of Operations)을 통한 자발적 공시의 경제적 결정요인을 분석한다. 영업의 개황을 통한 공시는 공시의 내용 및 양식에 명시적인 규정이 존재하지 않기 때문에 자발적 공시의 경제적인 동기를 연구하는데 적합한 환경을 제공한다. 본 연구에서는 자발적 공시의 수준을 영업의 개황에 포함된 전체 단어수와 재무적, 비재무적 중요 단어 빈도수로 각각 측정하였다. 실증분석 결과 영업의 개황을 통한 공시수준은 외부자금 조달, 산업의 집중도, 기업의 규모, 소액주주 지분율, 최고 경영진의 공시 관여도와 양의 유의적인 관계를 보였다. 이에 반해 경영성과, 최대주주/기관투자자/외국인 지분율, 주식수익률의 변동성, 주식수익률과 회계이익의 상관관계, 부채비율의 경우 회귀계수가 비유의적이거나 회귀모형에 따라 일관된 결과를 보이지 못하였다. 이상의 실증적 관계는 산업 효과를 통제하거나 변수들의 변동분에 대한 분석에서도 유사하거나 다소 약한 결과를 나타내었다. 본 연구의 결과는 경영자들이 강제적인 공시의 요구가 없음에도 영업의 개황을 이해관계자와의 의사소통을 위한 정보의 매체로 사용하고 있음을 시사한다.

한글색인어: 영업의 개황, 자발적 공시, 서술적 공시, 소유 구조.

I. Introduction

This study investigates the economic determinants of voluntary disclosures for the 'Overview of Operations' (hereafter, the overview) in Korea. Specifically, the

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study examines the firm characteristics that affect management's decision for the discretionary overview disclosure of financial and/or non-financial information. This study regards the overview disclosures required by Korean Commercial Law as voluntary because the contents and format of the overview disclosures are entirely discretionary to the management (Ahn et al. 2005). In this paper, we use the term 'economic determinants' interchangeably with 'economic stimuli', 'economic incentives' or 'firm characteristics' as appropriate.

Voluntary disclosure plays a key role in reducing information asymmetry and agency costs in Korea both because mandatory disclosures are relatively less comprehensive in developing countries than in developed countries and because information intermediaries such as financial analysts and credit rating agencies are not well developed.[1] In particular, the quality of corporate disclosure has attracted more attention of stakeholders and regulators in Korea since the Asian financial crisis in 1997. Consequently, the Financial Supervisory Service (FSS), a primary regulator of the Korean capital markets, took a series of measures over the past several years that encourage pubic companies to voluntarily disclose more relevant information.[2]

This paper focuses on narrative disclosures among various voluntary disclosures, particularly, disclosures through the overview of operations.[3] Although narrative disclosures provide value relevant information in a user-friendly format, relatively few prior accounting studies have examined narrative disclosures due to the difficulty in measuring the quantity or quality of narrative disclosures. Additionally, the overview disclosures in Korea provide unique data for investigating the economic determinants for voluntary disclosure. While the U.S. Securities Exchange Commission (SEC) requires publicly traded firms to provide an unaudited narrative called the Management Discussion and Analysis (hereafter, MD&A) in their annual reports, the Korean regulatory authorities do not explicitly require

1) See Saudagaran and Diga (1997), La Porta et al. (1998), and Hope (2003) for the cross-country differences in disclosure levels and the development of information intermediaries.

2) For instance, Regulation Fair Disclosure was introduced in Korea on November 1, 2002. Delisting criteria related to disclosure violations, effective April 2004, were strengthened. The Securities and Exchange Act Enforcement Rule was revised several times from 2002 to 2004. The FSS has also been renovating its electronic disclosure system DART (Data Analysis, Retrieval and Transfer System) in terms of speed, capacity, and contents.

3) This study leaves out quantitative disclosures from the scope of analysis. See Section 2, especially footnote 9, for prior studies that examine quantitative disclosures (e.g., management earnings forecasts and conference calls).

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a narrative disclosure similar to the MD&A. The Financial Supervisory Service has a long-term plan to introduce a U.S.-type MD&A disclosure but has not mandated a MD&A disclosure yet.[4] Although it is absent in the regulation, many Korean public companies include descriptive information in their annual reports to complement mandated disclosures. The descriptive section in annual reports titled as 'Overview of Operations' provides narrative information about contemporaneous performance and operational prospects (Ahn et al. 2005). While the commerce law requires that annual reports include the overview of operations, there exist no specific regulations for the contents and format of overview disclosures in Korea.[5] Such a disclosure environment provides a natural setting for us to examine the determinants of voluntary disclosure.

While previous literature in the U.S. (e.g., Bryan 1997) investigates the value relevance of narrative disclosures, few studies have examined the determinants of narrative disclosures. Since the MD&A disclosures are mandatory in the U.S. and the SEC monitors the ex-post MD&A disclosures, researchers have centered on the content analysis that describes the practices of MD&A disclosures (Hooks and Moon 1993) and the association between the disclosures and stock prices or analyst forecasts (Bryan 1997; Barron et al. 1999). The only exception is Clarkson et al. (1999) that view the MD&A disclosures as a part of a firm's disclosure package and examine the determinants of MD&A disclosure quality. This study extends this stream of research by investigating the determinants of narrative disclosures through the overview of operations in Korea where the overview disclosures are voluntary.

4) The Financial Supervisory Service announced a long-term plan to introduce a mandatory MD&A disclosure and to renovate existing disclosure formats in December 2003. The primary regulator of Korean capital markets revealed that the motivation of the plan was to encourage the disclosure of more specific information, to increase the readability of public disclosure and ultimately to increase the usefulness of public information. However, a mandatory MD&A disclosure has not been introduced and even a specific road map for the implementation has not been announced at the time this paper was written. Although there is no requirement for the disclosure of MD&A, some public companies voluntarily provide the MD&A in their annual reports. For example, LG Electronics discloses the current performance and trends of operation through the management discussion and analysis section of their 2002 annual report (http://www.lge.co.kr/ir/archive/Annual_report_2002.pdf). The contents and format of the MD&A section is similar to those of the MD&A disclosure in the U.S.

5) See Ahn et al. (2005) that compare the overview of operations of Korean firms to narrative disclosures in other countries, such as an MD&A.

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We collect and analyze 1,156 firm-year overview observations of public companies listed on the Korea Stock Exchange. We operationally define the overview of operations as the descriptive section in the beginning of an annual report because Korean firms do not report such a uniform section as an U.S. MD&A. The descriptive section is often named as 'overview of operation' or 'message to shareholders' in an annual report. We use content analysis of the overview of operations and measure the level of voluntary disclosures by the number of words and the disclosure index (measured by the frequency of value-related keywords) in an overview of operations. We choose various determinants of voluntary disclosure documented in prior literature (Lang and Lundholm 1993; Clarkson et al. 1999). We find that the level of the overview disclosure is positively associated with the degree of external financing, industry concentration, firm size, ownership of minority investors, and top management's involvement in the overview disclosure. Meanwhile, we find that the coefficients of firm performance, largest/institutional/foreign share-ownership, return volatility, return-earnings correlation, and leverage are insignificant or mixed across different model specifications. We find marginally significant results when we control for the industry membership or when we use change variables instead of level variables. The results are also robust to controlling for estimation bias due to sample selection or count dependent variables.

This paper is related to a concurrent study, Ahn et al. (2005), in that both of the studies investigate the overview of operations as a disclosure medium, but the two studies are distinct in several aspects. First, while Ahn et al. (2005) review the institutional characteristics of overview disclosure and provide simple descriptive statistics on overview disclosure, we examine the effect of various economic factors on the level of overview disclosure. Especially, this study incorporates a unique feature of overview disclosure to examine the determinants of voluntary disclosure. Second, while Ahn et al. (2005) show the univariate effect of industry membership, time trend and accounting performance on overview disclosure, we conduct multiple regressions to present a comprehensive framework of disclosure determinants. Third, while Ahn et al. (2005) measure the disclosure level by the frequency of all economically meaningful words to explore the general contents of overview disclosure at a zero-base, we measure it by the number of words and the frequency of value-related keywords to concentrate on the effect of economic incentives. Fourth, this study provides new evidence

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concerning the relation between economic incentives and overview disclosures. In contrast to Ahn et al. (2005), we find several additional determinants (external financing, industry concentration, firm size, ownership of minority investors, and top management's involvement) of overview disclosure. Furthermore, we show accounting performance variables (return on assets, earnings changes and loss occurrence) have insignificant coefficients in multiple regression models while Ahn et al. (2005) document a significant univariate relation between ROA and disclosure levels.

This study makes three contributions to the accounting literature and practices. First, this study adds to the disclosure literature with empirical evidence that economic incentives of a manager affect the level of voluntary overview disclosure.[6] Especially, the voluntary attribute of overview disclosure in Korea provides a powerful setting to examine the determinants of voluntary disclosure. Second, the evidence can help the stakeholders interpret the information contained in the overview of operations, understand the effect of the underlying economic motives on overview disclosure, and assess the relevance and reliability of overview information. Third, the results can help public policymakers design more effective and efficient regulations for public disclosure including mandatory MD&A disclosure. Additionally, the findings may help regulators design disclosure rules to prevent a firm's economic incentives from biasing voluntary disclosures.

The remainder of the paper proceeds as follows. Section 2 discusses the attributes of overview of operations in Korea and reviews related studies on narrative disclosures and section 3 presents literature that identifies the determinants of voluntary disclosure. Section 4 discusses the data collection and research design. Section 5 provides empirical results and section 6 is the conclusion.

Ⅱ. Narrative Disclosures of 'Overview of Operations'

Narrative disclosures provide both financial and non-financial information and explain the quantitative information presented in financial statements and

6) In this study, a manager's incentives for voluntary disclosures are assumed to be well aligned with those of shareholders. Hence, we do not incorporate the potential interest conflicts between mangers and shareholders in this research.

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footnotes (Bryan 1997). Narrative information is also inseparable from quantitative information in many cases because management analyses, footnote and explanations are routinely included as integral elements of financial reports (Frazier et al. 1984). Especially, narrative information is more useful to unsophisticated investors because the information is expressed in a user-friendly format.[7] While the management discussion and analysis has been regarded as a major medium for narrative disclosure in the U.S. or Canada, the overview of operations provides similar narrative content in Korea.

