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Association between firm characteristics and corporate voluntary disclosure: Evidence from Turkish listed companies

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Abstract

Purpose: This paper empirically investigates the factors that impact voluntary information disclosure level of Turkish manufacturing companies listed in the Borsa Istanbul (BIST).

Design/methodology/approach: The data collection methodology of the study is content analysis of annual reports of the corporations listed on the BIST for the year 2010. In order to analyze the results, we employed Ordinary Least Square (OLS) and Two-Stage Least Squares (2SLS) regressions to examine the association between the explanatory variables and voluntary disclosure level.

Findings: The findings provide evidence of a positive association between voluntary information disclosure level and the variables such as firm size, auditing firm size, proportion of independent directors on the board, institutional/corporate ownership, and corporate governance. However, leverage and ownership diffusion were found to have negative significant association with the extent of voluntary disclosure. The remaining variables, namely, profitability, listing age, and board size were found to be insignificant.

Research limitations/implications: The study has got some implications for emerging markets particularly. Voluntary disclosure contributes to alleviate the agency

costs arising from information asymmetry, makes the firms more transparent and accountable, and opens the way for capital flow emerging markets need to finance growth. Therefore, the subject is quite important for emerging markets. The study has some implications for firms, auditors, investors, and regulators. All these parties play an important role in improving the transparency and disclosure practices of corporations. Since this study was conducted solely on listed manufacturing companies, the results may not be generalizable to non-listed and non-manufacturing industries.

Originality/value: We extend previous research on the determinants of voluntary information disclosure in the emerging market context.

Keywords: Corporate reporting, Firm characteristics, Voluntary disclosure, Annual reports, Turkey

Jel Codes: G34, M40, M41

Introduction

Business organizations have become aware of the importance of presenting information about the broader range of activities including both their financial performance and non-financial performance such as socially responsible performance (Akisik & Gal, 2011). After corporate scandals and financial crises, regulators, academicians, investors and other stakeholders called for greater corporate transparency from the business world. Greater corporate transparency means decreasing information asymmetry between managers and stakeholders by better information disclosure via various media such as press releases, corporate web sites, prospectuses, and annual reports.

In the relevant literature, information disclosure is categorized as mandatory disclosure and voluntary disclosure. Mandatory disclosure primarily focuses on presentation of financial statements and their complementary footnotes which are required by regulations and laws, whereas voluntary disclosure allows the management the freedom to choose which information to disclose (Uyar & Kılıç, 2012a).

One of the main rights of investors is to get informed by the companies they invest. Because, they are outside the business and they make decision regarding their investments depending on the information disclosed in corporate reports. Thus, providing sufficient information for investors on corporate reports is quite important. In recent years, corporate reports are expanding their scope by covering non-financial activities of the firms along with financial

results. As a result of comprehensive public disclosure, investors and other stakeholders are becoming more aware of companies' financial results and also non-financial aspects such as social responsibility, environment, employees, customers, and so on. Doing so, firms will reduce the asymmetric information problem between stakeholders and the managers, reduce agency costs, and legitimize their activities. Moreover, Singhvi and Desai (1971) indicated that inadequate disclosures in annual reports are likely to cause fluctuations in the share prices since investment decisions are based on less objective measures in the absence of sufficient information. Furthermore, firms which have low level of transparency might have difficulty in finding capital to finance its operations or they might incur higher cost of capital (more information Elliott & Jacobson, 1994).

Turkey is of great interest due to the following reasons. The Turkish economy has shown remarkable performance in recent years and has been one of the fastest growing economies in the world. Major structural reforms, hastened by Turkey's EU (European Union) accession process and fiscal policies have integrated the Turkish economy into the globalized world. Furthermore, regulations regarding capital markets and harmonization efforts in accounting have taken place in the country. Accounting standards which are fully harmonized with IAS/IFRS (International Accounting Standards/International Financial Reporting Standards) have been published by Banking Regulation and Supervision Agency for financial institutions, and by the Capital Markets Board for the publicly traded companies have been implemented since 2005 (Alp & Ustundag, 2009). In late 2010, TFRS (Turkish Financial Reporting Standards) compatible with IFRS for SMEs (International Financial Reporting Standards for Small and Medium-Sized Enterprises) were enacted. In early 2011, new Turkish Commercial Code was promulgated. In order to promote transparency, Corporate Governance Principles (CGP) of Turkey was issued by the Capital Markets Board, which is the regulatory and supervisory authority in charge of the securities markets in Turkey, in June 2003 for the first time and amended in February 2005 (CMB, 2005).

