“Retraction: Impact of Firm Specific Characteristics on the Web Based Business Reporting: Evidence from the Companies Listed in Turkey”

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Impact of Firm Specific Characteristics on the Web Based Business Reporting: Evidence from the Companies Listed in Turkey[1]

Orhan Celik, Alaattin Ecer, Hakan Karabacak

Abstract

The main purpose of our study is to analyze the impact of firm characteristics on the web based business reporting practices of the companies listed in Turkey. Relevant literature associating these two variables have mostly conducted empirical research in the developed countries. Contrary to the common approach, this study focuses on the financial market of a developing country and examines the association between the web based business reporting and the firm specific characteristics. Our sample included 253 firms listed on the Istanbul Stock Exchange [ISE] (among which, there are no investment partnerships). In order to determine the disclosure levels of the web-based information, total and financial disclosure indexes have been constructed and, referring to the relevant literature, firm characteristics are determined to measure their potential impacts on the extent of information disseminated by ISE firms on their web sites. According to our results, size, industry classification and internalization could be used to explain level of information disclosed by the firms. Technology, risk and profitability are important factors for the Total Disclosure Index but not for the Financial Disclosure Index. Ownership structure, institutional investors and intangibles are the independent variables, which have not any significant association with the web-based disclosure behavior.

Key words: business reporting, internet reporting, web based disclosure, disclosure index, firm characteristics, listed turkish companies.
JEL Classifications: M41, C12.

1. Introduction

World Wide Web (Web) Technologies are extensively used by ever-increasing number of companies around the world. A growing percentage of those companies have promoted websites on the Internet and have a tendency to disseminate business reporting information, including financial data, on their sites. The development of high-capacity communications networks, low-cost computer hardware, user-friendly software, and a computer savvy generation has made the Internet an effective option for distributing information (Petravick and Gillett, 1996). Many commentators are predicting that the printed annual report will gradually disappear as corporate reports increasingly move to the worldwide electronic medium of the Internet (Beattie and Pratt, 2003). A review of literature shows a number of reasons for the increased awareness of the electronic distribution in the reporting of business information leading to a rapid adoption of the Web for the dissemination of this information. These can be stated as follows:

Today, annual and even quarterly reports do not capture and communicate material developments in sufficient time to meet market informational needs. Product cycles have shortened and products and whole companies become obsolete much more quickly now than ever before (Wallman, 1995). The rapidly changing business environment is forcing firms to develop reporting strategies that assist in creating competitive advantages for themselves (Burrus, 1997).

Due to the dynamic business world, traditional paper based corporate reporting is becoming increasingly less timely and thus less useful to decision makers (Green, 1999). Shifting the focus of accounting from an aggregation concept premised on periodic reports to one premised on realtime access to disaggregated data permits access to more timely information (Wallman, 1997).

[1] We would like to thank participants of The Seminar of Department of Business Administration for their valuable comments. Any remaining errors are ours.

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A website may reach a wider audience and present more detailed information than what is possible with traditional printed materials (Kaplan, 1996). The Internet gives companies far more options than print, including plenty of space to add financial pages and even audio and video clips (Koreto, 1997). The Web allows interactive information dissemination in a fashion that is not possible in print form (IASC, 1999).

The use of the new information technologies has an enormous impact on the standards of availability and diffusion of information, introducing determinant advantages as readiness, low effort, and low cost in communication (Isenmann and Lenz, 2000).

A list of potential motives for companies to provide financial information on the Internet includes reducing the cost of and time to distribute information; communicating with previously unidentified consumers of information; supplementing traditional disclosure practices; increasing the amount and type of data disclosed, and improving access to potential investors for small companies (FASB, 2000).

For users, the potential advantages lie in the ease of access and ease of search (Thompson, 1996). Internet financial reporting can facilitate the dissemination of firms' financial disclosures via Internet tools that facilitate idiosyncratic information retrieval and analysis by diverse decision makers (Ashbaugh et al., 1999). Access made available through the Internet would permit all investors and others to obtain that information which is most relevant to their decision-making (Wallman, 1997).

Business reporting in general and financial information in particular have high short-term temporal value. The instantaneous communication of the Web adds value to the information recipient (IASC, 1999). Sophisticated, user-friendly software agents provide the user with effective decision support facilities. Information can be made available more quickly, potentially on a real-time basis (Battie and Pratt, 2003). Real-time access to such information becomes even more important as we continue to facilitate more efficient and faster capital formation (Wallman, 1997).

Thus, Web-based reports have great potential to be more than simply an electronic version of traditional paper reports. The Web offers a new opportunity of a totally new reporting environment, with many implications for the content and form of the corporate reports (IASC, 1999). IASC (1999) define "business reporting" as "…the public reporting of operating and financial data by a business enterprise" and "Web-based business reporting" as "…the public reporting of operating and financial data by a business enterprise via the World Wide Web or related Internet-based communications medium".

Widespread use of the Internet as a medium of web based business reporting encouraged the major regulators in developed regions to establish the electronic filing systems for disclosure purposes. USA, Canada and UK are examples of this. In 1993, the SEC adopted the EDGAR system, which established the foundation for the electronic filing of financial reports by SEC registrants (Wallman, 1997). EDGAR, Electronic Data Gathering, Analysis, and Retrieval system, performs automated collection, validation, indexing, acceptance, and forwarding of submissions by companies and others who are required by law to file forms with the SEC (http://www.sec.gov/index). In 1997, SEDAR system was developed by the Canadian Securities Administrators and CDS INC., a subsidiary of the Canadian Depository for Securities Limited. SEDAR is the System for Electronic Document Analysis and Retrieval, the electronic filing system for the disclosure documents of public companies and mutual funds across Canada (http://www.sedar.com). All limited companies in the UK are registered at Companies House, an Executive Agency of the Department of Trade and Industry.

In addition to these initiatives, professional accounting bodies have also paid close attention to the impact brought about by the information technology and have issued important reports and leading documents in response. In 1994, the American Institute of Certified Public Accountants (AICPA) Special Committee on Financial Reporting (the Jenkins Committee) issued a report – *Improving Business Reporting – A Customer Focus*. One of the key recommendations included in the report was

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for standard setters to develop a comprehensive model of business reporting indicating the types and timing of information that users require to value and assess the risk of their investments. To assess the feasibility of its ideas, the Committee designed and illustrated a comprehensive model based on its understanding of users' needs for information, and information about costs of reporting. Much of the information in the model would replace, rather than add to the information currently contained in filings by U.S. public companies with the SEC. The details of Committee's business reporting model, listing specific types of information within broad categories of information, were outlined and the model was illustrated, using a fictitious company, FauxCom, in the Appendixes of the Report (The Jenkins Report, AICPA, 1994). Later, the Financial Accounting Standards Board (FASB) (1998) launched Fauxcom on its website as a sample business information reporting package that responds to and illustrates the information needs of investors and creditors as understood by the AICPA Special Committee on Financial Reporting (Beattie and Pratt, 2003).

In 1999, the International Accounting Standards Committee (IASC) outlined a proposed standard, in the form of a Code of Conduct, for use with the existing Web technologies for business reporting. The Code of Conduct was designed to enhance the quality of business reporting information provided by corporations online. It was considered to be realized by addressing questions such as: the relationship of Web-based financial information to comparable information published in other modes and formats, usability of Web-based information, ling integrity on the Web site, timeliness of information availability, archiving of data from the Web site, and security of the content of the Web site (IASC, 1999).

The Financial Accounting Standards Board (FASB) sponsored a broad study – the Business Reporting Research Project (BRRP) – that was published as three different sections. In 2000, the first published section of the study, "Electronic Distribution of Business Reporting Information" was released. This report described the electronic distribution of business information and casted a new light on the exciting possibilities and problems of the Internet and technology on the business-reporting universe (FASB, 2000)[1].

The recent major step in the web based business reporting field was the introduction of XBRL (Extensible Business Reporting Language). XBRL is a language for the electronic communication of business and financial data, which is set to revolutionize business reporting around the world. XBRL is being developed by an international non-profit consortium of approximately 250 major companies, organizations and government agencies. It provides major benefits in the preparation, analysis and communication of business information. It offers cost savings, greater efficiency and improved accuracy and reliability to all those involved in supplying or using financial data (www.xbrl.org).

XBRL would mean that both humans and intelligent software agents could operate on financial information disseminated on the Web with a high degree of accuracy and reliability (Gray and Debreceny, 2001). XBRL not only intends to provide accurate and reliable information in a timely fashion, but also enhances the ability of users to electronically exchange financial information between different software applications. Additionally, through electronic extraction of financial information, XBRL speeds up the ability of users to compare financial information, including accounting policies, notes to the financial statements and other text items. Using a standardized language for data input and transfer reduces the probability of error, while drill-down capabilities increase opportunities for extensive analysis (Pollock and Papiernik, 2001).

Companies are using Web technology extensively. But as it can be seen from Annex 1, Internet usage is very low in Turkey. Only 7.5% of Turkish population uses the Internet. The growth rate and percentage of young people in Turkish population is increasing rapidly. In addition to these demographic factors, newly amended Turkish Commercial Code includes some articles on Internet related issues such as web page reporting, web based voting etc. One can deduce from it, that the

[1] See also Hurtt et al. (2001) for the explanatory summary of the mentioned report.

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use of the Internet will increase rapidly among Turkish companies in the near future. EU and Turkey will begin accession negotiations in October 2005. This is a milestone for the Turkish economy. It is expected that the level of the foreign investments will rise with the start of negotiations.