In 1980, the Securities and Exchange Commission (SEC) of the U.S. mandated that public companies' annual reports include a management discussion and analysis (MD&A) section that assesses the enterprises' operation, liquidity, capital resources, and future events and trends that may affect future operations.[8] The general aim of this requirement is to level the informational playing field by 'giving the investor an opportunity to look at the company through the eyes of management by providing both short-term and long-term analysis of the business of the company' (Bryan 1997). Following the SEC, the Ontario Securities Commission (OSC) adopted similar MD&A requirements in 1989 (Clarkson et al. 1999).

Korean firms provide narrative disclosures in the overview of operations (as a part of an annual report) of which contents are similar with the MD&A. Commercial law in Korea requires all corporations to disclose overview of operations but no legislation specifies the details of overview disclosure. Furthermore, unlike the SEC and OSC, Korean regulatory authorities such as the Financial Supervisory Service neither provide any guidelines for reporting an overview of operations nor monitor overview disclosure practices. There exists no specific legislation or regulation for the contents and format for reporting the overview of operations in Korea (Ahn et al. 2005). Accordingly, firms are following only general guidelines (e.g., Securities Transactions Act and Disclosure Regulations of Korean Stock Exchange) on public disclosures in reporting an overview of operations. Overview disclosures in Korea as a measure of voluntary disclosure therefore provide a useful setting to this study for at least three reasons.

First, voluntary overview disclosures provided by Korean firms are more likely to reflect economic incentives of a manager than alternative measures used in

7) Experimental research (e.g., Hirst et al. 1999) suggests that after the information contents are controlled, disclosure format influences the (unsophisticated) investors' judgments.

8) See the details in Securities Act Release No. 6231 (1980) and Bryan (1997).

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previous studies. Previous studies use either the analysts' survey scores or self-constructed measures as a proxy of voluntary disclosure.[9] Analysts' or investors' survey ratings (e.g., AIMR database) might include cognitive and/or economic incentive-related biases occurred in the process of survey planning and execution (Lang and Lundholm 1993; Healy and Palepu 2001), and might be inappropriate to extrapolate the clear effect of the manager's incentives on overall disclosures because mandatory disclosures also affect the ratings. On the other hand, self-constructed measures can be customized for a particular research purpose, but those measures are not free from the researchers' subjectivity bias. To minimize the subjectivity bias of researchers, this study attempts to construct a comprehensive disclosure index that incorporates all information keywords included in MD&As and to take several corrective measures (discussed in Section 4.2).

Second, the research on overview disclosures is likely to have a significant economic influence on the public because as an information medium, overview disclosure is more advantageous in terms of the distribution cost and the information accessibility. Firms can communicate with the public through the overview of operations at a lower cost than other activities (e.g. conference calls) to build more desirable investor relations (IR). The public also can easily access overview information relative to alternative voluntary disclosures because overview disclosures are included in the annual report, a major financial information source, and publicly available through the Internet in Korea.[10]

Third, the legal environment of Korea helps us examine voluntary disclosures of descriptive information. The threat to shareholder litigation can encourage firms to increase voluntary disclosure for bad news and potentially reduce managers' incentives to provide disclosure, particularly of forward-looking information (Skinner 1994, 1997; Francis et al. 1994; Johnson et al. 2001; Healy and Palepu 2001).

9) Other measures of voluntary disclosure in prior studies include management earnings forecasts (Skinner 1994, 1997, Kasznik and Lev 1995, and Baginski et al. 2002), conference calls (Frankel et al. 1999), and voluntary disclosure of non-mandatory information in annual or quarterly reports (Clarkson et al. 1994, Botosan and Harris 2000, and Chen et al. 2002), which do not focus on the overall level of voluntary disclosure that is the main issue of this study.

10) As EDGAR (http://www.sec.gov/edgar.shtml) of the U.S. SEC provides the financial information of public companies listed in the U.S. capital market, DART (Data Analysis, Retrieval and Transfer System: http://dart.fss.or.kr/) of Financial Supervisory Service provides the financial information of public companies listed in the Korean capital market.

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Since Korea firms face relatively low litigation risk (La Porta et al. 1997; Ball, et al. 2000), they are allowed to reveal prospective or nonfinancial information through voluntary overview disclosures without significant risk of litigation. In addition, the lack of a monitoring system for overview disclosures reduces the risk of lawsuits that might discourage voluntary disclosures. Managers in a less litigious environment such as Korea, therefore, can enjoy more discretion in choosing the contents and format of narrative disclosures than counterparts in the U.S. (Baginski et al. 2002).

Taken as a whole, the overview disclosures in Korea provide a natural setting to examine the determinants of discretionary disclosures. Because of the low information distribution cost and the low litigation risk, the overview of operations has advantages over alternative disclosure media in examining the association between economic incentives and voluntary disclosure. However, not all firms use the overview as a main information medium or report all relevant information through the overview. Instead, a certain level of parsimony is necessary because of the bounded rationality of information users (Simon 1982) and more timely competing media (Frankel et al. 1999). We expect managers to choose an optimal level of overview disclosure considering the benefits and costs of disclosure.

Prior studies on narrative disclosures focus on MD&A, especially in the U.S. and Canada. Extant MD&A literature examines 1) the practices of MD&A disclosures, 2) the association between the disclosures and stock prices or analyst forecasts, and 3) the determinants of MD&A disclosure quality. Early studies on the MD&A concentrate on descriptive research. Cole (1990) surveys and analyzes the format, length, segment information and environmental matters in MD&As of the S&P Top 100 firms and provides evidence that most firms provide forward-looking information. Hooks and Moon (1993) examine MD&A disclosure frequencies and compliance of the 1989 SEC release and find the companies in their sample increase their disclosure after the issuance of the 1989 SEC release.

The second category of MD&A research is information content studies that examine the association between MD&A disclosures and stock prices. Bryan (1997) investigates the information content of mandated disclosures contained in MD&As. The results show that prospective MD&A disclosures such as the discussions of future operations and planned capital expenditure are associated with future performance measures and investment decisions. Barron et al. (1999)

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examine the predictive value of MD&A information and find the association between properties of analysts' earnings forecasts and MD&A quality.

The third category of MD&A research examines the economic determinants of MD&A disclosures. Using the survey data from financial analysts and the content analysis data, Clarkson et al. (1999) provide evidence supporting the view that MD&A is a source of new and useful information. Additionally, they show that aggregate MD&A disclosure quality varies with disclosure determinants similar to those documented in the extant voluntary disclosure literature, and conclude that MD&A is part of a firm's overall disclosure package.

This paper extends prior studies on narrative disclosures by investigating the overview disclosures in the unique setting of Korea. Ahn et al. (2005) indicate that the overview disclosure provides narrative information on contemporaneous performance and operational prospects to supplement the financial statements and the footnotes and to provide an outline of the business. Using the voluntary nature of the overview disclosure as discussed earlier, this study investigates the economic determinants for voluntary disclosure.

Ⅲ. Determinants of Voluntary Disclosure

This study investigates the determinants of voluntary disclosure documented in the prior literature to explain the cross-sectional variations of overview disclosures. This paper incorporates the primary determinants of voluntary disclosures as discussed in Lang and Lundholm (1993) and Clarkson et al. (1999) and extends this stream of research by investigating the determinants of the overview disclosure.[11]

3.1 Firm Performance

Verrecchia (1983) shows that a manager exercises her discretion in disclosing

11) This study does not discuss auditor or audit opinion issue because the overview of operations is not audited in Korea. Prior studies of MD&A do not also control for auditor or audit opinion (e.g. Clarkson et al. 1999).

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information even though traders have rational expectations about her motivation to withhold unfavorable reports. Empirical studies provide mixed results regarding the impact of firm performance on disclosure policies. While Lang and Lundholm (1993), Clarkson et al. (1999), Chen et al. (2002) and Baginski et al. (2004) document that a firm's disclosure level is positively associated with a firm's performance measured by the sign of unexpected earnings or the loss incurrence, Frankel et al. (1999), Ho and Wong (2001), and Eng and Mak (2003) find no significant relation between firm performance and disclosure levels.

Prior literature also provides evidence suggesting that firms are strategically reporting their performance in voluntary disclosure. Miller (2002) finds the significant association between discretionary disclosure and time-series of earnings, but the direction of association depends on the relation between current earnings and prior earnings time-series (not only one-year past earnings). His results suggest that managers choose the quantity, venue and types of disclosures in a strategic manner.

In this paper, we predict the positive association between firm performance and disclosure level because prior studies documenting significant results for the association show that good performers disclose more information voluntarily. However, the effect of firm performance on disclosure may be marginal if managers disclose their firm's performance in a strategic manner.

3.2 External Financing

Lowering the cost of capital has been considered as a primary motive of disclosure (e.g., Diamond and Verrecchia 1991, Gigler 1994, Evans and Sridhar 2002). Frankel et al. (1995) find that managers of firms that access capital markets provide more frequent management earnings forecasts. Botosan (1997) and Botosan and Plumlee (2002) report the negative association between public disclosure and cost of equity capital. Sengupta (1998) also find that firms with high disclosure quality ratings enjoy lower cost of debt.

Disclosure studies provide empirical evidence suggesting that managers have incentives to provide more private information to the public to decrease the cost of capital. Lang and Lundholm (1993) and Clarkson et al. (1999) find that firms that are supposed to issue stocks or bonds in the near future are likely to

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voluntarily disclose more information. Marquardt and Wiedman (1998) and Lang and Lundholm (2000) also document that managers strategically determine the level of voluntary disclosure to reduce the cost of equity capital or to increase their trading profits. Consistent with prior empirical studies, we expect that external financing will have positive association with the voluntary disclosure level of Korean firms.

3.3 Industry Competition

Analytical accounting literature provides equivocal predictions regarding the effect of industry competition on discretionary disclosure. Verrecchia (1983) and Newman and Sansing (1993) suggest that firms withhold private information to avoid proprietary costs associated with voluntary disclosure. Dye (1985) and Jung and Kwon (1988) further document that managers might withhold non-proprietary information when uncertainty exists about whether the managers are informed. On the other hand, Gigler (1994) shows that proprietary costs can actually create the possibility of voluntary disclosures by supplying credibility to such unaudited disclosures. Evans and Sridhar (2002) also find that greater proprietary costs can make a firm's disclosures more credible and increase the frequency of voluntary adverse disclosures.