This study investigates the determinants of voluntary disclosure in an emerging market context, namely Turkey. Emerging capital markets break from those of developed countries in several aspects: they have high growth potential, relatively weak regulatory environment, weak corporate governance leading to expropriation of minority shareholders, and low information disclosure levels causing a high information gap between managers and investors (Uyar & Kiliç, 2012b). Thus, this study aims at attracting the attention of regulatory bodies and firms to improve the weak transparency in emerging markets. The findings of the study have implications for firms, regulatory bodies, and emerging markets. Understanding the determinants of voluntary disclosure is important since regulators can use this information to promote corporate transparency. In addition, managers may realize the importance of

information disclosure and learn the determinants of better disclosure practices. This will result in better provision of information to stakeholders. Thus, investors will make more healthy decisions regarding their investing activities.

The remainder of the paper is organized as follows: Section 2 provides literature review. Section 3 develops the hypotheses. In Section 4, the research methodology is explained. Section 5 analyzes the results. Finally, Section 6 and 7 concludes the paper, explains limitations and makes recommendations for further research.

Literature review

Many researchers cite the work of Cerf (1961) as the starting point of empirical studies regarding disclosure level in annual reports. Since then, the topic has attracted great attention of academicians from both developed and developing countries. Earlier empirical studies were mostly conducted in developed countries, and then developing or less developed countries started to follow them. Moreover, in prior studies, the number of variables and the number of items in the disclosure list were lesser than those of current studies. One of the earlier studies conducted in the US by Singhvi and Desai (1971) based on a 34-item disclosure checklist, and they found that listing status of the firms affect disclosure quality. Another study carried out in Sweden proved the same significant association between quotation status and voluntary disclosure (Cooke, 1989). Later on, Forker (1992) conducted a study on the UK quoted companies, and he found a weak support for the association between internal monitoring and share option disclosure quality. In the last decade, a sizeable number of disclosure studies also conducted in other countries such as China (Cheung, Jiang & Tan, 2010), Singapore (Cheng & Courtenay, 2006), Turkey (Aksu & Kosedag, 2006), Hong Kong (Gul & Leung, 2004), Ghana (Bokpin & Isshaq, 2009), Malaysia (Haniffa & Cooke, 2002; Haat, Rahman & Mahenthiran, 2008), Qatar (Naser, Al-Hussaini, Al-Kwari & Nuseibeh, 2006), Saudi Arabia (Alsaeed, 2006). While earlier studies mostly evaluated the association between certain firm characteristics such as firm size, profitability, leverage, auditor size and voluntary disclosure level, recent studies have investigated the association between corporate governance attributes and ownership structure along with the variables in earlier studies and voluntary disclosure level. Ahmed and Courtis (1999) conducted meta-analysis based on 29 disclosure studies between 1968 and 1997 by using variables such as corporate size, listing status, leverage, profitability, and audit firm size. They confirmed significant and positive relationships between disclosure levels and corporate size, listing status, and leverage, but they found no significant association between disclosure levels and profitability, and audit firm size.

While there are many overall voluntary disclosure studies published previously, there are also specific disclosure studies focusing on subjects such as environmental disclosures, human

resource disclosures, forward-looking information disclosures, graphical disclosures, and financial ratio disclosures. Providing voluntary disclosure and behaving in a socially responsible manner pays in such a way that communicating (reporting) firms have statistically significant higher market valuation, higher return on assets and return on equity, lower cost of debt, lower cost of equity, and lower beta indicating better performance and less risk (Kimbro & Cao, 2011).