The main purpose of our study is to analyze the impact of firm characteristics on the web based business reporting of 253 firms listed on the Istanbul Stock Exchange [ISE]. In literature, a number of studies and empirical researches in the international field have documented companies' growing use of their websites for business reporting purposes. Another branch of literature has focused on disclosure practices of companies from the point of associating these practices with the several firm specific characteristics. Within this branch, most of the researchers examined the relationship between the characteristics and hard copy reporting behavior of the firms and in this context, used the hard-copy business reporting statistics as dependent variables and examined the firm characteristics as independent variables. In parallel to the widespread use of Internet in daily business work, web-based business reporting was also included in the empirical research area. However, studies examining the association between the web based business reporting and the firm specific characteristics are relatively few as compared to hard-copy business reporting. On the other hand, almost all of these studies which conducted empirical researches within the field of web-based reporting, focused on the disclosure practices in the developed countries such as UK, US, Japan, German etc [i.e. Marston and Leow (1998) Ashbaugh et al. (1999) Craven and Marston (1999), Pirchegger et al. (1999), Marston and Wu (2000)]. Thus, taking into account the necessity in the literature, this study examines the relationship between web based business reporting and firm characteristic in a developing country. This study provides ex-ante information about web based reporting and gives important information about web based reporting in Turkey. Furthermore, the results of our study put forth for the consideration of all related parties requiring the information about the impacts of firm characteristics on the web based business reporting in a developing country. In the future, results of this study may help researchers understand the effects of these financial and non-financial changes on web based reporting in a developing economy.

The remainder of this paper is organized as follows: The next section provides a review of prior studies relating to web based business reporting; Section 3 describes the sample, data collection and the construction of disclosure indexes, and introduces the characteristics of firms which serve as independent variables, with the specification of the hypothesis; Section 4 reports the statistical analysis and empirical results. The findings and conclusions are presented in the last section.

2. Previous Studies

Whilst the business reporting practices of companies have been an area of interest to researchers for many years, the studies on web-based business reporting are relatively recent. In one early paper, Elliott (1992) argued that information technology is profoundly changing the way business is done. If the purpose of accounting information is to support business decision-making, and management's decision types are changing, then it is natural to expect accounting to change – both internal and external accounting. Wallman (1997) also noted that customized user-access to disaggregated databases as a complete substitute for high-level, aggregated, compiled information presented in static and standard financial statement format was likely a generation away.

A number of studies and empirical researches in the international field have documented companies' growing use of their websites for business reporting purposes. Most of the studies carried out in this field focused on and extracted information from the web based disclosure practices of the largest corporations based in US, Europe or other parts of the world, or added a useful comparison perspective. Literature in this field differentiates research for three main groups: single-country studies, multi-country studies and international studies. According to this classification, literature can be summarized in respect of the geographical areas in which the largest companies operate.

Petravick and Gillett (1996) reported that 69% of the top 150 of Fortune 500 companies had websites and 54% of them made some form of financial information available on their sites. Louwers et al. (1996) found that approximately 23% of the top 150 Fortune 500 corporations include virtu-

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ally all the information typically shown in a paper based annual report, on the Web. Gray and Debreceny (1997) analyzed the top 50 of Fortune 500 companies and found that 49 had websites and 34 distributed their annual reports by Web. Petravick and Gillett (1998) discovered that 99 of the top 125 of the Fortune 500 companies published their earnings online simultaneously with an earnings announcement. FASB (2000) reported that 99 out of the top 100 Fortune 500 companies studied had Websites and of the 99 companies with Web sites, 93 of them included some form of investor relations / financial information Web pages.

While the largest US companies were analyzed by the researchers in the United States, European researchers focused on disclosure practices of the largest companies based in Europe. Some of these studies focused on a single country. Lymer (1997) analyzed the 50 largest listed companies in the UK and indicated that 92% had websites on which 68% of them provided financial information. Hussey et al. (1999) tracked financial disclosure by the UK FTSE 100 as at August 1997 and March 1998 and reported an increase in disclosure levels from 54 to 63%. In a study conducted in Spain, Gowthrope and Amat (1999) analyzed the financial reporting on the Internet by a total of 379 firms quoted on the Madrid Stock Exchange and noted that 19% of the firms disclose financial information on the Web. Flynn and Gowthorpe (1997) indicated that considering the 100 largest companies in the World in 1997, German companies tended to provide the least business reporting via the Web. Finally, Heldin (1999) analyzed the Web based investor relations activities of 60 companies listed on the Stockholm Stock Exchange in Sweden and found that 83% of the firms had financial reports on their Web sites.

As noted above, part of the literature involves a comparison of several countries. Lymer and Tallberg (1997) reported that 50% of the top 50 UK corporations were making similar use of the Web to that indicated by the US studies, while 66% of firms listed on the Helsinki Stock Exchange provided financial information on their web sites. Deller et al. (1998) reported that by the beginning of 1998, 91% of US S&P 100 corporations, 72% of UK companies [FTSE 100] and 71% of German companies [DAX 100] were using the web in terms of investor relations activities.

Some of the studies on web based business reporting were carried out globally. Taylor (1998) analyzed the top 100 of the world's largest international companies and found that 83% of them placed annual reports on their Websites. IASC (1999) analyzed the 30 largest listed companies from 22 countries (660 in total) and reported that 84% of them had corporate Websites and 62% of them had some form of financial disclosure.

In addition to the geographical studies mentioned above, researches have also focused on disclosure practices as compared with firms' characteristics. In this context, most of the researchers examined the relationship between firm's characteristics and hard copy reporting behavior of the firms. However, taking into consideration the increase of web-based business reporting among the firms in recent years, some of the researchers treated the web based business reporting statistics as dependent variables and have explored a number of firm's characteristics as independent variables that might be determinants of the statistics. The studies conducted by Marston and Leow (1998) [UK, FTSE, 100], Craven and Marston (1999) [UK, top 200], Ashbaugh et al. (1999) [US, 290 AIMR], Pirchegger et al. (1999) [Austria, Vienna S.E 32; German DAX 30], Brennan and Hourigan (2000) [Ireland, Irish S.E, 94 public firms], Marston and Wu (2000) [Japan, top 99], Ettredge et al. (2001), Ettredge et al. (2002b) [US, 220 AIMR] and Xiao et al. (2004) [Chinese S.E., 300] could be included in this context. In later sections, the studies, which attached the firm characteristic to hard copy and web based business reporting, will be mentioned separately for each of the firm's characteristics.

3. Research Design and Hypotheses

The main purpose of our study is to analyze the impact of firm's characteristics on the web based business reporting. The types of information, which is being disseminated by a firm, also is an important consideration for this impact. The effect of financial or non-financial information disclosed by the firms is yet another question to be addressed in our study.

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Our sample included 253 firms listed on Istanbul Stock Exchange [ISE] (excluding investment partnerships, which cannot be listed). At the time of the study, 298 companies were registered at ISE. The stocks of 13 companies, which are not traded in ISE, and further 5 companies which are traded in a Watch List Companies Market are not included in the sample. The "Watch List Companies Market" was established with an aim to provide an organized and liquid market for trading of those stocks, whose companies are under special surveillance and investigation due to extraordinary situations with respect to stock transactions and/or companies traded on the ISE; disclosure of incomplete, inconsistent and/or untimely information to the public; failure to comply with the existing rules and regulations as well as other situations leading to delisting of stocks and/or dismissal from the related market temporarily or permanently in order to protect investors' rights and public interest. As at the date of the study 27 investment trusts also traded in the ISE. These trusts are grouped into three classes: securities investment trusts, real estate investment trusts, and venture capital investment trusts. According to related rules and regulations there are some financial reporting differences between companies and trusts. A different disclosure and regulation regime applies to those investment trusts. Because of these differences trusts are also not included into the sample.

As in the previous studies in literature and in order to assess this impact, it is necessary to first assess the extent to which the firms listed on the ISE disseminate the information on the web. To this end, a solution commonly used in literature is to construct an index. In our study, we have also constructed a disclosure index to determine the disclosure levels of the web-based information. Firm characteristics are determined to measure the impacts of these characteristics on the extent of information disseminated by ISE Firms on their web sites. In the determination of the firm characteristics, it was benefited from the results of prior disclosure studies.

3.1. Disclosure Index

In order to associate the firm's characteristics with the disclosure behavior, disclosure indexes have been constructed and used as an important research tool by a number of researchers (Singhvi and Desai, 1971; Baker and Haslem, 1973; Benjamin and Stanga, 1977; Firth, 1978; McNally *et al.,* 1982; Robbins and Austin, 1986; Chow and Wong-Boren, 1987; Tong *et al.,* 1990; Adhikari and Tondkar, 1992; Meek *et al.,* 1995; Botosan, 1997; Salter, 1998; Pirchegger *et al.,* 1999; Singleton and Globerman, 2002; Chau and Gray, 2002; Xiao *et al.,* 2004). Hooks *et al.* (2002) noted that the intention has often been to identify the motivation for the voluntary disclosure in corporate annual reports, by testing the relationship between various firm variables drawn from agency theory and voluntary disclosures. In most cases attention has been paid to the number of disclosures (whether an item in a prepared check list has been disclosed or not).

The literature on the use of indexes was divided between unweighted and weighted indexes. Under the unweighted index, dichotomous scores were given: 0 for nondisclosure and 1 for disclosure of an item. The weighted index, however, is based on the rank a user of the financial information attaches to the information disclosure item. Those who advocate the use of each disclosure item form the index (Robbins and Austin, 1986). However, Naser and Nuseibeh (2003) reported that those who argue against the use of the weighted index (Chow and Wong-Boren, 1987; Wallace and Naser, 1995) contend that the weighting does not significantly alter the results. Furthermore, Robbins and Austin (1986) obtained the same results under the unweighted and weighted indexes. Firth (1980) also noted that unweighted and weighted scores showed similar results.