Existing empirical disclosure studies support that proprietary costs decrease managers' voluntary disclosure of private information. Clarkson et al. (1999) show that return on equity as a proxy of industry concentration (the inverse measure of proprietary costs) has significantly positive relation with the overall disclosure level. Guo et al. (2004) also find that competitive costs are negatively associated with disclosure of product-related information in the biotech industry. From the foregoing discussion, we predict that the higher the industry concentration (i.e., the lower the proprietary costs), the more voluntary disclosures will be provided by firms.

3.4 Firm Size

A large body of accounting literature documents that firm size is related to

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voluntary disclosure level. Firm size is included in almost every disclosure study, either as a variable of interest or as a control variable. Lang and Lundholm (1993) and Clarkson et al. (1999) report that overall disclosure level significantly increases in firm size. Many other studies use firm size as a control variable (for example, Chen et al. 2002). We predict that large firms are likely to disclose more information through the overview of operations due to operational and organizational complexity.

3.5 Ownership Structure

Agency theory suggests that as a manager's share ownership declines, outside shareholders will increase monitoring of the manager's behavior (e.g., Jensen and Meckling 1976). Abrahamson and Park (1994) and Han (2004) provide empirical evidence suggesting that management (institutional) ownership is negatively (positively) related with disclosure quality. Eng and Mak (2003) also find that managerial ownership affects the disclosure choices of the public firms listed on the Stock Exchange of Singapore.

Minority shareholders are likely to prefer more public disclosure because they would like to reduce the adverse effects of information asymmetry between managers and outside shareholders. On the other hand, large blockholders are unlikely to encourage managers to disclose more public information because they can directly access managers or purchase the service of financial intermediaries, such as financial analysts, to obtain private information.

Although institutional and foreign investors may be minority shareholders, they are likely to have less incentive to demand a high level of overview disclosure than individual minority investors. An important role of overview disclosures is to supplement the financial statements and the footnotes and to provide an outline of business for unsophisticated investors. Institutional investors would demand less supplementary overview information because institutional investors are more sophisticated than individual shareholders (Bartov et al. 2000; Jiambalvo et al. 2002). Institutional investors can also obtain similar information included in the overview from alternative information sources such as other public information, conference calls and financial news media. We further expect that foreign investors are likely to show similar preference on

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public disclosure with institutional investors. The shares held by foreign investors in Korean stock market increased to 36 percent of the total market capitalization in 2002.[12] Most of foreign shareholders are institutional investors in their headquarter countries and are at least as sophisticated in investment strategy and information processing as domestic institutional investors (Kim and Yi 2005). We expect that institutional and foreign share-ownership are positively associated with the overview disclosure levels but that the degree of association is lower than that of individual minority investors.

3.6 Top Management

Top management has a substantial impact on the decision of disclosure content and frequency. Clarkson et al. (1999) include the change in the firm's CEO in their empirical model to control for the management's influence on voluntary disclosures. In this paper, we focus on top manager's participation in decision making of the disclosure level because the degree of management involvement may be widely distributed across firms. We predict that top management's involvement in voluntary disclosure will be positively associated with overview disclosure levels.

3.7 Control Variables

This study uses performance variability, information environment and leverage as control variables. Empirical evidence on the relation between these variables and voluntary disclosure is mixed. Uncertainty about the future performance likely stimulates voluntary disclosures because investors are likely to prefer stock with less uncertainty on future performance. While Lang and Lundholm (1993) and Chen et al. (2002) document that firms with high performance volatility are more likely to disclose discretionary information, Clarkson et al. (1999) find no significant relation between voluntary disclosure and stock return variability.

12) Financial Supervisory Service, Dec. 2002, *Monthly Financial Statistics Bulletin*.

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Previous literature documents that the information environment measured by analyst coverage or return-earnings relation is associated with voluntary disclosure. As more financial analysts follow a firm, the more information demand for the firm will emerge. Lang and Lundholm (1993), Clarkson et al. (1999) and Chen et al. (2002) find the number of analysts following is positively associated with voluntary disclosures. Correlation between returns and earnings is also likely to be associated with disclosure levels. If the return-earnings relation is relatively weak, firms have incentives to provide more information to reduce the uncertainty on future performance and the cost of equity capital. While Lang and Lundholm (1993) provide evidence consistent with the premise, Clarkson et al. (1999) find no significant relation.

Jensen and Meckling (1976) imply that agency costs are higher for firms with proportionally more debt in their capital structure. If creditors force firms with high leverage to disclose more information to reduce potential adverse selection, leverage is likely to be positively related with voluntary disclosures. On the other hand, large creditors can access the management to obtain private information about a firm rather than rely on public information. Therefore, high leveraged firms may have less incentive to voluntarily disclose more information. Empirical research provides varied results on the relation between leverage and voluntary disclosure. While Meek et al. (1995) document that leverage is positively associated with voluntary disclosure, Hossain et al. (1994) find no significant relation between the two variables.

3.8 Summary

While the previous discussion provides theoretical and empirical backgrounds for the correlation between voluntary disclosure and the relevant variables selected in this paper, the direction of the relation is not entirely consistent. Most prior literature suggests a positive relation between voluntary disclosure and firm performance, external financing, industry concentration, firm size, ownership of minority investors and top management's involvement. However, the relation between voluntary disclosure and performance variability, earnings/return correlation and leverage may be conditional on the situation.

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Ⅳ. Data and Research Design

4.1 Data and Sample Selection

This study uses content analysis of the overview disclosures for the public companies listed on Korea Stock Exchange. We define the overview of operations as the descriptive section in the beginning of an annual report. The descriptive section is often named as 'overview of operations' or 'message to shareholders' in an annual report. The format of 'overview of operations' is similar to that of an MD&A and the format of 'message to shareholders' is close to that of a president's letter. This study uses both types of disclosures as narrative disclosure data because the two types present similar information regardless of the format.[13] If a specific firm reports both 'overview of operations' and 'message to shareholders' in its annual report, we collect the overview of operations data for this study to circumvent double-counting similar information in both disclosures. Excluding firms providing both types of narrative disclosures from our sample does not change our results qualitatively.

We collect the overview of operations data from the Data Analysis, Retrieval and Transfer System (DART) that has archived electronic annual and quarterly reports of all the public companies in Korea since the fiscal year 1998. We obtain accounting and ownership data from the KIS-FAS database and stock return data from the KIS-SMAT database. Our sample excludes financial institutions (Korean SIC 6500-6799), firm-years that experience the change in fiscal year ends, and firm-years with missing values in the KIS-FAS/SMAT database. Our sample includes 1,156 firm-year observations over the period from 1998 to 2002.[14] <Table 1> presents our sample selection and distribution. Our

13) To control for the potential format effect, we conduct the regression analysis after including the dichotomous variable classifying the types of formats as a control variable. In the robustness check, we replace the CEO's signature (SIGN) by the reporting format dummy from the concern of multicollinearity because the existence of CEO's signature and the disclosure format dummy are highly correlated (Pearson correlation coefficients=0.73). Untabulated results suggest that the possible effect of disclosure format does not change the overall relation between voluntary disclosure and economic determinants.

14) A major event that occurred during the sample period in Korea is the adoption of Regulation Fair Disclosure effective on November 1, 2002. Untabulated results show that excluding the year 2002 observations (the last year observations of our sample) does not change overall results reported. Since the new regulation affects only a few months of our sample period, the effect of new regulation on this study appears immaterial.

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sample is evenly distributed over five years and the sample industry distribution is similar to that of 2002 KIS-FAS/SMAT database.

<Table 1> Sample description

Panel A: Selection procedure for sample firm-years

Selection Criteria	Observations
The overview of operations of firms listed on Korean Stock Exchange that are available at the DART (fiscal year 1998-2002)	2,342
Less: Financial institutions (Korean SIC codes 6500-6799)	(350)
Observations with missing values in KIS-FAS/SMAT	(804)
Observations that experience the change in fiscal year ends	(32)
Sample observations	1,156

Panel B: Distribution of observations by year

	Sample	
Year	Obs.	%
1998	214	18.51
1999	233	20.16
2000	237	20.50
2001	243	21.02
2002	229	19.81
Total	1,156	100.00

Panel C: Distribution of observations by industry

	Sample		2002
Industry description	Obs.	%	KIS-FAS/SMAT(%)
Fishing	5	0.43	0.90
Mining	8	0.69	0.36
Food	91	7.87	6.85
Textiles and printing/publishing	105	9.08	12.79
Chemicals	333	28.81	23.60
Extractive	70	6.06	6.67
Durable manufacturers	299	25.87	28.47
Utilities	5	0.43	1.62
Construction	89	7.7	7.21
Retail	84	7.27	6.85
Transportation	32	2.77	2.34
Services	35	3.03	2.34
Total	1,156	100.00	100.00

Industry membership is determined by Korean SIC code as follows: fishing (0500-0599), mining (1000-1299), food (1500-1699), textiles and printing/publishing (1700-2299), chemicals (2300-2699), extractive (2700-2799), durable manufacturers (2800-3799), utilities (4000-4199), construction (4500-4699), wholesale and retail (5000-5299), transportation (6000-6399), and services (6400-8899, excluding 6500-6799).

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4.2 Measurement of Overview Disclosure Level

This study uses two proxies for the level of voluntary disclosure: 1) the number of words and 2) the disclosure index in an overview of operations, which represent the quantity and quality of overview disclosure respectively. The number of words is a simple and objective benchmark of the level of overview disclosure measured by counting the number of all words included in each firm-year overview observation. The disclosure index is a proxy for the disclosure quality measured by counting the number of value-related keywords, selected by the authors, in each firm-year overview observation (i.e., $Dindex = \sum_{i=1}^{50}(the\ i'th\ keyword's\ \ frequncy)$).