Previously, Aksu and Kosedag (2006) have conducted a study in Turkey regarding the determinants of voluntary disclosure level. They evaluated transparency and disclosure practices of 52 largest and most liquid companies listed on the Istanbul Stock Exchange (currently, the official name of the stock exchange in Turkey is Borsa Istanbul (BIST), it was named as Istanbul Stock Exchange previously) by analyzing 2003 annual reports and web sites. They used five independent variables, namely, free cash flow, accounting performance (return on equity), leverage, size (market capitalization), and market-to-book ratio. They found size and market-to-book ratio are significant in explaining variations in transparency and disclosure score.

Several theories have been used by earlier researchers to explain why firms are engaged in disclosing information voluntarily. The most frequently used ones are agency theory, signalling theory, legitimacy theory, and stakeholder theory (Cooke, 1989; Freedman & Jaggi, 2005; Healy & Palepu, 2001; Hossain, Perera & Abdul Rahman, 1995; Marston, 2003; Marston & Polei, 2004; Naser et al., 2006; Oyelere, Laswad & Fisher, 2003; Watson, Shrives & Marston, 2002).

Agency theory expresses the relationship between the managers and shareholders of a firm and explains why managers try to maximize their own benefit (Jensen & Meckling, 1976). Agency costs are incurred resulting from the conflict of interests and information asymmetry between owners and managers. Thus, managers are expected to disclose more information to reduce agency costs (Hossain et al., 1995; Watson et al., 2002; Marston, 2003; Oyelere et al., 2003; Marston & Polei, 2004; Barako, Hancock & Izan, 2006; Hassan, Giorgioni, Romilly & Power, 2009).

Another theory that explains voluntary information disclosure practices is signalling theory. This theory suggests that managers need to disclose more information to lower information asymmetry between investors and themselves. The users of financial reporting need confidence of financial markets; information disclosure will increase this confidence (Hossain & Hammami, 2009). Thus, the investors will feel safer with the increased level of voluntary information disclosure.

According to legitimacy theory, the firm tries to justify its existence in society by legitimizing its activities (Naser et al., 2006). Firms should behave in accordance with perceived goals of the society to alleviate the public pressures and to legitimize their activities (Lindblom, 1994; Freedman & Jaggi, 2005; Sobhani, Amran & Zainuddin, 2009; Belal & Cooper, 2011). One important way for firms to legitimize their activities is to disclose information to the public. Hence, they need more information disclosure.

Finally, stakeholder theory can be used to explain why firms tend to disclose information voluntarily. Stakeholders are the parties that have interest in the firm, and therefore, are interested in firms' activities. Stakeholders include the managers, stockholders, creditors, customers, suppliers, government, trade unions, and the general public (Uyar & Kılıç, 2012a). In order to gain the support of stakeholders, the companies should communicate with their stakeholders (Smith, Adhikari & Tondkar, 2005). Thus, the stakeholders' demand for more information motivates companies to disclose information voluntarily.

Despite the motivations and advantages of disclosing voluntary information, however, some firms refrain themselves from disclosing information due to the following reasons: cost of gathering, processing, and publishing information; fear of damaging the competitive position of the firm (Healy & Palepu, 2001), and not preferring to disclose unfavourable news to avoid the costs associated with disclosure (Beyer, Cohen, Lys & Walther, 2010).

Hypotheses development

Institutional/Corporate ownership

Although, institutions are considered one of the types of block holder ownership (Eng & Mak, 2003), there is not sufficient empirical evidence in relation to association between institutional ownership and voluntary disclosure level. Two studies found no significant association between these two variables (Haniffa & Cooke, 2002; Eng & Mak, 2003). However, Healy, Hutton and Palepu (1999) argued that one of the potential benefits of expanded disclosures is increasing institutional analyst interest. Their findings from both univariate test and multivariate analysis were consistent with their hypotheses that expanded disclosure is associated with increased growth in institutional ownership (Healy et al., 1999). Bushee and Noe (2000) also provided evidence on the impact of corporate disclosure practices on the composition of a firm's institutional investor base. El-Gazzar (1998) argues that large institutional ownership may induce a higher voluntary disclosure level. Thus, the following hypothesis is formulated:

- H1. There is a positive association between proportion of shares held by institutional/corporate investors and the level of voluntary disclosure.