The disclosure index can be formulated as follows:

$$DI_x = \frac{\left[\sum_{t=1}^{n_x} T_{tx}\right]}{n_x}, \qquad (1)$$

where DI_x is the disclosure index for the company x; T_{tx} is the information item disclosed by company x; n_x is the maximum number of items expected to be disclosed by a company.

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As a first step in our study, disclosure items are to be specified to construct a web-based disclosure index for ISE Firms. To this end, the items previously developed in the report entitled "Electronic Distribution of Business Reporting Information"[1] are the main starting point for the disclosure index to be used in our study. To obtain reliable information, a form containing the collection of disclosure items was developed with attributes selected on the basis of their relevance on the company web sites. Based on this analytical approach, 162 items defined in the form, 87 are related to the disclosure of financial information on the web.

We monitored the web pages of ISE firms three times a month in the period between May 15, 2004 and June 15, 2004, which allowed us to fill in the information into pre-prepared forms. Table 1 includes the disclosure items, the number of sample firms' disclosing items and percentage of sample firms' disclosing items separately. Although 87.75% of the 253 ISE firms analyzed had a web page between the dates of May 15, 2004 and June 15, 2004, it is clear that the level of disseminated information is relatively low.

Table 1

Company Numbers

	Numbers
Total Listed Companies	298
Temporary Closed Listed Companies	13
	285
Watch List Companies	5
	280
Investment Trusts	27
	253
Manufacturing Companies	160
Finance Companies	43
Service Companies	26
Others	24

Two scores are obtained based on the classification of disclosure items defined previously. These are: (1) total score and (2) financial score. In our study, for the 2 differently defined groups, Total Disclosure Index [DIND(T)] and Financial Disclosure Index, [DIND(F)] are computed by using equation (1).

In our study, unweighed index is used based on the finding in the literature.

3.2. Firm Characteristics and Hypotheses

This study investigates in particular the influence of industry sector, technology, size, ownership, internalization, institutional investors, financial performance, leverage and intangibles as the firm characteristics on the web-based business reporting. Factors which affect the level of information disclosed by firms were examined extensively in literature.

3.2.1. Industry

As regards to industry type, most of the literature reported that disclosure scores differ by economic sector. Mitchell *et al.* (1995) found that the disclosure of financial information is affected by the industry to which the firm belongs. Inchausti (1997) and Ferguson *et al.* (2002) find evi-

[1] This report was published as the first section of BRRP, see above p. 102.

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dence that firms from some industries disclose more information than that mandated of all industries. Haniffa and Cooke (2000) showed that with respect to the industry type, Malaysian companies in all sectors were found to disclose less than the construction sector with the lowest being the consumer sector. However, Soh (1996) found that Malaysian Companies in the trading sector disclosed relatively more than companies in other sectors. Silva and Alles (2004) found that the companies of the financial sector as well as the ones in the commerce sector have shown a smaller tendency to disclose their financial information on their web pages than the companies in the service and manufacturing sectors. Cooke (1992), Botosan (1997) and Sengupta (1998) also provided additional evidence on the impact of industry classification on disclosure.

As regards the relationship between Internet reporting and industrial classification, Marston and Leow (1998), Craven and Marston (1999), Marston and Wu (2000) found no significant association. That is to say, they revealed that the industrial type to which the firm belongs was not pertinent determinant of web based business reporting. However, Brennan and Hourigan (2000) found that Internet reporting is positively related to industry type. In our research, the companies participating in the research were organized into three industries (Manufacturing [MANU], Finance [FIN], and Service [SERV]). These firm characteristics are used in the model as dummy variables. The classification made by the ISE is used in the determination of sectors in which ISE firms operate. 160, 43 and 26 out of 253 ISE firms operate in manufacturing, finance and service sector respectively.

3.2.2. Technology

Xiao *et al.* (2004) reported that the information technology (IT) companies are more likely than other companies to adopt Internet based corporate disclosures (ICD) for three reasons. Firstly the Internet is their area of expertise. Secondly, as IT companies have an incentive to demonstrate that they are technology leaders, they are more likely to experiment with ICD. For example, Microsoft is among the first companies to have experimented with XBRL-based financial reporting. Finally, the fad perspective on innovation diffusion suggests that, under conditions of uncertainty, firms tend to imitate earlier adopters within the same group. The findings of Xiao *et al.* (2004) supported the proposition mentioned above, that the largest listed Chinese companies in the IT industry not only disclose more information but in addition also have more extensive and elaborate presentation formats. A similar result was obtained by Chen *et al.* (2001) who examined all quarterly earnings announcements included in the Wall Street Journal ProQuest database for the 12 quarters ending with the third quarter of 1995 and found that managers of firms in high technology industries are more likely to disclose balance sheet information in their quarterly earnings announcements.

The level of technology of the firm was represented by OECD framework where low technology firms are placed in industries that employ less sophisticated technologies, and which are less vulnerable to change. This would include retail, property and leisure industries. Medium technology firms are from industries that have more sophisticated technologies but such technologies are generally more stable, for example, engineering and automobile industries. High technology firms fall in industries that are not only of higher technological sophistication but also more vulnerable to change in technology. These include companies from the computer, electronics, pharmaceutical and telecommunications industries. Debrency *et al.* (2002) represented the level of technology of the firm by a ternary variable that took the value of 0 for low technology corporations, 1 for medium technology corporations and 2 for high technology corporations.

In our study, the dummy variable is used to investigate the effect on the web-based disclosure by ISE firms, depending on whether the firm is a high or low technology. Based on the ISE classification, changes on disclosure levels can be analyzed depending on whether the firms are technological ones [TECHN] or not.

3.2.3. Size

The size of the firm is the most widely used variable in the extant literature to explain firm's disclosure levels. With a few exceptions (Stanga, 1976; Spero, 1979; Ahmed and Nicholls, 1994),

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most studies (Cerf, 1961; Singhvi and Desai, 1971; Firth, 1979; McNally *et al.,* 1982; Cox, 1985; Waymire, 1985; Wallace, 1988; Cooke, 1989; Cooke, 1991; Lang and Lundholm, 1993; Wallace *et al.,* 1994; Clarkson *et al.,* 1994; Meek, *et al.,* 1995; Hossain *et al*., 1995; Inchausti, 1997; Owusu-Ansah, 1998; Ahmed and Courtis, 1999; Ashbaugh, 2001; Patel and Dallas, 2002) identified the relevance of firm size to disclosure behavior and found that corporate size explains disclosure levels. Additionally, Silva and Alles (2004) found that bigger companies have shown a tendency to disclose the financial information in more than one language.

As regards to the web-based disclosure, Marston and Leow (1998), Craven and Marston (1999), Ashbaugh *et al.* (1999), Brennan and Hourigan (2000), Marston and Wu (2000), Ettredge *et al.* (2002a, 2002b) and Debreceny *et al.* (2002) found that the amount of financial information disseminated at a firm's Web site is positively correlated to the firm's size. Ettredge *et al.* (2001) found that the larger, the more established firms (the AIMR firms) tend to provide a higher level of disclosure than the smaller, emerging technology firms do. In another empirical research, Pirchegger *et al.* (1999) found that whereas the size of a firm affects the extent of financial reporting on the Internet by Austrian companies, it does not affect German companies' Internet based corporate disclosure choices.

Different approaches in literature provide some explanations as to the disclosure gap arising from the difference in the size of the companies. Larger companies have higher information asymmetry between managers and shareholders and therefore, higher agency costs arising from such asymmetry. To reduce these agency costs, larger firms disclose more information than smaller companies (Firth, 1979; Chow and Wong-Boren, 1987). Furthermore, these firms have a greater need for capital and can therefore be expected to disclose at a higher level (Hossain et al., 1995). In addition to this approach, the political-cost hypothesis predicts that larger companies have a stronger incentive to enhance their corporate reputation and public image, as they are more publicly visible. They also attract the attention of governmental bodies (Debrency *et al.,* 2002). Increased disclosure generally reduces government intervention (Firth, 1979; Chow and Wong-Boren, 1987).

A review of the literature offers a wide range of criteria for measuring the size of a firm such as sales turnover and capital employed (Firth, 1979), the number of shareholders, total assets and turnover (Cooke, 1991), the natural logarithm of market value of common equity (Ettredge *et al*., 2002b), the natural logarithms of the countable value of the total assets of the company in thousands of US$ (Silva and Alles, 2004) and the market capitalization (Debrency *et al.,* 2002).

In our study, we measure the firm size [SIZE] as one of the firm characteristics on web-based business reporting, by market capitalization. The differences among the legal characteristics of the firms and the sectors, in which they operate, make the capitalization the most appropriate criterion.

3.2.4. Ownership

Ownership structure has been examined in the literature as regards both ownership diffusion / concentration and family control on the board. Agency theory argues that in a diffused ownership environment, firms will disclose more information to reduce agency costs and information asymmetry (Ho and Wong, 2001). Most of the findings of the studies about voluntary disclosure behavior give support to the agency theory based hypothesis that the extent of voluntary disclosure is positively correlated with the wider ownership structure.

Malone *et al.* (1993) showed a significant positive relationship between number of shareholders and the extent of disclosure. Hossain *et al.* (1994) also found a significant negative relationship between ownership concentration and extent of voluntary disclosure. The results of Haniffa and Cooke (2000) indicate a significant positive association between the extent of disclosure and the proportion of shares held by the top 10 shareholders – ratio of total shares owned by top 10 shareholders to a total number of shares issued – which reflects diffusion. Patel *et al.* (2002) indicated that correlation between cross-holdings (proportion of the company owned by the government, other large companies and strategic investors) and transparency & disclosure scores is negative for most of the countries examined. Similarly Chao and Gray (2002) found a positive association be-

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tween wider ownership and the extent of voluntary disclosure by companies listed in Hong-Kong and Singapore. However, Raffournier (1995) found a non-significant negative relationship between ownership diffusion and the extent of voluntary disclosure.