We select the keyword set of the disclosure index using the Balanced Scorecard framework suggested by Kaplan and Norton (1996). The Balanced Scorecard framework provides a comprehensive system for financial and non-financial performance evaluation on value creation. Since we examine the effect of economic incentives on overview disclosures, we concentrate on value-related keywords incorporated in the Balanced Scorecard.[15] Using the Balanced Scorecard framework, we structure the overview information into four major groups, which are then further divided into twelve minor groups and fifty keywords. In Appendix 1, Panel A illustrates the relation among twelve information groups in the Balanced Scorecard Framework and Panel B lists all fifty value- related keywords used to construct the disclosure index. In particular, we conceptually categorize value-related information by twelve information groups and count the frequency of fifty keywords in constructing the disclosure index. To show the distribution of keyword frequency, we also present the mean keyword frequency of each information group in Panel B of Appendix 1. For brevity, we sum up the mean frequency of each keyword in the same information group. Investor-related keywords (a mean of 5.72 times of occurrence) are most frequent in overview disclosures, and Profitability- and Revenue-related keywords (a mean of 3.74 and

15) Based on the Balanced Scorecard framework, the disclosure index includes the frequency of keywords related to value creation. The keywords listed in Appendix 1 are well-known in managerial accounting research as value-related (Kaplan and Norton 1996; Eccles et al. 2001). The index contains the frequency of keywords related with input (or efforts or process) as well as output (or results). In contrast to Ahn et al. (2005), we exclude environment-related words from our keyword set because changes in business environment are likely to be uncontrollable to managers or employees.

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3.32 times of occurrence, respectively) are the second and the third most frequent, respectively.

Following Frazier et al. (1984) and Ahn et al. (2005), our measurement of disclosure index assumes that the more value-related keywords an overview of operations includes, the higher the disclosure level is. The disclosure index allows us to conduct content analysis for overview disclosure with a large sample.[16] However, our disclosure index might include measurement errors that arise from the difficulty in dealing with narrative disclosure data. The index is a relatively subjective measure that might be affected by the arbitrary choice of keywords. In addition, the actual usage of a keyword may be different in each context because our keyword counting software does not evaluate the context of keywords in counting the keyword frequency.[17]

We take several steps to minimize the potential measurement errors of the disclosure index. First, we select the keyword set of the disclosure index using the Balanced Scorecard framework rather than relying on the researchers' pure discretion. Furthermore, each of two coauthors independently chooses initial keyword sets in creating the keyword set and, when there are different choices, we resolved the difference by discussion.[18] Second, we review the 10 percent of randomly selected overview data to examine whether the actual usage of

16) The keyword search method used to construct the disclosure index allows us to conduct a large sample analysis. For instance, Hussainey et al. (2003) apply a similar keyword search method for evaluating corporate voluntary disclosures in the annual report discussion section. While Hussainey et al. (2003) focus on forward-looking information, we examine the diverse information (not limited to prospective information) in overview disclosures.
In contrast, the keyword search method has a limitation that it cannot conduct a semantic analysis for overview data due to the lack of computer software providing such function. When the semantic analysis is necessary, previous studies analyze the contents by reading all narrative disclosure of a small sample including selected keywords (e.g. Abrahamson and Park 1994; Abrahamson and Amir 1996; Bryan 1997).

17) Our method is similar with that of Frazier et al. (1984) using a computer-aided method that counts the number of keywords. While their software identifies the semantics of keywords to measure the disclosure level, however, our keyword search program does not incorporate such modules that support the Korean language. Considering the recent technical development of natural language processing, we expect that future research using Korean narrative disclosures would be able to use more sophisticated software that can incorporate the semantics of keywords in measuring the disclosure levels.

18) We conduct a sensitivity check using alternative disclosure index that excludes the frequency of keywords on which two authors had initial disagreement in selection. Untabulated results are qualitatively similar with those presented in this paper.

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keywords in overview disclosure is consistent with the implication of the Balanced Scorecard. We also compare our keyword set with that of Ahn et al. (2005) to confirm the consistency of keyword choice. Third, we provide the descriptive statistics and the results for the two disclosure measures (NoWords and Dindex) to show the construct validity of the disclosure index relative to the number of words because the number of words is the most objective benchmark of narrative disclosure levels.

The procedures to collect the data and to construct the two disclosure measures are as follows. First, we build a database containing overview data that we hand-collect from the DART. Second, we make two computer programs: a word-counting program and a keyword-search and frequency-counting program. Third, we count the number of all words and the frequency of selected keywords by running these programs for the overview database. In counting the keyword frequency, we search for each information keyword in several ways: 1) in different languages (Korean, English and Chinese) and 2) in different linguistic forms (one-word search, multiple-word search and acronym search).[19] We check for double counting of a keyword in single-word keywords, multiple-word keywords and acronyms.[20]

Prior studies for narrative disclosures in the U.S. and Canada have measured disclosure levels by examining whether the MD&A meets disclosure requirement by regulation. Following SEC's requirement, Bryan (1997) categorizes MD&A disclosures into seven groups: selling price, sales volume, revenue changes, cost changes, liquidity, capital expenditure, and future trends. Clarkson et al. (1999) also score MD&A disclosure quality in five subcomponents: operations, financial condition, liquidity, forward-looking information, and risk and uncertainty. However, such an approach is not appropriate in Korea where overview disclosures are voluntary. Instead, this study constructs the overview disclosure index, using a large set of information keywords that encompass both financial and nonfinancial information. Since the main purpose of overview disclosures is

19) For example, when counting the frequency of "Employee", we have searched for all the following words: employee, 종업원, 從業員, 직원, 職員, 사원, 社員.

20) For example, we search for 'customer' rather than 'customer satisfaction' or 'customer retention' because the frequency of 'customer' includes those of 'customer satisfaction' and 'customer retention'. While this approach counts all frequency of keywords, it cannot incorporate the relative importance of each keyword. Therefore, our disclosure index assumes that each occurrence of keywords has the same weight.

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to discuss and analyze the firm performance and the known or anticipated trends of operations, we include financial performance keywords in the overview disclosure index. In addition, we supplement the nonfinancial performance measures in the balanced scorecard (Kaplan and Norton 1996) as a major part of the information set because voluntary projection of anticipated trends tends to incorporate nonfinancial information (e.g., customer, productivity and innovation) and nonfinancial measures are considered leading indicators of future financial performance (Ittner and Larcker 1998; Banker et al. 2000; Nagar and Rajan 2001). Both academic researches and anecdotal evidence document that firms disclose nonfinancial performance information on a voluntary basis (see Eccles et al. 2001 for examples) and that nonfinancial information is value relevant (Amir and Lev 1996; Ittner and Larcker 1998).

4.3 Research Design

We integrate all the potential determinants reviewed in section 3 and derive an empirical model that explains firms' disclosure practices. We estimate the following equations using ordinary least squares (OLS).[21]

$$\begin{aligned} NoWords_{i,t}(Dindex_{i,t}) = {} & \beta_0 + \beta_1 FP_{i,t} + \beta_2 ROA_{i,t} + \beta_3 LOSS_{i,t} + \beta_4 FIN_{i,t} + \beta_5 HHI_{i,t} \\ & + \beta_6 SIZE_{i,t} + \beta_7 LARGEST_{i,t} + \beta_8 MINOR_{i,t} + \beta_9 SIGN_{i,t} \\ & + \beta_{10} RV_{i,t} + \beta_{11} REC_{i,t} + \beta_{12} LEV_{i,t} + \sum_{j=1}^{11} \gamma_j IND_{j,i,t} + \varepsilon_{i,t} \end{aligned} \quad (1)$$

$$\begin{aligned} NoWords_{i,t}(Dindex_{i,t}) = {} & \beta_0 + \beta_1 FP_{i,t} + \beta_2 ROA_{i,t} + \beta_3 LOSS_{i,t} + \beta_4 FIN_{i,t} + \beta_5 HHI_{i,t} \\ & + \beta_6 SIZE_{i,t} + \beta_7 INST_{i,t} + \beta_8 FOR_{i,t} + \beta_9 SIGN_{i,t} \\ & + \beta_{10} RV_{i,t} + \beta_{11} REC_{i,t} + \beta_{12} LEV_{i,t} + \sum_{j=1}^{11} \gamma_j IND_{j,i,t} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

In the regression, we winsorize all continuous independent variables except

21) Our regression analysis does not guarantee the causal relation between independent and dependent variables but only provides evidence of the association. We thus cannot rule out the possibility of reverse causality that the overview disclosure influences firm characteristics proxied for disclosure determinants, and we request readers to cautiously interpret the results. However, reverse causality is unlikely to be serious in this study because the overview of operations is prepared as a summary report after all independent variables but CEO's signature are determined.

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Herfindahl-Hirschman Index (HHI), firm size (SIZE) and ownership measures at the top and bottom one percent of each variable to control for the effect of outliers.[22] This winsorization of outliers does not change our results qualitatively. <Table 2> lists the variables in equation (1) and (2) and their measurement. The expected sign for parameter estimate is also shown with each independent variable.

In equation (1) and (2), we use three proxies for firm performance: increase (or decrease) of annual net income (FP), return on asset (ROA), and loss incurrence (LOSS). We include change of net income and loss incurrence because managers face asymmetric loss function for the two variables (Basu 1997; Burgstahler and Dichev 1997). Empirical evidence also supports that management's discretionary disclosure is significantly associated with the sign of unexpected earnings as well as the level of unexpected earnings (Baginski et al. 2004). External financing (FIN) distinguishes firms that will raise long-term debt or equity financing in the next fiscal year from other firms. We obtain external financing data from the statement of cash flow. We also decompose external financing into debt and equity financing to examine the effect of finance sources on overview disclosure.

Herfindahl-Hirschman Index (HHI) proxies for industry concentration.[23] Lang and Lundholm (1993) and Clarkson et al. (1999) use the firm's average return on equity over the past five years to proxy for industry concentration. However, returns on equity may reflect both firm performance and industry concentration. Untabulated results confirm that current return on equity and average five-year return on equity are significantly correlated (Pearson correlation coefficient=0.95), which support that returns on equity are likely to reflect the firm performance. Thus, we use Herfindahl-Hirschman Index as a direct measure of industry concentration.

22) We exclude the Herfindahl-Hirschman Index from winsorization because the HHI is industry specific. We also exclude firm size because the disclosure choices of extreme sized firms are also worth examination. Untabulated results suggest that winsorizing firm size does not change the results reported. We do not winsorize the ownership variables and binary independent variables because those variables have values between zero and one (inclusive).

23) Herfindahl-Hirschman Index (HHI) is a commonly accepted measure of market concentration. An HHI is calculated by summing the squares of the individual market shares of all of the firms in an industry. For instance, for an industry consisting of three firms with market share of 30%, 30% and 40%, the HHI is 3,400 ($=30^2+30^2+40^2$). The HHI increases both as the number of firms in the market decreases and as the disparity in market shares between those firms increases. We calculate market shares using all non-missing sales data in KIS-FAS database. See Bedingfield et al. (1987) for more details.