Ownership diffusion/dispersion

Diffuse ownership is beneficial in terms of an optimal allocation of risk bearing, but as a consequence, the firm's shareholders are generally too diversified to take much direct interest in a particular firm (Fama, 1980). Hence, there is an increased need for monitoring in firms whose ownership is diffused (Eng & Mak, 2003). Prior studies have investigated the relationship between ownership structure and voluntary disclosure practices of the corporations (Singhvi & Desai, 1971; Malone, Fries & Jones, 1993; Raffournier, 1995; Patelli & Prencipe, 2007; Aripin, Tower & Taylor, 2009). Malone et al. (1993) point out that as the number of shareholders increases, financial disclosures are expected to increase. Singhvi and Desai (1971) state that there may be a positive association between the number of stockholders and the quality of disclosure in annual reports. Moreover, Raffournier (1995) argues that agency relations may play a major role in the disclosure policy of companies because annual reports can be used to reduce monitoring costs. Hence, he believes that managers of firms with diffuse ownership are motivated to disclose more information to help shareholders monitor their behaviour. However, Raffournier (1995) and Alsaeed (2006) found no significant association between ownership diffusion and the level of voluntary disclosure, whereas Patelli and Prencipe (2007) found positive significant relationship. Thus, the following is hypothesized:

- H2. There is a positive association between a firm's ownership diffusion and the level of voluntary disclosure.

In this study, ownership diffusion is defined as the percentage of shares not held by known shareholders (Raffournier, 1995).

Independent directors

One of the variables increasingly used in recent disclosure studies is the ratio of independent directors on the board. Inclusion of outside directors on the board might enhance the viability of the board as an internal control mechanism (Fama, 1980), prevent expropriation of security holder wealth (Fama, 1980), attenuate agency costs (Forker, 1992) and create pressure for better disclosure (Forker, 1992). Generally, the terms, 'independent non-executive directors' (Chen & Jaggi, 2000; Ho & Wong, 2001; Chau & Gray, 2010), 'independent directors' (Cheng & Courtenay, 2006), 'non-executive directors' (Forker, 1992; Haniffa & Cooke, 2002; Hossain & Reaz, 2007) and 'outside directors' (Eng & Mak, 2003) are interchangeably used to define this variable. If independent directors on the board actually conduct their controlling and monitoring role, good corporate governance is strengthened (Chau & Gray, 2010), boards' effectiveness is enhanced (Haniffa & Cooke, 2002), disclosure quality is improved (Forker, 1992) and more information disclosure is expected (Haniffa & Cooke, 2002; Eng & Mak, 2003).

The results of previous studies are not consistent in relation to the association between proportion of independent directors on the board and the level of voluntary disclosure. Some studies found positive significant association between the two variables (Cheng & Courtenay, 2006; Huafang & Jianguo, 2007; Patelli & Prencipe, 2007; Chau & Gray, 2010), two studies found negative association (Eng & Mak, 2003; Gul & Leung, 2004) and some others found no significant association (Forker, 1992; Ho & Wong, 2001; Haniffa & Cooke, 2002; Hossain & Reaz, 2007). Thus, the following is hypothesized:

- H3. There is a positive association between proportion of independent directors on the board and the level of voluntary disclosure.

Board size

John and Senbet (1998) state that while the board's monitoring capacity increases parallel to board size, the benefits may be outweighed by the incremental cost of poorer communication and decision-making associated with larger groups. Thus, limiting the size of the board may improve efficiency. Although Samaha, Dahawy, Abdel-Meguid and Abdallah (2012) found that companies with larger boards have greater corporate internet reporting comprehensiveness, Cheng and Courtenay (2006) state that there is no theory or empirical evidence to suggest an association between board size and voluntary disclosure level, they tested their hypothesis and found no significant association. Thus, we develop the hypothesis based on the finding of Samaha et al. (2012) as follows:

- H4. There is a positive association between board size and the level of voluntary disclosure.