Family-controlled firms have little motivation to disclose information in excess of mandatory requirements because the demand for public disclosure is relatively weak in comparison with companies that have wider ownership (Chau and Gray, 2002). As for the significance of ratio of family members on the board, Ahmed and Nicholls (1994), Haniffa and Cooke (2000) and Ho and Wong (2001) indicate that companies with more family members on the board disclose less. Ho and Wong (2001) and Haniffa and Cooke (2000) used the proportion of family members sitting on the board as a proxy for family control instead of family members' total shareholding.

In our study, free float rate is used as an ownership [OWN] indicator of ISE firms. As the free float rate or the number of shareholders of firms increase, it is possible to measure how to change the level of disseminated information.

3.2.5. Internalization

Foreign listing is sought by firms to have a more competitive cost of capital structure as they can issue securities in markets with higher liquidity and lower costs of capital (Biddle and Saudagaran, 1991). The dispersion of ownership across country borders gives rise to geographic and temporal information asymmetry (Portes and Rey, 2000). There is some theoretical and empirical support for the assertion that increased disclosure, under circumstances characterized by asymmetric information between company officials and potential lenders and investors, can reduce a company's cost of capital (Singleton and Globerman, 2002). According to the Botosan (2000) enhanced public disclosures can lead to a reduced cost of capital for firms via two paths. The first path involves (1) reduced information asymmetry between investors and firm management, (2) reduced estimation risk, and (3) lower cost of equity capital. The second path involves (1) reduced information asymmetry among investors, (2) increased market liquidity for securities, and (3) reduced cost of equity capital.

The findings of Meek and Saudagaran (1990), Choi and Levich (1991), Cooke (1991), Lang and Lundholm (1993) and Saudagaran and Meek (1997) indicate that participation in international capital markets encourages increased disclosure levels. One of the factors identified by Meek *et al.* (1995) as the statistically significant determinant of voluntary disclosure is international listing status. They found that internationally listed US and UK multinational companies voluntarily disclose more information in their annual reports than domestically listed multinational companies. Cooke (1992) found that Japanese companies listed on multiple stock exchanges disclose more information than companies listed only on the Tokyo Stock Exchange. Cooke (1989) and Ferguson *et al.* (2002) reported that firms that are quoted on several stock exchanges make more information disclosures. Additionally, Haniffa and Cooke (2000) noted a significant positive relationship between the voluntary disclosure and foreign ownership – ratio of total shares owned by foreigners to total number of shares issued – which reflects concentration.

Ettredge *et al.* (2002b) measure the firms' need for new external equity capital using a dichotomous variable (coded one if the firm is a net issuer of common equity in 1996 and 1997, and zero otherwise). Debrency *et al.* (2002) represented foreign listing status by a binary variable that took the value of 1 for a foreign listing and 0 for only a domestic listing.

3.2.6. Institutional Investors

Institutional investors as one of the determinants, which might affect the extent of disclosure, have been analyzed less frequently in literature than other firm characteristics. Healy *et al.* (1999) found that increases in disclosure are associated with increases in institutional ownership. Xiao *et al.* (2004) also noted that turning to shares owned by legal persons, their holders have more resources and expertise to monitor listed firms than individual investors. Additionally, compared with state-ownership representatives, legal person shareholders are more motivated to monitor firms because

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they are geared more toward profit making than fulfilling political and social goals. They also reported that the extent of listed Chinese companies' Internet based corporate disclosure increases with their proportion of legal person ownership. As regards the web based business reporting, Xiao *et al.* (2004) indicated that the state share ownership has negative effect on the extent of internet based corporate disclosure for Chinese companies.

3.2.7. Financial Performance

A number of researchers (Cerf, 1961; Singhvi and Desai, 1971; Abu Nasar and Rutherford, 1994; Wallace *et al.,* 1994; Wallace and Naser, 1995; Soh, 1996; Inchausti, 1997; Owusu-Ansah, 1998; Haniffa and Cooke, 2000) have noted the significance of profitability as a determinant of disclosure behavior. This is in line with the signaling hypothesis, which argues that companies with good news are more likely to disclose more information (Ross, 1979). According to the Ettredge *et al.* (2002b), investors generally are thought to perceive the absence of voluntary disclosure as an indication of "bad news" about a firm. This provides average or better performing firms with an adverse selection incentive to disclose. Grossman and Hart (1998) also noted that managers of profitable firms have greater incentive to disclose information to attract capital or to reduce risk of being undervalued by the market. According to another approach shown by Botosan (1997) and Sengupta (1998), firm-specific market risk (systematic risk or beta) is an essential determinant of cost of capital, and disclosure is one way of mitigating such risk and, in turn, reducing the cost of capital. However, Belkaoui and Kahl (1978) report a negative association between profitability and disclosure in Canada.

As regards to web based business reporting, Ashbaugh *et al.* (1999) and Ettredge *et al.* (2002a) found that the association between profitability and disclosure was insignificant. Leuz and Verrecchia (2000) and Xiao *et al.* (2004) measured profitability with return on assets (ROA). Return on Equity (ROE), defined as net income to total owners' equity, can also be used as a measure of profitability (Haniffa and Cooke, 2000).

3.2.8. Leverage

Concerning the association between leverage and disclosure levels, while the findings of Mitchell *et al.* (1995), Hossain *et al.* (1995), Robbins and Austin (1986) show a positive relationship between leverage and disclosure levels, studies by Chow and Wong-Boren (1987), Mckinnon and Dalimunthe (1993), Ahmed and Nicholls (1994) and Aitken *et al.* (1997) do not support this relationship. Furthermore, Meek *et al.* (1995) report a significant, negative relationship between leverage and voluntary disclosure for US, UK and continental European multinationals.

As regards the association between web-based business reporting and leverage, Brennan and Hourigan (2000) found that leverage is insignificant to Internet reporting. Debreceny *et al.* (2002) also found that voluntary adoption of Internet based corporate disclosure in 22 countries is not associated to leverage. Debreceny *et al.* (2002) measure leverage by using percentage of net long-term debt to owners' equity.

3.2.9. Intangibles

Growth perspective of a firm and intangibles are intertwined and the difference between market value and book value broadly represents these two variables (Myers, 1977; Ohlson, 1995). Similar to high technology firms, firms with high growth prospects and high intangibles arising from factors such as technology, corporate strategy and human resources are likely to have a high ratio of market to book value (Lev and Sougiannis, 1999). These firms will have specific knowledge that is not effectively and efficiently transferable to investors through traditional accounting disclosures. Growth prospects and intangibles variable was measured as the asymmetry between market and book value and was represented by the ratio of market capitalization to book value of net assets. Debrency *et al.* (2002) represent intangibles by the ratio between market and book value.

With respect to firm-specific characteristics mentioned above, our hypotheses are as follows:

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H1: The extent of web-based business reporting of Turkish companies is related to the industry type.

H2: The extent of web-based business reporting of Turkish companies is positively related to the technological level of firms.

H3: The extent of web-based business reporting of Turkish companies is positively related to the firm's size.

H4: The extent of web-based business reporting of Turkish companies is positively related to the ownership diffusion.

H5: The extent of web-based business reporting of Turkish companies is positively related to the foreign listing status / foreign ownership level.

H6: The extent of web-based business reporting of Turkish companies is positively related to the proportion of institutional investors in the firms.

H7: The extent of web-based business reporting of Turkish companies is positively related to the profitability of firms.

H8: The extent of web-based business reporting of Turkish companies is positively related to the leverage of firms.

H9: The extent of web-based business reporting of Turkish companies is positively related to the proportion of intangibles.

The current research aims to test these hypotheses to explain the association between the Internet disclosure of firms and the factors that belong to firm characteristics.

3.3. Models

Regression analysis is used in analyzing the results by testing the hypotheses set out in our study. By taking into account the variables set out in the relevant literature, regression models can be displayed as follows:

Model 1

$$DIND(T) = \alpha+\beta_1(FIN) + \beta_2(MANU) + \beta_3(SERV) + \beta_4(TECHN) + \beta_5(SIZE) + \beta_6(OWN) + \beta_7(FOINV) + \beta_8(FOROFF) + \beta_9(PROFIT) + \beta_{10}(RETURN) + \beta_{11}(RISK) + \beta_{12}(INTENG) + \beta_{13}(INSINV) + \varepsilon$$

Model 2

$$DIND(F)=\alpha+\beta_1(FIN) + \beta_2(MANU) + \beta_3(SERV) + \beta_4(TECHN) + \beta_5(SIZE) + \beta_6(OWN) + \beta_7(FOINV) + \beta_8(FOROFF) + \beta_9(PROFIT) + \beta_{10}(RETURN) + \beta_{11}(RISK) + \beta_{12}(INTENG) + \beta_{13}(INSINV) + \varepsilon$$

In order to analyze the results by estimating the regression equations, first it is necessary to test whether or not the data set could yield reliable results. To this end, the availability of econometric problems, which may affect the accuracy of results from data set and regression models, is tested.

4. Results

4.1. Descriptive Statistics

Disclosure index formed by evaluating the websites of the firms quoted on the ISE, is examined according to two groups. The averages of total disclosure index and financial disclosure index are 0.0912 and 0.0563 respectively. Thus, the average amounts indicate that ISE firms are considerably reluctant in disclosing information on the web. Further, financial information tends to be dis-

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closed relatively less than other types of information. Descriptive statistics concerning the two defined disclosure indexes are presented in Table 2 in a detailed manner.