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<Table 2> Definition and measurement of variables

Variable	Definition	Measurement
Dependent variables		
NoWords	No. of words	The number of words in an overview of operations
Dindex	Disclosure index	The number of value-related keywords in an overview of operations
Independent variables		
FP (+)	Firm performance	A (0, 1) variable with a value of 1 for firms with a positive earnings surprise and 0 otherwise. A firm is classified as reporting a positive earnings surprise if the firm's contemporaneous net income exceeds the firm's lagged net income.
ROA (+)	Return on assets	The firm's return on assets in the fiscal year t.
LOSS (-)	Loss incurrence	A (0, 1) variable with a value of 1 if the firms report net loss in the fiscal year t and 0 otherwise.
FIN (+)	New Financing	A (0, 1) variable with a value of 1 for firms that raise long-term debt or equity financing during the fiscal year t+1 and 0 otherwise.
HHI (+)	Herfindahl-Hirschman Index	The sum of squared market shares of firms competing in an industry. Industry membership is classified by the one-digit Korean SIC codes.
SIZE (+)	Firm size	The natural logarithm of the firm's total assets at the end of the fiscal year t.
LARGEST (-)	Largest shareholder ownership	The proportion of common shares held by the largest shareholder and his/her related party at the end of the fiscal year t.
MINOR (+)	Minority shareholder ownership	The proportion of common shares held by the minority shareholders who own less than one percent of the number of shares outstanding that amount to less than three hundred million won of market value of equity at the end of the fiscal year t.
INST (+)	Institutional ownership	The proportion of common shares held by institutional investors at the end of the fiscal year t.
FOR (+)	Foreign ownership	The proportion of common shares held by foreign investors at the end of the fiscal year t.
SIGN (+)	CEO's signature	A (0, 1) variable with a value of 1 if an overview of operations includes a CEO's name and/or signature
RV (?)	Return volatility	The standard deviation of market-adjusted annual stock returns over the five-year period prior to the fiscal year t.
REC (?)	Return-earnings correlation	The correlation between annual stock returns and annual earnings over the five-year period prior to the fiscal year t.
LEV (?)	Leverage	The firm's debt-equity ratio at the end of the fiscal year t.
IND (?)	Industry dummies	Industry dummies based on industry membership presented in Panel C of Table 1.

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We use four proxies for ownership structure: largest shareholders, minority shareholders, institutional shareholders and foreign shareholders. We include 1) largest and minority shareholders or 2) institutional and foreign shareholders in regression equation (1) and (2) respectively because only two of the four variables are mutually exclusive.[24] Largest shareholder ownership is measured by the proportion of common shares held by the largest shareholder and his/her related party at the end of the fiscal year. Minority shareholder ownership is measured by the proportion of common shares held by the minority shareholders who own less than one percent of the number of shares outstanding that amount to less than three hundred million won (approximately a quarter million U.S. dollars) of market value of equity at the end of the fiscal year. Institutional (foreign) shareholder ownership is measured by the proportion of common shares held by institutional (foreign) investors at the end of the fiscal year.[25]

We measure firm size by the log-transformed total assets at the end of the fiscal year. To proxy for performance variability, we use the standard deviation of market-adjusted annual stock returns over the five-year period prior to the fiscal year. We measure the return-earnings relation by the correlation between annual stock returns and annual earnings over the five-year period prior to the fiscal year t. We proxy the debt-equity ratio at the end of the fiscal year for the leverage. We also measure top management's involvement in overview disclosure by whether an overview includes a CEO's or CFO's name and/or signature or not.

We include industry dummies to control the effect of industry membership. Using the Korean Standard Industry Classification Code (Korean SIC), we categorize our sample into twelve industries as presented in Panel C of <Table 1>.[26] In

24) All public companies in Korea are required to disclose the ownership structure in annual reports. KIS-FAS database provides the ownership data which classify shareholders as 1) largest shareholder, minority shareholders, and other shareholders and as 2) government, government-owned corporations, financial institutions (banks), securities brokers and dealers, insurance companies, other corporations, foreign investors, and individuals. We calculate institutional ownership by the sum of shareholdings of financial institutions, securities brokers and dealers, and insurance companies.

25) The descriptive statistics in <table 3> show that 1) the sum of largest shareholder ownership and minority shareholder ownership and 2) the sum of institutional ownership and foreign ownership are less than one. These results preclude the possibility of mechanical relations between ownership variables.

26) Ahn et al. (2005) simply categorize non-financial companies into two industry groups: manufacturing and service industries. Since both manufacturing and service industries show large variation of disclosure level in untabulated analysis, we use more specific industry classification.

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sensitivity tests, we use industry-adjusted variables for the regression analysis as an alternative way for industry control. Following Lang and Lundholm (1993) and Clarkson et al. (1999), we industry-adjust all the variables except Herfindahl-Hirschman Index and dichotomous variables by deducting the corresponding industry median for the current year from each variable.[27)]

4.4 Descriptive Statistics

<Table 3> presents summary statistics on the level of overview disclosure and determinants of voluntary disclosure. An average overview disclosure of our sample includes 363 words and 21 value-relevant keywords (336 words and 19 keywords as median values). The number of words (NoWords) varies widely from 14 words to 1,576 words.[28)] Disclosure index (Dindex) is widely distributed in a range from 0 to 94. The findings indicate that the lack of an explicit regulation on overview disclosure allows firms to exert large discretion over the overview disclosure level. The sample firms are relatively large in the Korean stock market; the mean (median) of total assets is 964,983 (202,883) million won. These statistics can be compared to the mean (median) total assets of all Korean Stock Exchange firms on KIS-FAS/SMAT from 1998 to 2002 of 857,182 (177,904) million won. These results are not surprising because the time-series required for the measures of return variability and return-earnings correlation restrict our sample to large or long-lived firms. <Table 3> also shows the level and the change of accounting performance of sample firms. The mean (median) of return on asset is 0.005% (1.6%) and the percentage of firms that experience the increase of net income (the loss) is 58% (28%). The 84% of observations raise equity or long-term debt financing; untabulated results show that equity (long-term debt) financing is positive for 16% (82%) of observations. Approximately half of the observations include top management's name and/or signature in the overview of operations.

27) We do not industry-adjust the Herfindahl-Hirschman Index because the concentration index depends on industry membership. We do not industry-adjust dichotomous variables because the adjustment does not change economic meaning of binary variables.

28) Firms sometimes use extremely short overview reports to provide an introductory paragraph to quantitative information in annual reports.

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<Table 3> Sample descriptive statistics

Variable	Mean	Std. Dev.	Min	Q1	Median	Q3	Max
Continuous Variables							
NoWords	362.62	232.13	14	188	335.5	480	1576
Dindex	20.50	13.19	0	11	19	27	94
Total Assets (million won)	964,983	2,770,775	7,883	85,423	202,883	587,188	34,439,600
Size	19.33	1.48	15.88	18.26	19.13	20.19	24.26
ROA	0.00	0.14	-0.60	-0.02	0.02	0.05	0.58
HHI	1091.78	976.56	227.93	582.29	680.54	1516.63	8081.05
Largest	0.27	0.17	0	0.14	0.26	0.38	0.98
Minor	0.49	0.2	0	0.36	0.49	0.63	1
INST	0.08	0.12	0	0.01	0.04	0.12	0.85
FOR	0.06	0.12	0	0	0	0.05	0.94
RV	0.84	0.66	0.20	0.47	0.65	0.96	4.06
REC	0.04	0.47	-0.90	-0.31	0.08	0.41	0.93
LEV	2.24	4.41	0	0.62	1.25	2.09	34.92
Dichotomous Variables							
FP	0.58	0.49	0	0	1	1	1
Loss	0.28	0.45	0	0	0	1	1
FIN	0.84	0.37	0	1	1	1	1
Signature	0.50	0.50	0	0	1	1	1

The variables are defined in <Table 2>.

<Table 4> reports correlation coefficients among the primary variables. The lower (upper) triangle presents Pearson (Spearman) correlation coefficients. The correlation coefficients between the two measures of overview disclosure level, NoWords and Dindex, is very high but significantly less than one (at 1% significance level), which means the two proxies capture correlated but distinct constructs on the level of overview disclosure. As we predicted in Section 3 and <Table 2>, overview disclosure levels are positively correlated with external financing, industry concentration, firm size, the ownership of minority, institutional and foreign shareholders, and the involvement of top management. Meanwhile, overview disclosure levels are negatively correlated with loss incurrence, return variability, leverage and the ownership of largest shareholder and are not significantly correlated with change of net income, return on asset and return-earnings

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<Table 4> Correlation coefficients