Corporate governance index (XCORP) of the Borsa Istanbul (BIST)

Aksu and Kosedag (2006) state that expected benefits of good corporate governance, and transparency and disclosure practices are especially important for emerging markets like Turkey which grow faster than developed countries, and therefore, needs external capital. Bokpin and Isshaq (2009) views high information disclosure level as the symptom of quality corporate governance practices. In order to ensure investor protection and to promote transparency, Corporate Governance Principles of Turkey (CGP) was issued by the Capital Markets Board in June 2003 for the first time and amended in February 2005 (CMB, 2005). The XCORP of the BIST is established to measure the price and return performances of the companies traded on the BIST markets, determining corporate governance rating grades according to the CGP issued by the Capital Markets Board (BIST, 2009). The companies listed in this index implement the best practices of corporate governance principles including public

disclosure and transparency. Previously, Uyar (2012) investigated the association between listing in the XCORP and disclosure level on the corporate web sites, and found significant positive association between the two variables. Hence, the following hypothesis is formulated:

- H5. There is a positive association between listing in the XCORP of the BIST and the level of voluntary disclosure.

Listing age

Owusu-Ansah (1998: page 614) explains why the extent of a company's information disclosure may be influenced by its age. He mentions three factors in this regard: younger companies may suffer competitive disadvantage; gathering, processing and disseminating information may be more costly and onerous for younger firms; younger companies may lack a 'track record' on which they can rely for public disclosure. Several previous studies used firm age variable. While, Hossain and Hammami (2009) found positive significant association between firm age and disclosure level, Alsaeed (2006) and Hossain and Reaz (2007) found no significant association.

Moreover, Haniffa and Cooke (2002) utilized listing age in their study. Listing age has not been tested at all in earlier studies, and therefore, there is not much empirical evidence pertaining to this variable. This approach has been adopted in this study as well. Listing age is the length of time a company has been listed on a capital market, and it may be relevant in explaining the voluntary disclosure level (Haniffa & Cooke, 2002). Haniffa and Cooke (2002) investigated the association between listing age and the extent of voluntary disclosure, and found no significant association between the two variables. Thus, the following hypothesis has been developed:

- H6. There is a positive association between listing age and the level of voluntary disclosure.

Firm size

Inchausti (1997) argued that information disclosures may be used to decrease agency costs, to reduce information asymmetries between the company and the providers of funds, and to reduce political costs. The reasons for large firms' tendency to disclose more information are explained by Singhvi and Desai (1971) as follows: accumulation and disclosure cost of information is not high compared to smaller firms; management of larger corporations is likely to realize the possible benefits of information disclosure, such as greater marketability and greater ease of financing; smaller corporations may feel that full information disclosure may endanger their competitive position. In addition, since larger firms are more exposed to public

scrutiny than smaller firms, they are inclined to disclose more information (Alsaeed, 2006). Large firms are likely to be more complex and complexity requires more disclosure (Cooke, 1989). Many previous studies have supported a positive association between firm size and voluntary disclosure level (Wallace, Naser & Mora, 1994; Inchausti, 1997; Eng & Mak, 2003; Aksu & Kosedag, 2006; Alsaeed, 2006; Hossain & Reaz, 2007; Huafang & Jianguo, 2007; Hossain & Hammami, 2009;Uyar, 2009; Chau & Gray, 2010). Thus, the hypothesis has been developed as:

- H7. There is a positive association between firm size and the level of voluntary disclosure.