Table 2

Descriptive Statistics of Disclosure Indexes

	Total Disclosure Index	Financial Disclosure Index
N	253	253
Mean	0.091226	0.056336
Std. Error of Mean	0.005869	0.005793
Median	0.04938	0
Mode	0	0
Std. Deviation	0.09336	0.092138
Variance	0.008716	0.008489
Skewness	1.294564	1.637279
Std. Error of Skewness	0.153096	0.153096
Kurtosis	0.729903	1.739777
Std. Error of Kurtosis	0.305021	0.305021
Minimum	0	0
Maximum	0.38889	0.3908
Sum	23.08022	14.25293

As the frequencies of web-based disclosure indexes of ISE firms are examined by considering the distinction of total and financial characteristics, we get interesting results. When the frequency distribution is examined, it is evident that the level of web-based information disclosed by ISE firms is reasonably low.

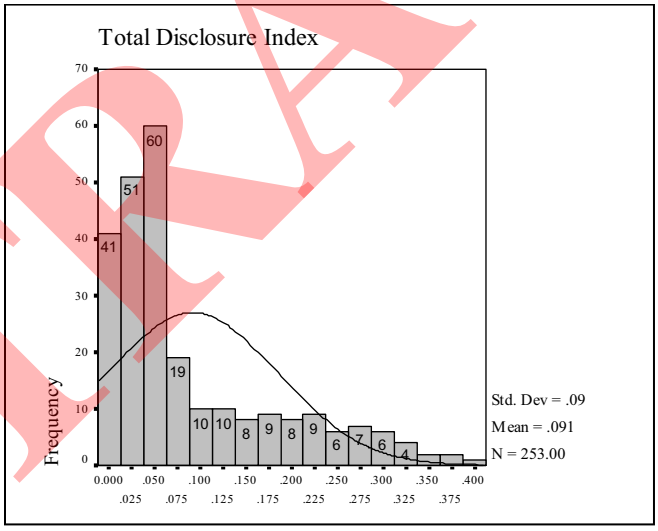

Fig. 1. Frequency Histogram of Total Disclosure Index

Total disclosure index of 171 ISE firms out of 253 within the scope of this study is below 0.1. The ratio of firms having this value corresponds to 67.59% of the total firms. The frequency distribution of total disclosure index values of the ISE firms is presented in Figure 1.

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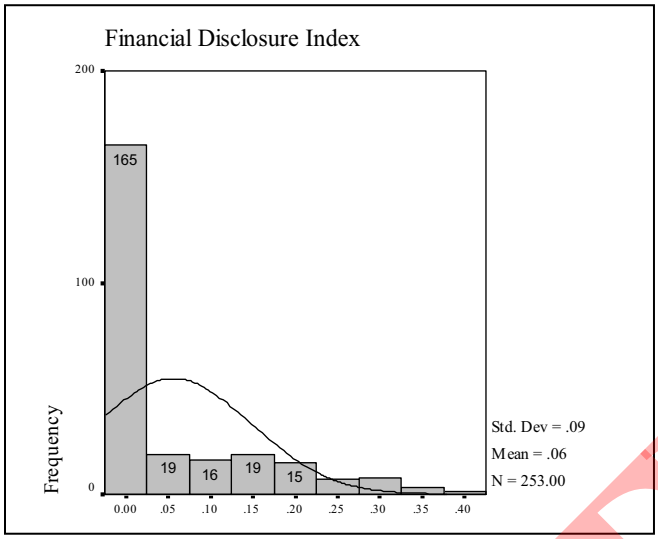

Fig. 2. Frequency Histogram of Financial Disclosure Index

Financial disclosure index value is below 0.1 for 200 firms, which corresponds to 79.05% of total firms. The low level of the web-based information disclosed by ISE firms reveals significant evidence in respect of the future of business reporting in Turkey. Considering the variables stated as firm characteristics, disclosing level and main characteristics could be determined.

Table 3 shows the descriptive statistics for the dependent and independent variables. Descriptive statistics are provided in Panel A and Panel B of Table 3. In our study, percent of foreign investors, foreign offers, ownership, percent of institutional investors, level of intangibles, profitability, return, risk, size and industry which are determined technology, manufacturing, finance, and services firms, are accepted as dependent variables and used.

4.2. Analysis

When we look to the histograms of total disclosure index and financial disclosure index, it can be easily seen that the distribution is not normal. In order to make linear regression, the normal distribution requirement should be satisfied. Since distribution of our index values is not normally distributed, we can eliminate the outliers, so that we can normalize the distribution.

In order to normalize data, researchers developed different methods. One of them which is used frequently was developed and used by Box and Cox (1964). But this method is not successful to normalize dependent variables. Similarly another method, modules transformation (John and Draper, 1980) is also not successful. The main reason for this problem is the concentration of disclosure index values around zero. That is why regression model is assumed as censored and truncated regression model. By this way zero concentration problems are solved. Similarly, in order to test the reliability of the models, existence of econometric problems is tested. Then it is certain that there is no econometric problem.

According to correlation matrixes, it is obvious that there is high correlation among independent variables: institutional investors, size, foreign offers and risk. The high correlation level can be explained by the big firms' (size) desire to need more financial sources from different markets (foreign offers) and firms with high risk levels should reach more potential investors to collect enough money for their operations. Some of the potential investors are risk aversers and some of them are risk seekers. Firms with high risk should reach for more potential investors so that they can reach more risk seekers. In order to collect enough money for their operations they have to disclose more information.

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Table 3

Descriptive Statistics

Panel A: Total Disclosure Index

	DIND_T	FIN	FORINV	FOROFF	INSTINV	INTENG	MAN	OWN	PROFIT	RETURN	RISK	SERV	SIZE	TECH
Mean	0.09	0.17	11.39	0.64	0.01	48782	0.63	34.59	0.02	50.38	0.57	0.10	306343	0.03
Median	0.05	0.00	0.79	0.00	0.00	-290	1.00	30.97	0.03	38.61	0.51	0.00	65344	0.00
Maximum	0.39	1.00	96.72	14.00	0.06	4932662	1.00	99.74	0.58	309.79	1.57	1.00	6121938	1.00
Minimum	0.00	0.00	0.00	0.00	0.00	-6098883	0.00	0.92	-1.25	-72.67	0.00	0.00	-145281	0.00
Std. Dev.	0.09	0.38	20.93	1.54	0.01	624722	0.48	19.90	0.13	56.70	0.30	0.30	812345	0.16
Skewness	1.29	1.76	2.08	4.09	2.74	-1	-0.53	1.14	-3.12	1.25	0.85	2.62	5	5.76
Sum	23.08	43.00	2880.74	163.00	1.84	12341893	159.00	8750.95	6.25	12745.27	144.08	26.00	77504718	7.00
Sum Sq. Dev.	2.20	35.69	110402.10	597.98	0.03	1.E+14	59.08	99821.62	4.48	810043.70	22.94	23.33	2.E+14	6.81

Panel B: Financial Disclosure Index

	DIND_F	FIN	FORINV	FOROFF	INSTINV	INTENG	MAN	OWN	PROFIT	RETURN	RISK	SERV	SIZE	TECH
Mean	0.06	0.17	11.39	0.64	0.01	48782	0.63	34.59	0.02	50.38	0.57	0.10	306343	0.03
Median	0.00	0.00	0.79	0.00	0.00	-290	1.00	30.97	0.03	38.61	0.51	0.00	65344	0.00
Maximum	0.39	1.00	96.72	14.00	0.06	4932662	1.00	99.74	0.58	309.79	1.57	1.00	6121938	1.00
Minimum	0.00	0.00	0.00	0.00	0.00	-6098883	0.00	0.92	-1.25	-72.67	0.00	0.00	-145281	0.00
Std. Dev.	0.09	0.38	20.93	1.54	0.01	624722	0.48	19.90	0.13	56.70	0.30	0.30	812345	0.16
Skewness	1.63	1.76	2.08	4.09	2.74	-1	-0.53	1.14	-3.12	1.25	0.85	2.62	5	5.76
Sum	14.25	43.00	2880.74	163.00	1.84	12341893	159.00	8750.95	6.25	12745.27	144.08	26.00	77504718	7.00
Sum Sq. Dev.	2.14	35.69	110402.10	597.98	0.03	1.E+14	59.08	99821.62	4.48	810043.70	22.94	23.33	2.E+14	6.81

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Table 4

Correlation Matrix

Total Disclosure Index

	DIND_T	FIN	FORINV	FOROFF	INSTINV	INTENG	MAN	OWN	PROFIT	RETURN	RISK	SERV	SIZE	TECH
DIND_T	1.00													
FIN	0.26	1.00												
FORINV	0.39	0.16	1.00											
FOROFF	0.48	0.14	0.55	1.00										
INSTINV	0.50	0.27	0.70	0.72	1.00									
INTENG	0.08	-0.01	0.39	0.43	0.42	1.00								
MAN	-0.19	-0.59	-0.16	-0.21	-0.20	-0.05	1.00							
OWN	-0.05	-0.01	-0.14	-0.03	-0.01	-0.11	-0.03	1.00						
PROFIT	0.14	0.00	0.15	0.10	0.09	0.07	-0.05	-0.18	1.00					
RETURN	0.17	0.27	0.28	0.11	0.24	0.06	-0.07	-0.10	0.18	1.00				
RISK	0.43	0.33	0.54	0.46	0.65	0.19	-0.26	0.05	0.08	0.32	1.00			
SERV	0.08	-0.15	0.13	0.19	0.07	0.14	-0.44	0.00	0.06	-0.01	0.01	1.00		
SIZE	0.51	0.27	0.47	0.62	0.74	0.04	-0.18	-0.05	0.06	0.15	0.47	0.01	1.00	
TECH	0.06	-0.08	-0.08	0.07	-0.02	-0.01	-0.22	-0.06	-0.07	-0.12	0.04	-0.06	-0.05	1.00