	NoWords	Dindex	FP	ROA	Loss	FIN	HHI	Size	Largest	Minor	INST	FOR	Sign
NoWords	1	0.86	0.03	0.04	-0.08	0.13	0.17	0.27	-0.07	0.12	0.17	0.19	0.56
		<.01	0.28	0.21	0.01	<.01	<.01	<.01	0.02	<.01	<.01	<.01	<.01
Dindex	0.83	1	0.02	0.05	-0.06	0.11	0.11	0.17	-0.04	0.11	0.12	0.17	0.56
	<.01		0.56	0.08	0.04	0.00	0.00	<.01	0.16	0.00	<.01	<.01	<.01
FP	0.03	0.02	1	0.48	-0.45	-0.01	0.03	0.05	0.02	-0.09	0.12	0.05	0.04
	0.29	0.59		<.01	<.01	0.62	0.31	0.12	0.42	0.00	<.01	0.11	0.20
ROA	0.05	0.05	0.36	1	-0.78	-0.12	0.05	0.08	0.18	-0.22	0.21	0.23	0.04
	0.07	0.12	<.01		<.01	<.01	0.09	0.00	<.01	<.01	<.01	<.01	0.22
Loss	-0.07	-0.05	-0.45	-0.63	1	0.01	-0.04	-0.17	-0.14	0.14	-0.22	-0.19	-0.07
	0.02	0.11	<.01	<.01		0.80	0.20	<.01	<.01	<.01	<.01	<.01	0.02
FIN	0.13	0.12	-0.01	-0.08	0.01	1	-0.04	0.24	-0.08	0.15	0.05	0.08	0.04
	<.01	<.01	0.62	0.00	0.80		0.21	<.01	0.01	<.01	0.09	0.01	0.23
HHI	0.10	0.05	0.01	0.04	-0.04	0.01	1	0.04	-0.11	0.05	-0.02	0.04	0.13
	0.00	0.10	0.72	0.17	0.19	0.80		0.19	0.00	0.08	0.56	0.20	<.01
Size	0.36	0.28	0.05	0.14	-0.16	0.22	0.08	1	-0.05	0.02	0.40	0.51	0.00
	<.01	<.01	0.08	<.01	<.01	<.01	0.01		0.10	0.53	<.01	<.01	0.93
Largest	-0.06	-0.03	0.03	0.16	-0.13	-0.07	-0.03	-0.06	1	-0.46	0.05	-0.06	-0.06
	0.05	0.31	0.38	<.01	<.01	0.01	0.36	0.05		<.01	0.10	0.06	0.05
Minor	0.13	0.11	-0.09	-0.17	0.13	0.13	0.03	0.04	-0.42	1	-0.01	0.02	0.10
	<.01	0.00	0.00	<.01	<.01	<.01	0.33	0.15	<.01		0.63	0.47	0.00
INST	0.11	0.10	0.15	0.16	-0.14	-0.01	0.01	0.28	0.00	-0.07	1	0.33	0.06
	0.00	0.00	<.01	<.01	<.01	0.61	0.66	<.01	0.90	0.01		<.01	0.03
FOR	0.12	0.11	0.08	0.14	-0.15	0.01	0.03	0.46	-0.05	-0.04	0.13	1	0.09
	<.01	0.00	0.01	<.01	<.01	0.67	0.26	<.01	0.10	0.14	<.01		0.00
Sign	0.47	0.47	0.04	0.03	-0.07	0.04	0.09	0.01	-0.05	0.09	0.05	0.01	1
	<.01	<.01	0.20	0.29	0.02	0.23	0.00	0.62	0.11	0.00	0.10	0.63	

The variables are defined in <Table 2>. The lower (upper) triangle presents Pearson (Spearman) correlation coefficients. Each correlation coefficient is presented with its p-value.

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correlation.[29] We note that two of three performance proxies, FP and ROA, are not significantly correlated with disclosure levels at the 5% significance level. The results suggest the possibility that manager's strategic reporting in the overview of operations could confound the relation between firm performance and the level of voluntary disclosure. In addition, the results do not show high correlation between independent variables that might induce multicollinearity. The only exception is the correlation between ROA and LOSS (Pearson correlation coefficient = 0.63). The exclusion of either ROA or LOSS from equation (1) and (2) does not affect the overall results. However, the correlation analysis examines univariate relations, which is necessary to take caution in interpreting. In the next section, we perform multivariate analysis to address this issue.

V. Results

5.1 The Analysis of Disclosure Levels

Our first test examines the association between the level of overview disclosure and determinants of voluntary disclosure. <Table 5> presents the coefficient estimates of equation (1) and (2) and corresponding White (1980) t-statistics. We report results for two specifications of overview disclosure level: the number of words in an overview and the overview disclosure index. In regression analysis, we use two sets of ownership structure measures in equation (1) and (2): 1) ownership of largest and minority shareholders and 2) ownership of institutional and foreign shareholders, respectively.

The results for the number of words and the disclosure index are qualitatively similar. As predicted in Section 3, both measures of overview disclosure are positively associated with the level of external financing, firm size, ownership of minority shareholders, and top management's involvement, and negatively associated with leverage.[30] Furthermore, the overview disclosure index is positively

29) In <Table 4>, we exclude the correlation coefficients of control variables (RV, REC and LEV) for brevity.

30) Untabulated results show that both the disclosure measures are significantly and positively related with debt financing at the 5 percent level, but insignificantly related with equity financing. The results of debt financing and leverage make a contrast; voluntary disclosure levels is positively related to debt financing (a flow measure) but negatively related to the leverage (a stock measure).

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associated with the industry concentration at the 5 percent level and the number of words is negatively related with foreign ownership and return volatility at the 10 percent level. The adjusted R^2s are 36.56% and 36.38% for the number of words and 31.06% and 30.82% for the disclosure index, respectively.

<Table 5> Regression analysis of the overview disclosure level

	Number of Words				Disclosure index			
	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.
Intercept	-803.170	-4.73†	-804.206	-4.87†	-48.533	-5.33†	-47.586	-5.20†
FP	3.711	0.32	2.514	0.22	-0.112	-0.16	-0.211	-0.29
ROA	33.812	0.70	29.396	0.58	3.099	1.04	2.837	0.91
LOSS	10.458	0.59	8.757	0.51	1.096	1.02	0.994	0.95
FIN	23.255	1.85*	23.844	1.86*	1.777	2.31‡	1.835	2.37‡
HHI	0.018	0.57	0.011	0.35	0.004	2.13‡	0.003	1.95‡
SIZE	52.093	9.79†	56.681	9.87†	2.359	8.05†	2.567	7.85†
LARGEST	52.070	1.44			3.426	1.56		
MINOR	86.034	3.19†			4.842	3.07†		
INST			-4.774	-0.12			0.648	0.25
FOR			-111.924	-1.84*			-5.647	-1.56
SIGN	207.889	18.79†	209.802	18.77†	11.998	18.46†	12.091	18.49†
RV	-13.422	-1.93*	-12.697	-1.82*	-0.720	-1.59	-0.685	-1.54
REC	8.837	0.77	8.603	0.74	0.202	0.30	0.146	0.21
LEV	-1.417	-1.67*	-1.563	-1.80*	-0.115	-2.23‡	-0.123	-2.34‡
Adj. R^2	36.56%		36.38%		31.06%		30.82%	
Obs.	1,156		1,156		1,156		1,156	

† significant at the 1 percent level
‡ significant at the 5 percent level
* significant at the 10 percent level
The variables are defined in <Table 2>. T-statistics are based on White (1980) standard errors. Coefficients on industry dummies are suppressed.

The results indicate that both current stimuli (i.e., external financing) and structural variables (i.e., firm size, industry concentration, ownership of minority investors and leverage) affect the firm's choice of voluntary disclosure levels. The significant association between overview disclosure and external financing and firm size are consistent with the results shown in Clarkson et al. (1999). Our results find no significant relations between overview disclosures and

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return-earnings correlation like Clarkson et al. (1999). Industry concentration has a significantly positive coefficient in explaining disclosure index while firm performance has insignificant coefficients in explaining both disclosure measures, which is in contrast with the findings of Clarkson et al. (1999). The significance of industry concentration may be due to the use of a different proxy. While the average five-year return on equity in Clarkson et al. (1999) is an indirect measure of industry competition, the Herfindahl-Hirschman Index is a direct measure. Because the average ROE captures both industry competition and firm performance together, the proxy may include noise that could drive insignificant industry competition in Clarkson et al. (1999). Untabulated results also indicate that the average ROE is insignificant when included in the regression model.

Insignificant coefficients of the three accounting performance variables seem quite puzzling since most of prior studies discussed in Section 3.1 document that firm performance is positively associated with voluntary disclosure. Thus, we test three conjectures to examine the potential drivers of insignificant performance variables. First, we examine whether firms might bypass a discussion about performance in the overview disclosure. Panel B of Appendix 1 shows that an average firm in our sample includes 3.32 and 3.74 keywords (16% and 18% of Dindex) related to 'Profitability' and 'Revenue', respectively. Thus, our sample firms appear to describe their contemporaneous performance as a primary topic in the overview disclosures. Second, we investigate whether some control variables might confound the test results and weaken the significance of performance variables. Untabulated results for univariate regressions show that ROA (LOSS) has a positive (negative) coefficient that is significant at 10% (5%) level while FP has insignificantly positive coefficient, which is consistent with the results of correlation coefficients in <Table 4>. When we add other independent variables one by one in the univariate regression models, statistical significance of performance variables has decreased. The decline is most remarkable when firm size is the second regressor; none of the three performance variables is significant at a conventional level. Therefore, the performance variables that have a significant univariate relation with disclosure levels seem to become insignificant in multiple regressions because correlated variables such as firm size dominate the effect of firm performance on disclosure levels. Third, we examine whether the voluntary attributes of overview disclosure have the offsetting effects on the relation between firm performance and overview disclosure. While reviewing the

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10 percent of randomly selected overview data in constructing disclosure index, we find that the overview of operations is a good information medium for all firms reporting either good performance or poor performance. While high performers may emphasize their current performance and project rosy prospects in an overview, low performers may provide an excuse for the unsatisfactory results and forecast the rebounding of future performance. Consequently, the relationship between a firm's performance and overview disclosure can be both positive and negative, which results in insignificant performance variables.[31] The results are also consistent with empirical evidence suggesting the strategic use of voluntary disclosure and inconclusive empirical results on the relation between firm performance and the level of voluntary disclosure. This strategic reporting behavior may have affected prior disclosure studies finding the insignificant coefficients of firm performance (e.g., Frankel et al. 1999; Ho and Wong 2001; Eng and Mak 2003). Taken together, our supplementary analyses reveal that both correlated independent variables and voluntary attributes of overview disclosure contribute to insignificant firm performance variables.

The significance of minority share-ownership provides an insight on the demand and supply of narrative information through the overview of operations. The results imply that managers are communicating with minority shareholders by the overview of operations in a voluntary manner. In other words, the results suggest that overview disclosures may help fulfill the demand of minority investors for descriptive information that supplements quantitative information. The finding is consistent with the notion that the overview disclosure helps to level the playing field for minority investors. Individual shareholders, mainly minority investors, have often been characterized as unsophisticated or noise investors who have disadvantages in acquiring and processing information relative to institutional investors (Bartov et al. 2000; Jiambalvo et al. 2002). They have limited opportunity to access the private information of management and less resource for private information search. As a result, narrative information

31) Because our keyword counting program does not distinguish the compliments for good performance from the excuses for poor performance, this study does not further investigate the strategic disclosure issue. To examine such problem, we need to review overview disclosures manually or to rely on more sophisticated software. We decide to use the keyword counting program with such limitation to enlarge the sample size and to reduce the burden of data collection. We expect that future research will be able to investigate the strategic disclosure by more developed software.

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in the overview of operations that complements quantitative information in financial statements would be more helpful to minority investors than large investors. On the contrary, the negative association between foreign ownership and overview disclosure may be due to the possibility that foreign investors may have an easy access to alternative information sources. Similar to institutional shareholders, foreign shareholders can obtain relevant information by accessing the management directly or by purchasing the service of financial intermediaries.

The significance of management's involvement in overview disclosure emphasizes the role of top managers in choosing the extent and contents of voluntary disclosure. On the contrary, the negative coefficients for leverage may be driven by the availability of alternative information sources. Large creditors may query the management to obtain private information about a firm rather than rely on public information, which leads to less voluntary disclosure of high-leverage firms. Many Korean banks are known to demand customized reports of operation to monitor the operations of their debtors (Huh and Shim 2003).[32)]

5.2 The Analysis of Disclosure Changes

Our second test examines the association between the change of overview disclosure and determinants of voluntary disclosure. As suggested in Lang and Lundholm (1993) and Clarkson et al. (1999), a change specification provides a robustness check for any bias in level models due to omitted variables. The results for changes of overview disclosure presented in <Table 6> are less significant in terms of parameter estimates and explanatory power than the results for levels of overview disclosure. Both the number of words and the disclosure index are significantly and positively associated with the changes of industry concentration, firm size and top management's involvement.[33)] The adjusted R^2s

32) The results also show that the significance of leverage depends on model specification and control for industry membership. The analysis using change variables or industry-adjusted variables find no significance of leverage in <Table 6> and <Table 7>.

33) Untabulated results show that the change of overview disclosure index is significantly and positively related with the change of equity financing at the 5 percent level, but insignificantly related with the change of debt financing. The analysis on the change in the number of words in the overview reports no significant relation with the change of equity financing or debt financing.

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of change models (12.99% ~ 8.63%) are lower than those of the level models (36.56% ~ 30.82%). These results suggest that our independent variables are more relevant in explaining disclosure levels than disclosure changes because some of the explanatory variables (e.g., FIN, RV, REC and LEV) are unlikely to change significantly over one-year period. The weak results for change models are consistent with the findings of Lang and Lundholm (1993) and Clarkson et al. (1999), which implies that firms' disclosure policies may be sticky and some independent variables may not vary significantly from year to year.

<Table 6> Regression analysis of the overview disclosure changes

	Δ Number of Words				Δ Disclosure index			
	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.
Intercept	10.373	0.22	9.065	0.20	1.667	0.66	1.636	0.65
ΔFP	3.451	0.49	4.748	0.68	-0.732	-1.60	-0.734	-1.59
ΔROA	-32.511	-1.08	-30.956	-1.02	0.546	0.32	0.421	0.25
ΔLOSS	15.666	1.33	16.403	1.40	0.644	0.76	0.665	0.78
ΔFIN	1.835	0.19	-0.032	0.00	0.441	0.68	0.413	0.64
ΔHHI	0.079	1.74*	0.082	1.78*	0.007	2.37‡	0.006	2.28‡
ΔSIZE	36.746	1.67*	37.069	1.66*	3.851	2.70†	3.850	2.68†
ΔLARGEST	11.090	0.33			1.024	0.46		
ΔMINOR	26.161	0.98			1.178	0.61		
ΔINST			-56.538	-1.33			0.332	0.12
ΔFOR			-138.868	-1.43			-2.548	-0.59
ΔSIGN	195.798	4.88†	196.249	4.93†	9.805	5.23†	9.794	5.21†
ΔRV	-0.041	-0.01	1.209	0.23	0.624	1.28	0.628	1.27
ΔREC	2.537	0.21	3.010	0.25	-0.309	-0.43	-0.323	-0.45
ΔLEV	0.137	1.33	0.117	1.10	-0.007	-0.80	-0.007	-0.85
Adj. R^2	12.20%		12.99%		8.63%		8.64%	
Obs.	858		858		858		858	

† significant at the 1 percent level
‡ significant at the 5 percent level
* significant at the 10 percent level
Each variable is measured as a change variable over a fiscal year for the corresponding variable defined in Table 2. T-statistics are based on White (1980) standard errors. Coefficients on industry dummies are suppressed.

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5.3 The Analysis of Industry-Adjusted Disclosure Levels

Our third test presented in <table 7> uses industry-adjusted variables for the regression analysis as an alternative method for industry control. Controlling for industry-specific effects on disclosure levels by including industry dummy variables in equation (1) and (2) implicitly assumes that industry membership affects only the intercept term of regression models. However, since industry

<Table 7> Regression analysis of the industry-adjusted overview disclosure level

	Number of Words				Disclosure index			
	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.	Coef.	t-stat.
Intercept	-191.027	-1.62	-195.212	-1.63	-3.170	-0.49	-3.406	-0.53
FP	0.068	0.00	-0.979	-0.07	-0.136	-0.15	-0.285	-0.31
ROA	5.795	0.19	1.337	0.04	1.578	0.97	1.153	0.63
LOSS	-5.565	-0.38	-6.797	-0.47	0.382	0.42	0.318	0.35
FIN	17.095	1.43	15.402	1.29	0.490	0.70	0.458	0.66
HHI	0.035	1.24	0.038	1.33	0.001	0.60	0.001	0.70
SIZE	50.189	8.38†	55.024	8.50†	2.356	7.25†	2.562	7.06†
LARGEST	46.531	1.27			3.696	1.67		
MINOR	92.100	3.26†			7.028	4.19†		
INST			2.645	0.06			1.839	0.66
FOR			-112.376	-1.86*			-5.717	-1.62
SIGN	181.191	16.98†	183.264	17.08†	10.494	16.32†	10.635	16.42†
RV	-13.304	-2.74†	-12.868	-2.64†	-0.666	-2.23‡	-0.638	-2.18‡
REC	10.770	0.89	10.327	0.84	0.407	0.57	0.295	0.41
LEV	0.439	1.55	0.433	1.49	0.011	0.72	0.010	0.64
Adj. R^2	32.14%		31.92%		27.79%		27.17%	
Obs.	1,145		1,145		1,145		1,145	

† significant at the 1 percent level
‡ significant at the 5 percent level
* significant at the 10 percent level
We industry-adjust all dependent and independent variables except Herfindahl-Hirschman Index and dichotomous variables by deducting the industry median for the current year. We delete the firm-years in such industry-years that have only one observation. The definitions of variables other than industry adjustment are the same as in <Table 2>. The industry membership is defined in Panel C of <Table 1>. T-statistics are based on White (1980) standard errors. Coefficients on industry dummies are suppressed.

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membership might influence the slope coefficients of independent variables, we industry-adjust all dependent and independent variables except Herfindahl-Hirschman Index and dichotomous variables by subtracting the corresponding industry median from each variable. Firm size, ownership of minority investors and top management's involvement are positively significant at the 1 percent level. Meanwhile, foreign ownership and return volatility have negatively significant coefficients. The results show Herfindahl-Hirschman Index is insignificant in the analysis of industry-adjusted variables. The finding is not surprising because the industry concentration measure depends on industry membership and industry adjustment on each variable in <Table 7> may remove all the potential industry effect including the industry concentration. The industry adjustment does not reduce the explanatory power of our models. The adjusted R^2s of industry-adjusted variable models (32.14% ~ 27.17%) are similar to those of the level models (36.56% ~ 30.82%).

5.4 Sensitivity Analysis

Our first sensitivity test estimates the disclosure determinant models in equation (1) and (2), using Heckman (1979) two-step estimation procedure to control for the potential effect of sample selection bias. Sample selection bias can arise in practice for two reasons: 1) self selection by the individuals or data units being investigated, and 2) sample selection decisions by database developers or researchers which operate in much the same fashion as self selection. The effect of selection bias depends on whether the missing data are random or not. While the OLS estimation provides similar results as the Heckman model in case of random missing data, it produces biased estimates for non-random missing data. However, this study is less likely to suffer a serious selection bias in the data collection process for two reasons. First, as specified in Section 2, the overview disclosure, per se, is required but regarded as voluntary because its contents and format are entirely discretionary. Firms thus have little discretion on whether to disclose the overview of operations or not. Second, in the process of data collection, we recognize that missing values of overview data concentrate in observations of fiscal year 1998 (the beginning year of the DART) and firms that filed bankruptcy, were under a liquidation process

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or were merged by another firm. Hence, missing overview data primarily arise from 1) the incompleteness of the DART system or 2) high uncertainty as a going concern rather than managers' discretion. The first cause results in a random sample selection (not a serious problem), and the second one is related with firms that are not of our interests and of which financial data for regression analysis are not available.

Due to the concerns that there still exists the effect of selection bias on our results, we examine the robustness of our results using the Heckman model. We identify non-disclosers by firm-years that have all necessary data except an overview disclosure. The first stage regression estimates the probit equation (on whether a firm reports an overview of disclosure or not) by maximum likelihood to obtain the inverse Mills ratio that reflects the effect of sample selection bias. Next, the second stage regression estimates the disclosure determinant model including the inverse Mills ratio as an additional independent variable by the ordinary least squares. We use the same determinants of overview disclosure in both of two stage regressions because we do not expect that whether to disclose the overview or not and how much information to disclose in the overview have different determinants.[34] We use t-statistics and p-values of regression coefficients using the correct standard errors suggested by Greene (1981). The untabulated results of the Heckman model show virtually no change in the magnitude or the significance of the OLS coefficients presented in <Table 5>. External financing, industry concentration, firm size, ownership of minority shareholders and the top management's involvement have significantly positive coefficients that are similar with those in <Table 5> regarding the coefficients' magnitude and t-statistics. A minor difference is that control variables such as return volatility and leverage are insignificant in the Heckman model.

Our second sensitivity test estimates the disclosure determinant models in equation (1) and (2), using the negative binomial regression to control for the econometric problems that might arise from using count data as a dependent variable.[35] While the OLS estimation assumes that the dependent variable is

34) The first- and second-stage regression equations estimated in the Heckman model may have identical independent variables (Johnston and Dinardo 1997).

35) The Poisson regression and the negative binomial regression are standard in the analysis of count data (Greene 2003). The Poisson regression models the number of event occurrence as a function of several independent variables, using Poisson distribution assuming the independence

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continuously distributed along the (-∞, +∞) continuum, the dependent variables of our study, the number of words (NoWords) and the disclosure index (Dindex), are both censored at zero and discrete. An econometric procedure that fails to account for this count-data nature of the dependent variable can result in biased and inconsistent parameter estimates and invalid inferences (Gourieroux et al. 1984; Rock et al. 2001; Greene 2003). We use the negative binomial regression, a prominent count-data model, to circumvent those econometric problems of OLS regression coefficients. Meanwhile, such improvement of econometric methods may have a marginal impact on our results since the ranges of dependent variables (presented in Table 3) are so wide that the distribution of dependent variables is close to being continuous.