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Table 4 (continuous)

Financial Disclosure Index

	DIND_F	FIN	FORINV	FOROFF	INSTINV	INTENG	MAN	OWN	PROFIT	RETURN	RISK	SERV	SIZE	TECH
DIND_F	1.00													
FIN	0.27	1.00												
FORINV	0.30	0.16	1.00											
FOROFF	0.43	0.14	0.55	1.00										
INSTINV	0.44	0.27	0.70	0.72	1.00									
INTENG	0.01	-0.01	0.39	0.43	0.42	1.00								
MAN	-0.20	-0.59	-0.16	-0.21	-0.20	-0.05	1.00							
OWN	-0.04	-0.01	-0.14	-0.03	-0.01	-0.11	-0.03	1.00						
PROFIT	0.11	0.00	0.15	0.10	0.09	0.07	-0.05	-0.18	1.00					
RETURN	0.11	0.27	0.28	0.11	0.24	0.06	-0.07	-0.10	0.18	1.00				
RISK	0.36	0.33	0.54	0.46	0.65	0.19	-0.26	0.05	0.08	0.32	1.00			
SERV	0.07	-0.15	0.13	0.19	0.07	0.14	-0.44	0.00	0.06	-0.01	0.01	1.00		
SIZE	0.49	0.27	0.47	0.62	0.74	0.04	-0.18	-0.05	0.06	0.15	0.47	0.01	1.00	
TECH	0.01	-0.08	-0.08	0.07	-0.02	-0.01	-0.22	-0.06	-0.07	-0.12	0.04	-0.06	-0.05	1.00

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Table 5

Regression Results

Total Disclosure Index

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.000735	0.023810	0.030880	0.9754
FIN	0.067428	0.023373	2.884863	0.0039
FORINV	0.000344	0.000336	1.022862	0.3064
FOROFF	0.012447	0.004887	2.546842	0.0109
INSTINV	0.325510	1.068489	0.304645	0.7606
INTENG	-1.55E-08	9.95E-09	-1.556992	0.1195
MAN	0.041447	0.020286	2.043145	0.0410
OWN	-0.000128	0.000254	-0.504731	0.6137
PROFIT	0.070209	0.040656	1.726898	0.0842
RETURN	-2.68E-05	9.34E-05	-0.286792	0.7743
RISK	0.043179	0.022017	1.961157	0.0499
SERV	0.055620	0.024601	2.260890	0.0238
SIZE	2.67E-08	1.03E-08	2.590431	0.0096
TECH	0.079400	0.034956	2.271388	0.0231
R-squared	0.370863	Mean dependent var		0.091226
Adjusted R-squared	0.333855	S.D. dependent var		0.093360
S.E. of regression	0.076198	Akaike info criterion		-1.508858
Sum squared resid	1.381864	Schwarz criterion		-1.299368
Log likelihood	205.8705	Hannan-Quinn criter.		-1.424573
Avg. log likelihood	0.813717			

Financial Disclosure Index

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.264591	0.077369	-3.419863	0.0006
FIN	0.206828	0.070262	2.943663	0.0032
FORINV	0.000283	0.000844	0.334913	0.7377
FOROFF	0.017009	0.010698	1.589952	0.1118
INSTINV	3.749744	2.512317	1.492544	0.1356
INTENG	-4.86E-08	2.20E-08	-2.213905	0.0268
MAN	0.135712	0.065574	2.069601	0.0385
OWN	0.000246	0.000617	0.397960	0.6907
PROFIT	0.234511	0.122535	1.913819	0.0556
RETURN	-0.000307	0.000259	-1.181541	0.2374
RISK	0.060419	0.055888	1.081073	0.2797
SERV	0.154260	0.073799	2.090271	0.0366
SIZE	1.53E-08	2.26E-08	0.679553	0.4968
TECH	0.234127	0.091256	2.565601	0.0103
R-squared	0.260082	Mean dependent var		0.056336
Adjusted R-squared	0.216558	S.D. dependent var		0.092138
S.E. of regression	0.081553	Akaike info criterion		0.376843
Sum squared resid	1.582922	Schwarz criterion		0.586332
Log likelihood	-32.67060	Hannan-Quinn criter.		0.461127
Avg. log likelihood	-0.129133			

According to regression analysis Adjusted R-Squared is 33.3%. That means 33.3% of variations in Total Disclosure Index could be explained by this model. As can be seen from the regression results for

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the Total Disclosure Index, firm size, the industrial type to which the firm belongs (finance, manufacturing and service), foreign offers (internalization), risk, profitability and technology are important factors in explaining the value of Total Disclosure Index. That is to say, except for institutional investors, ownership and intangibles, other variables affect the Total Disclosure Index positively.

Hypotheses 1, 2, 3, 5, 7 and 8, which respectively state that the extent of web-based business reporting of Turkish companies is related to industry type, technological level, size, foreign ownership level (internalization), profitability and leverage level are supported respectively. On the other hand, Hypotheses 4, 6 and 9, which respectively state that the extent of web-based business reporting of Turkish companies is related to ownership diffusion, proportion of institutional investors and intangibles are not supported. It is worthwhile to note that, since Turkey is an emerging market, the investment decisions taken by the owners and institutional investors of the Turkish companies have mainly the short-term structure. Short-term decision-making process typically encourages the owners and investors using the secondary sources such as analyst reports rather than directly benefiting from the financial statements. On the other hand, one of the determinants of the association between the intangibles (growth prospects) and web-based business reporting practices is the emerging market structure of Turkish economy. A liberal economic policy trend of the Turkish economy, which started in the early 1980s with the adoption of free market approach based on the rules of demand and supply, free competition, and a liberalized foreign trade, could not be sustained due to the sharp recessions and financial crises in 1994, 1999, and 2001. However, consistent with the implementation results of disinflation and economic restructuring program, structural economic reforms restarted and the economic reforms began to indicate positive results in subsequent years. Thus, growth prospects and the market value of the companies increased in line with these economic developments. However, the increase in the web-based business reporting practices of the Turkish companies fall behind the increase in the market values.

As regards the association between Internet reporting and firms' size, the finding of this study is consistent with the Marston and Leow (1998), Craven and Marston (1999), Ashbaugh *et al.* (1999), Brennan and Hourigan (2000), Marston and Wu (2000), Ettredge *et al.* (2001, 2002a, 2002b) and Debreceny *et al.* (2002) who found that the amount of financial information disseminated on a firm's Web site is positively correlated to the size of a firm. However, as regards the relationship between Internet reporting and industrial classification, the result of this study is not in line with that of Marston and Leow (1998), Craven and Marston (1999) and Marston and Wu (2000), who found no significant relationship between industrial type and web based business reporting, but in compliance with the result of Brennan and Hourigan (2000), who found that Internet reporting is related to industry type. The empirical result of this study on the relation between Internet reporting and ratio of institutional investors is not in compliance with the result of Xiao et al. (2004) who indicated that the state share ownership has negative effects on the extent of Chinese companies Internet based corporate disclosure. Additionally, the positive relationship between leverage and web-based business reporting concluded in this study is not in line with the results of Brennan and Hourigan (2000) and Debreceny et al. (2002), who found that leverage is insignificant to Internet reporting.

Foreign offers and size are important factors. There is a two-way effect between these variables. Size affects foreign offers and companies offered shares and ADRs or GDRs collects more financial sources. This result can be validated with daily experiences. In general big firms measured by capital, volume of issued stocks in foreign markets or ADRs and GDRs of that company floated in those markets. This observation could be explained by the capital structure decisions of companies. Big companies need more capital. Because of their size they also have more sources, knowledge and expertise to collect money from foreign markets. In order to reach more suitable financial sources, they have to attract foreign investors. This means they have to disclose more information to potential investors. So size and foreign offers are important independent variables to explain the model. Results show support for this argument.

According to regression analysis Adjusted R-Squared is 0.216. That means 21.6% of variations in Financial Disclosure Index could be explained by this model. As it can be seen from the regression results

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for the Financial Disclosure Index, foreign offers, intangibles and size are important factors in explaining the value of Financial Disclosure Index value. In addition to these factors, financial firms are disclosing more financial information. This result can be explained by the special rules and regulations in the financial industry in Turkey. Although technology is not an important factor for the Total Disclosure Index, in our model technology is not an important factor for the Financial Disclosure Index.

Industry of the firm and technology level are represented by dummy variables. If these variables were excluded from the model the Adjusted R-Squared would be 0.33 for Total Disclosure Index and 0.22 for Financial Disclosure Index. Since Adjusted R-Squared is not significantly affected by the exclusion of these variables, it follows that these variables have little or no effect on the model.

In order to test the multicolinearity problem correlation matrixes are examined. According to correlation matrixes there is a multicolinearity problem. There is a strong relationship between factors such as risk, foreign investors and institutional investors. On the other hand, there is also a strong relationship between size and institutional investors. In order to eliminate that problem, institutional investors and foreign investor variables are eliminated from both models. Also according to 0.05 confidence level return and ownership could be eliminated from both of the models.