<Table 8> presents the coefficient estimates of negative binomial regression for equation (1) and (2) and corresponding Chi-square statistics. Consistent with our expectation, the negative binomial regression models provide similar results with those of OLS estimation. The coefficients of FIN, SIZE, LARGEST, MINOR and SIGN are positive and significant and those of two control variables, RV and LEV, are negative and significant. A notable difference is that largest shareholder ownership shows an insignificant OLS coefficient but a significantly positive coefficient in the negative binomial regression, which implies that firms with high largest share-ownership tend to disclose more information through the overview of operations.

In summary, our results suggest that managers use the overview of operations as an information medium to communicate with the public even in the absence of mandatory requirement for overview disclosure. Additionally, estimation bias due to sample selection or count-data regression does not change our inferences on OLS results.[36]

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of event arrivals with no predictable pattern. The negative binomial regression is a generalized extension of the Poisson regression which does not impose an assumption of equivalence between mean and variance of a dependent variable and thereby accommodates over-dispersion resulting from unobserved heterogeneity (Rock et al. 2001). Since the two count-data models provide similar results, we report those of the negative binomial regression using less restrictive assumptions. Prior literature (e.g. Rock et al. 2001; Greene 2003) also supports the preferred use of the negative binomial model in estimating count-data regression models.

36) See Greene (2003) for more details on Heckman two-step estimation procedures, Poisson regression model and the negative binomial regression model. We appreciate an anonymous referee for drawing attention to the possibility of sample selection bias and estimation bias due to count dependent variables.

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<Table 8> Negative binomial regression analysis of the overview disclosure level

	Number of Words				Disclosure index			
	Coef.	χ^2-stat.	Coef.	χ^2-stat.	Coef.	χ^2-stat.	Coef.	χ^2-stat.
Intercept	2.711	36.87†	2.800	38.27†	−0.471	0.95	−0.282	0.33
FP	0.007	0.04	−0.001	0.00	−0.006	0.02	−0.013	0.11
ROA	0.126	0.73	0.119	0.64	0.173	1.13	0.162	0.97
LOSS	0.049	1.03	0.037	0.58	0.072	1.87	0.062	1.36
FIN	0.105	5.41‡	0.104	5.28‡	0.121	6.10‡	0.121	6.03‡
HHI	0.000	0.03	−0.000	0.00	0.000	2.52	0.000	1.62
SIZE	0.135	136.7†	0.147	119.3†	0.109	80.52†	0.121	69.93†
LARGEST	0.270	6.89†		0.01	0.324	8.62†		
MINOR	0.268	8.26†		4.43‡	0.349	12.10†		
INST			0.014				−0.053	0.12
FOR			−0.334				−0.283	2.74*
SIGN	0.613	360.4†	0.613	361.4†	0.627	330.2†	0.626	327.1†
RV	−0.045	3.27*	−0.043	3.07*	−0.046	3.16*	−0.047	3.25*
REC	−0.005	0.02	−0.007	0.04	−0.008	0.04	−0.013	0.12
LEV	−0.004	1.15	−0.004	1.44	−0.007	3.94‡	−0.007	4.27‡
Log-likelihood	2,152,867		2,152,864		51,595		51,589	
Obs.	1,145		1,145		1,145		1,145	

† significant at the 1 percent level
‡ significant at the 5 percent level
* significant at the 10 percent level
The variables are defined in <Table 2>. Chi-square statistics for each coefficient are provided. Coefficients on industry dummies are suppressed.

VI. Conclusions

This study examines the economic determinants of voluntary disclosure in the overview of operations, as measured by the number of words and the frequency of information keywords in the overview. While the narrative disclosure examined in previous studies are partially mandatory, the overview disclosures in Korean are voluntary. The voluntary nature of overview disclosures in Korea provides a unique setting to examine whether economic incentives affect the quantity and quality of 'voluntary' disclosures and which variables are key determinants of

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'voluntary' disclosures.

The empirical results are generally consistent with previous studies on voluntary disclosure based on U.S. or Canadian data. We find a positive association between the level of overview disclosure and external financing, industry concentration, firm size, ownership of minority investors and the top management's involvement in overview disclosure. In contrast, we find no consistent association between the level of overview disclosure and firm performance, return-earnings correlation, leverage and other ownership structure. The results are weakly robust to alternative variable definitions (levels, changes, and industry-adjusted levels of overview disclosure) and model specifications (OLS, Heckman two-step estimation and negative binomial regression). The evidence suggests that the level of voluntary overview disclosure varies with economic incentives that influence disclosure choice in other disclosure channels. In summary, our results imply that managers use the overview of operations as an information medium to communicate with the public even in the absence of mandatory requirement of overview disclosure.

The results of this study are relevant to academics, stakeholders and regulators for three reasons. First, this study supports that the economic stimuli and deterrents suggested in prior literature affect the levels of voluntary overview disclosure and contributes to the literature of voluntary disclosure. Especially, the voluntary attribute of overview disclosure in Korea has provided a natural setting to examine the determinants of voluntary disclosure. Second, the findings help the stakeholders to interpret the information contained in the overview of operations. The results support the notion that the minority shareholders' demand for descriptive information induces higher level of voluntary disclosure. This study helps investors understand the underlying motives of overview disclosure and assess the relevance and reliability of voluntary disclosure. Third, the results can help public policymakers design effective and efficient regulations on public disclosure including overview disclosure and future mandatory narrative disclosure (e.g., MD&A) and also help regulators prevent firms' economic incentives from biasing the voluntary disclosure.

This research includes several caveats in measuring the overview disclosure. First, our evidence from the association test for the relation between disclosure determinants and its level does not allow for purely causal inferences. Therefore, the results require cautious interpretation. Second, the reliability of overview

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information is not guaranteed since the disclosure of overview of operations is not explicitly regulated in Korea. Investors might not use the overview of operations due to alternative information sources. Further research is necessary to examine the reliability and value relevance of overview disclosures. Third, although we adopted professional judgment based on the theoretical framework in constructing a disclosure index, it might still lack construct validity. Using more sophisticated computer software, future study may develop narrative disclosure measures that are independent from subjective choices of researchers. Further analysis could also examine the relation between firm characteristics and the components of overview information (e.g., financial vs. nonfinancial information or prospective vs. retrospective information). Fourth, firm performance measures in this study proxy for general economic incentives for voluntary disclosure and do not seem to properly capture the managers' strategic behavior in overview disclosure. Future research may directly investigate the relation between firm performance and strategic disclosure.

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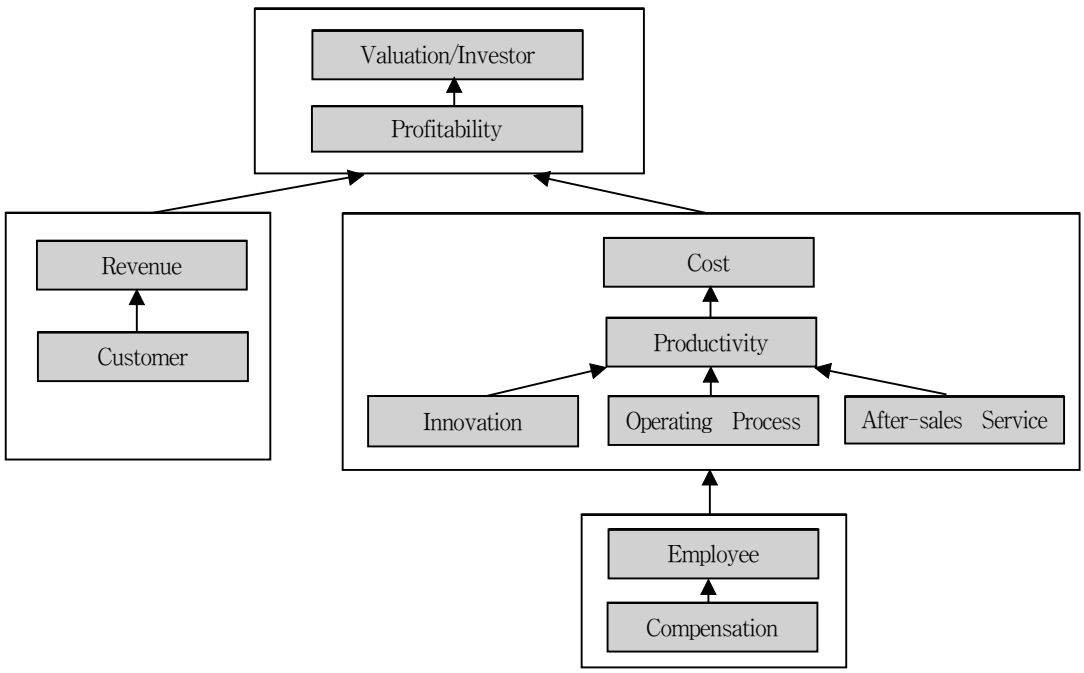
Appendix 1.

Information groups and keywords that comprise the overview disclosure index

Panel A. Hierarchy of information groups



Panel B. Keywords for information groups

1. Valuation (1.35): stock price, stock value, intrinsic value, fundamental value, corporate value, price-to-earnings ratio (PER), price-to-book ratio (PBR), price-to-cash-flow ratio (PCR), return on asset, return on equity, stock return, valuation
2. Investor (5.72): shareholder, investor, investor relation, transparency, governance
3. Profitability (3.32): profit, earning, loss, income, value-added, economic value-added (EVA)
4. Revenue (3.74): revenue, sales
5. Cost (0.69): cost
6. Customer (1.11): customer, market share
7. Productivity (1.91): productivity, efficiency, quality, defect
8. Innovation (0.68): new product, research and development
9. Operating process (0.08): process, value chain, activity-based costing (ABC), balanced scorecard (BSC), enterprise resource planning (ERP)
10. After-sale service (0.12): after-sales service
11. Employee (1.66): employee, knowledge, IT, learning, morale
12. Compensation (0.11): compensation, salary, bonus, performance-based compensation, stock option

The numbers in the parenthesis are the mean of keyword frequency in each information group.

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