Table 6

Modified Regression Results

Total Disclosure Index

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.0036	0.0204	-0.1756	0.8607
FIN	0.065102	0.016664	3.906803	0.0001
FOROFF	0.011289	0.004159	2.714181	0.0066
MAN	0.039806	0.010104	3.939731	0.0001
RISK	0.052497	0.017054	3.078337	0.0021
SERV	0.055967	0.017485	3.200930	0.0014
SIZE	3.26E-08	7.87E-09	4.136776	0.0000
TECH	0.073531	0.030188	2.435783	0.0149
R-squared	0.120187	S.D. dependent var		0.093360
Adjusted R-squared	0.091034	Akaike info criterion		-1.529423
Mean dependent var	0.091226	Schwarz criterion		-1.417695
S.E. of regression	0.076435	Hannan-Quinn criter.		-1.484471
Sum squared resid	1.431375	S.D. dependent var		0.093360
Log likelihood	201.4720	Akaike info criterion		-1.529423
Avg. log likelihood	0.796332			

Financial Disclosure Index

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-0.185311	0.068447	-2.707356	0.0068
FIN	0.248859	0.073445	3.388378	0.0007
INTENG	3.53E-09	1.91E-08	0.184814	0.8534
MAN	0.106766	0.068320	1.562742	0.1181
SERV	0.163358	0.078622	2.077760	0.0377
TECH	0.230513	0.098276	2.345575	0.0190
R-squared	0.080067	Mean dependent var		0.056336
Adjusted R-squared	0.057630	S.D. dependent var		0.092138
S.E. of regression	0.089443	Akaike info criterion		0.519588
Sum squared resid	1.968033	Schwarz criterion		0.617350
Log likelihood	-58.72794	Hannan-Quinn criter.		0.558921
Avg. log likelihood	-0.232126			

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As it can be seen from the modified regression results, Adjusted R-Squared is 12%. In this model it is obvious that industry (finance, manufacturing, service), foreign offers, profitability, risk, size and technology are important for the model. Only intangibles do not have a big effect on the Total Disclosure Index in this modified model.

For the Financial Disclosure Index, Adjusted R-Squared is 5.5%. In this model, like the previous Financial Disclosure model, finance sector companies disclose more financial information. Size, foreign offers and intangibles are important variables. It is obvious that the variables of industry classification, profitability and risk are not important for the model.

5. Conclusion and Further Studies

World Wide Web (Web) Technologies are extensively used by an ever-increasing number of companies around the world. A growing percentage of those companies have promoted websites on the Internet and have a tendency to disseminate business reporting information, including financial data, on their sites. The main purpose of our study is to analyze the impacts of firm characteristics on the web based business reporting. The types of the information disseminated by the firms are also significant in the determination of these impacts. The impacts of financial or non-financial information disclosed by the firms are another question to be addressed in our study.

Our sample included 253 firms listed on the ISE (among which, there do not exist investment partnerships). As in the previous studies in literature, it is required to express numerically the extent of the information disseminated on the web by the firms listed on the ISE in order to measure this impact. To this end, a solution commonly used in literature is to construct an index. In our study, we have also constructed a disclosure index to determine the disclosure levels of web-based information. Firm characteristics are determined to measure the impacts of these characteristics on the extent of information disseminated by ISE Firms on their web sites. Prior disclosure studies have been benefited from in the determination of the firm characteristics. Two scores are obtained based on the classification of disclosure items defined previously. These are: (1) total score and (2) financial score. In our study, for the 2 different defined groups, Total Disclosure Index [DIND(T)] and Financial Disclosure Index, [DIND(F)] are computed.

The factors affecting the level of information disclosed by the firms were examined extensively in literature. These elements determining the web-based dissemination of business reporting are referred as firm characteristics. According to our results, size, industry classification and internalization could be used to explain level of information disclosed by the firms. Technology, risk and profitability are important factors for the Total Disclosure Index but not for the Financial Disclosure Index. Ownership structure, institutional investors and intangibles are the independent variables, which do not any significant association with the web-based disclosure behavior.

It is expected that the foreign investment in Turkey will increase with the start of EU accession negotiations. This study gives important ex-ante information about web based reporting in an emerging economy in the eve of major developments. The growth rate and percentage of young people in the Turkish population is increasing very rapidly. In addition to these demographic factors, newly amended Turkish Commercial Code includes some articles on Internet related issues like web page reporting, web based voting etc. So it can be easily claimed that the usage of Internet will encounter a sharp increase among Turkish companies in the near future. In further studies, results of this study can help researchers to understand effects of these financial and non-financial changes on web based reporting in a developing economy.

On the other hand in further studies, the relationships among disclosure index, structural variables and performance variables could be tested for some other emerging markets. Additionally the relationship between the level of development of capital markets and disclosure index could also be a good research subject.

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Annex 1. Summary of the significant literature on the relationship between firm characteristics (independent variables) and business reporting

Variable I: INDUSTRY TYPE		
Author	Year	Results R: related NR: not related
Hard Copy Reporting		
Cooke	1992	R
Mitchell *et al.*	1995	R
Soh	1996	R
Inchausti	1997	R
Botosan	1997	R
Sengupta	1998	R
Haniffa & Cooke	2000	R
Ferguson *et al.*	2002	R
Silva & Alles	2004	R
Web-Based Reporting		
Brennan & Hourigan	2000	R
Marston & Leow	1998	NR
Craven & Marston	1999	NR
Marston & Wu	2000	NR

Variable II: TECHNOLOGY		
Author	Year	Results R: related NR: not related
Hard Copy Reporting		
Chen *et al.*	2001	+R
Debreceny *et al.*	2002	+R
Web-Based Reporting		
Xiao *et al.*	2004	+R

Variable III: SIZE		
Author	Year	Results R: related NR: not related
Hard Copy Reporting		
Cerf	1961	+R
Singhvi & Desai	1971	+R
Firth	1979	+R
McNally *et al.*	1982	+R
Cox	1985	+R
Waymire	1985	+R
Wallace	1988	+R

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Hard Copy Reporting		
Cooke	1989,1991	+R
Lang & Lundholm	1993	+R
Wallace *et al.*	1994	+R
Clarkson *et al.*	1994	+R
Meek *et al.*	1995	+R
Hossain *et al.*	1995	+R
Inchausti	1997	+R
Owusu-Ansah	1998	+R
Ahmed and Courtis	1999	+R
Ashbaugh	2001	+R
Patel and Dallas	2002	+R
Silva and Alles	2004	+R
Stanga	1976	NR
Spero	1979	NR
Ahmed & Nicholls	1994	NR
Web-Based Reporting		
Marston & Leow	1998	+R
Craven & Marston	1999	+R
Ashbaugh *et al.*	1999	+R
Pirchegger *et al.*	1999	+R,-R
Brennan & Hourigan	2000	+R
Marston & Wu	2000	+R
Ettredge *et al.*	2001, 2002a,b	+R
Debreceny *et al.*	2002	+R

Variable IV: OWNERSHIP DIFFUSION		
Author	Year	Results R: related NR: not related
Hard Copy Reporting		
Malone *et al.*	1993	+R
Hossain *et al.*	1994	+R
Ahmed & Nicholls	1994	+R
Raffournier	1995	-R
Ho & Wong	2001	+R
Haniffa and Cooke	2000	+R
Patel *et al.*	2002	+R
Chao and Gray	2002	+R
Web-Based Reporting		
Xiao *et al.*	2004	+R

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Variable V: INTERNALIZATION		
Author	Year	Results R: related NR: not related
Hard Copy Reporting		
Meek & Saudagaran	1990	+R
Choi & Levich	1991	+R
Cooke	1991	+R
Lang and Lundholm	1993	+R
Meek *et al.*	1995	+R
Saudagaran & Meek	1997	+R
Cooke	1989,1992	+R
Haniffa & Cooke	2000	+R
Ferguson *et al.*	2002	+R

Variable VI: INSTITUTIONAL INVESTORS		
Author	Year	Results +R: positively related -R: negatively related NR: not related
Hard Copy Reporting		
Healy *et al.*	1999	+R
Web-Based Reporting		
Xiao *et al.*	2004	+R

Variable VII: FINANCIAL PERFORMANCE (PROFITABILITY)		
Author	Year	Results +R: positively related -R: negatively related NR: not related
Hard Copy Reporting		
Cerf	1961	+R
Singhvi & Desai	1971	+R
Abu Nasar & Rutherford	1994	+R
Wallace *et al.*	1994	+R
Wallace & Naser	1995	+R
Soh	1996	+R
Inchausti	1997	+R
Owusu-Ansah	1998	+R
Haniffa & Cooke	2000	+R
Ettredge *et al.*	2002b	+R
Grossman & Hart	1998	+R
Belkaoui & Kahl	1978	-R
Web-Based Reporting		
Ashbaugh *et al.*	1999	NR
Ettredge *et al.*	2002a	NR

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Variable VIII: LEVERAGE		
Author	Year	Results +R: positively related -R: negatively related NR: not related
Hard Copy Reporting		
Robbins & Austin	1986	+R
Mitchell *et al.*	1995	+R
Hossain *et al.*	1995	+R
Meek *et al.*	1995	-R
Chow & Wong-Boren	1987	NR
Mckinnon & Dalimunthe	1993	NR
Ahmed & Nicholls	1994	NR
Aitken *et al.*	1997	NR
Web-Based Reporting		
Debreceny *et al.*	2002	NR
Brennan & Hourigan	2000	NR

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Annex 2: Internet Usage by Countries

	Population (2005 Est.)	Internet Usage	Usage Growth (2000-2005)	Penetration (% Population)
Sweden	9,043,990	6,722,553	0.661	74.30%
Hong Kong	6,983,938	4,878,713	1.137	69.90%
United States	293,271,500	201,661,159	1.115	68.80%
Netherlands	16,316,019	10,806,328	1.771	66.20%
Iceland	294,947	195,000	0.161	66.10%
Korea, South	49,929,293	31,600,000	0.66	63.30%
Denmark	5,411,596	3,375,850	0.731	62.40%
Switzerland	7,452,101	4,589,279	1.151	61.60%
Singapore	3,547,809	2,135,000	0.779	60.20%
United Kingdom	59,889,407	35,309,524	1.293	59.00%
Germany	82.726,188	46,455,813	0.936	56.20%
Japan	128,137,485	67,677,944	0.438	52.80%
Taiwan	22,794,795	11,602,523	0.853	50.90%
Finland	5,246,920	2,650,000	0.375	50.50%
Norway	4,600,644	2,288,000	0.04	49.70%
Italy	58,608,565	28,610,000	1.167	48.80%
Estonia	1,344,840	621,000	0.694	46.20%
Austria	8,163,782	3,730,000	0.776	45.70%
France	60,293,927	25,046,299	1.947	41.50%
Latvia	2,306,489	936,000	5.24	40.60%
Slovenia	1,956,916	750,000	1.5	38.30%
Luxembourg	455,581	170,000	0.7	37.30%
Belgium	10,443,012	3,769,123	0.885	36.10%
Andorra	68,584	24,500	3.9	35.70%
Portugal	10,463,170	3,600,000	0.44	34.40%
Ireland	4,027,303	1,319,608	0.683	32.80%
Spain	43,435,136	14,095,451	1.616	32.50%
Israel	6,986,639	2,000,000	0.575	28.60%
Czech Republic	10,230,271	2,700,000	1.7	26.40%
Slovakia	5,379,455	1,375,800	1.117	25.60%
Hungary	10,083,477	2,400,000	2.357	23.80%
Poland	38,133,891	8,970,000	2.204	23.50%
Bulgaria	7,521,066	1,545,100	2.593	20.50%
Greece	11,212,468	1,718,400	0.718	15.30%
Turkey	73,598,181	5,500,000	1.75	7.50%
China	1,282,198,289	94,000,000	3.178	7.30%
Russia	144,003,901	6,000,000	0.935	4.20%
India	1,094,870,677	18,481,000	2.696	1.70%
European Union	459,938,780	206,196,749	1.213	44.80%
Europe	730,991,138	230,923,361	1.24	31.60%
Asia	3,612,363,185	266,742,420	1.334	7.40%

Source: http://www.Internetworldstats.com/stats.htm. February 15, 2005.

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Annex 3: Disclosure Items, Number of ISE Firms Disclosing Items and Percent of ISE Firms Disclosing Items

	Items	Number of ISE firms disclosing items	Percent of ISE firms disclosing items		Items	Number of ISE firms disclosing items	Percent of ISE firms disclosing items
1	2	3	4	5	6	7	8
A. General Items							
1	Web site available	222	87.75%	14	Search box (or link to search page)	67	26.48%
2	Text only alternative available	0	0.00%	15	Page divided into frames	2	0.79%
3	Graphic images	173	68.38%	16	Corp information (address, email)	200	79.05%
4	*Animated imaged*	118	46.64%	17	Organizational Structure	20	7.91%
5	Sound files	15	5.93%	18	News summaries or press releases	110	43.48%
6	Video files	10	3.95%	19	Latest stock price on home page	22	8.70%
7	Advertisements for their own products or services	83	32.81%	20	*Narrative*	6	2.37%
8	Links to product and sales information	122	48.22%	21	Multiple languages	158	62.45%
9	Goods or services sold online (e-commerce)	30	11.86%	22	Information about Update	0	0.00%
10	*Promotional items*	5	1.98%	23	FAQs	16	6.32%
11	*Other companies' products*	3	1.19%	24	Link to investor relations	59	23.32%
12	*E-commerce assurance logos or seals*	0	0.00%	25	Direct link to annual report on home pages	13	5.14%
13	Table of contents (or site index)	91	35.97%				
B. Investors Relations Items							
1	Email address to investor relations	14	5.53%	11	Site map	4	1.58%
2	Phone number to investor relations	12	4.74%	12	Search box	0	0.00%
3	Postal address to investor relations	12	4.74%	13	*Next/previous button to navigate sequentially*	1	0.40%
4	Graphic images	10	3.95%	14	*Annual report format PDF*	47	18.58%
5	*Animated graphics*	6	2.37%	15	Proxy statement in IR area	0	0.00%
6	Sound	0	0.00%	16	Board of directors and officers	26	10.28%
7	Video	0	0.00%	17	*Profiles or biographies*	8	3.16%
8	Annual report	64	25.30%	18	Latest stock price	15	5.93%
9	*Table of contents*	38	15.02%	19	*Narrative*	6	2.37%
10	*Alphabetical index*	1	0.40%				
C. Annual Report Items							
1	Chairman's message to shareholders	51	20.16%	33	Statement of income	54	21.34%
2	*Photo*	37	14.62%	34	*Previous years*	51	20.16%
3	*Signature*	36	14.23%	35	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%

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1	2	3	4	5	6	7	8
4	Company profile	54	21.34%	36	*Downloadable spreadsheet*	2	0.79%
5	Customer profile	9	3.56%	37	*Notes to financial statements*	47	18.58%
6	Employee profile	9	3.56%	38	Statement of cash flows	41	16.21%
7	Market outlook	42	16.60%	39	*Previous years*	38	15.02%
8	Corporate citizenship	5	1.98%	40	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%
9	Vision statement	14	5.53%	41	*Downloadable spreadsheet*	2	0.79%
10	Stock price performance	8	3.16%	42	Statement of funds flows	20	7.91%
11	*Narrative*	3	1.19%	43	*Previous years*	19	7.51%
12	Techniques to let users know they are inside annual report as they move from page to page	1	0.40%	44	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%
13	Colored graphic borders	35	13.83%	45	*Downloadable spreadsheet*	2	0.79%
14	Background colors or graphics	43	17.00%	46	Statement of shareholders' equity	23	9.09%
15	Dialog box that pops up to indicate that the user is leaving the annual report	0	0.00%	47	*Previous years*	22	8.70%
16	Separate area where financial statements can be downloaded in spreadsheet format	1	0.40%	48	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%
17	Years available	29	11.46%	49	*Downloadable spreadsheet*	0	0.00%
18	*Two years available*	34	13.44%	50	Statement of cost of sales	10	3.95%
19	*Three and more years available*	25	9.88%	51	*Previous years*	10	3.95%
20	Financial highlight/summary	47	18.58%	52	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%
21	*Previous years*	39	15.42%	53	*Downloadable spreadsheet*	1	0.40%
22	*F/S as graphic (e.g. GIF, JPG)*	1	0.40%	54	Statement of proposed profit distribution	27	10.67%
23	*Downloadable spreadsheet*	2	0.79%	55	*Previous years*	17	6.72%
24	Consolidated statement of operations	0	0.00%	56	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%
25	*Number of years shown*	0	0.00%	57	*Downloadable spreadsheet*	1	0.40%
26	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%	58	Auditor's report	46	18.18%
27	*Downloadable spreadsheet*	0	0.00%	59	*Includes auditor's signatures*	29	11.46%
28	Statement of balance sheet	54	21.34%	60	Segment report	1	0.40%
29	*Previous years*	52	20.55%	61	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%
30	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%	62	*Downloadable spreadsheet*	0	0.00%
31	*Downloadable spreadsheet*	2	0.79%	63	Board of directors and officers	34	13.44%
32	*Notes to financial statements*	49	19.37%	64	*Profiles or biographies*	5	1.98%

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1	2	3	4	5	6	7	8
D. Other items in financial and business reporting web pages not in annual report itself							
1	Financial high-light/summary	18	7.11%	29	Statement of funds flows	7	2.77%
2	*Previous years*	15	5.93%	30	*Previous years*	6	2.37%
3	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%	31	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%
4	*Downloadable spreadsheet*	1	0.40%	32	*Downloadable spread-sheet*	3	1.19%
5	Auditor's report	21	8.30%	33	Statement of shareholders' equity	14	5.53%
6	*Includes auditor's signatures*	10	3.95%	34	*Previous years*	12	4.74%
7	Segment report	0	0.00%	35	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%
8	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%	36	*Downloadable spread-sheet*	4	1.58%
9	*Downloadable spreadsheet*	0	0.00%	37	Statement of cost of sales	4	1.58%
10	Quarterly statements	28	11.07%	38	*Previous years*	4	1.58%
11	Consolidated statement of operations	5	1.98%	39	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%
12	*Previous years*	2	0.79%	40	*Downloadable spread-sheet*	1	0.40%
13	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%	41	Statement of proposed profit distribution	6	2.37%
14	*Downloadable spreadsheet*	2	0.79%	42	*Previous years*	5	1.98%
15	Statement of balance sheet	63	24.90%	43	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%
16	*Previous years*	61	24.11%	44	*Downloadable spread-sheet*	3	1.19%
17	*F/S as graphic (e.g. GIF, JPG)*	2	0.79%	45	Board of directors and officers	26	10.28%
18	*Downloadable spreadsheet*	19	7.51%	46	*Profiles or biographies*	6	2.37%
19	Notes to financial statements	38	15.02%	47	Press releases	45	17.79%
20	Statement of income	55	21.74%	48	Proxy statement	0	0.00%
21	*Previous years*	52	20.55%	49	Analyst' reports or link to analysts who follow the company's stock	8	3.16%
22	*F/S as graphic (e.g. GIF, JPG)*	4	1.58%	50	Factbooks or other information supplied to analysts	8	3.16%
23	*Downloadable spreadsheet*	21	8.30%	51	Graphing or other analysis tools that users can tailor to their own use	2	0.79%
24	Notes to financial statements	32	12.65%	52	Links to data on a third-party's web site	42	16.60%
25	Statement of cash flows	20	7.91%	53	Quarterly reports	13	5.14%
26	*Previous years*	16	6.32%	54	Special filings	1	0.40%
27	*F/S as graphic (e.g. GIF, JPG)*	0	0.00%	55	Monthly or weekly sales or operating data	1	0.40%
28	*Downloadable spreadsheet*	6	2.37%	56	Industry statistics or data	4	1.58%

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