Profitability

Agency theory suggests that managers of profitable firms tend to disclose more information to support the continuance of their positions and compensation arrangements (Inchausti, 1997). Signalling theory implies that when company performance is good, companies will be more inclined to signal their quality to investors (Inchausti, 1997; Watson et al., 2002). Political process theory argues that firms disclose more information in order to justify the level of profits (Inchausti, 1997). In addition, management of a profitable firm may wish to disclose more information to the public to promote a positive impression (Alsaeed, 2006). The empirical evidence, however, is mixed. Haniffa and Cooke (2002), Gul and Leung (2004) and Cheng and Courtenay (2006) found positive significant association, whereas Ho and Wong (2001), Alsaeed (2006), Hossain and Hammami (2009), Wallace et al. (1994), Inchausti (1997), and Chau and Gray (2010) found no significant association. In view of these findings, the hypothesis has been developed as:

- H8. There is a positive association between profitability and the level of voluntary disclosure.

Leverage

Leverage describes a company's financial structure, and measures the long term risk implied by that structure (Watson et al., 2002). Previous studies have largely used agency theory to explain the relationship between leverage and corporate disclosure (Hossain et al., 1995; Inchausti, 1997; Watson et al., 2002; Alsaeed, 2006; Abdullah & Ku Ismail, 2008). Firms which have higher debt in their capital structure are prone to higher agency cost (Alsaeed, 2006). Information disclosure may be used to avoid agency costs and to reduce information asymmetries (Inchausti, 1997). Hence, it is argued that leveraged firms have to disclose more information to satisfy information needs of the creditors (Uyar & Kılıç, 2012a). Many of the

previous studies proved no significant association between leverage and the level of voluntary disclosure (Wallace et al., 1994; Inchausti, 1997; Ho & Wong, 2001; Aksu & Kosedag, 2006; Alsaeed, 2006; Huafang & Jianguo, 2007; Chau & Gray, 2010), while some found a positive significant association (Malone et al., 1993; Hossain et al., 1995). In contrast, surprisingly, Eng and Mak (2003) found a negative significant association. Hence, the following hypothesis was formulated:

- H9. There is a positive association between leverage and the level of voluntary disclosure.

Auditor size

The size of the audit firm has been related to the voluntary disclosure level in many previous studies. Many of them hypothesized that there is a positive association between audit firm size and disclosure level. The justification for positive association is that Big-4 audit firms have greater experience since they are international firms, and they do not just audit annual reports and accounts, but also influence them (Wallace et al., 1994). Auditing firms may use the information disclosed by their clients as a means of signalling their own quality (Inchausti, 1997). Furthermore, they are more concerned with their reputation and, therefore, require higher disclosure from their clients (Alsaeed, 2006). Hence, clients of Big-4 audit firms are expected to disclose higher levels of information. Although some studies found significant positive association between auditor size and the level of voluntary disclosure (Singhvi & Desai, 1971; Inchausti, 1997; Patton & Zelenka, 1997; Uyar, 2011), others found insignificant association (Wallace et al., 1994; Alsaeed, 2006; Huafang & Jianguo, 2007; Chau & Gray, 2010). Thus, the hypothesis has been developed:

- H10: There is a positive association between auditor size and the level of voluntary disclosure.

Research methodology

Data

The sample of the study consists of manufacturing companies listed on the BIST at the end of the year 2010. Initial sample included 138 manufacturing companies. We downloaded annual reports of corporations for the year 2010 from corporate web sites. However, annual reports of some firms were unavailable on corporate web sites. We requested annual reports of those companies by the e-mail. Most of them have replied positively and provided us with annual reports. Hence, final sample includes 131 corporations. We hand-collected data regarding 96 voluntary disclosure items (see Appendix A) and other variables used in the analysis.

Voluntary disclosure index

Previous studies have mostly utilized disclosure check lists to collect voluntary disclosure data. Hossain and Hammami (2009) state that selection of voluntary disclosure items is a subjective judgment depending on the nature and context of the industry and country context. However, the consistency in many disclosure items can be realized across previous studies when checklists examined. The checklist of this study was constructed by examining a wide range of recent studies from various countries (Cormier & Gordon, 2001; Watson et al., 2002; Aksu & Kosedag, 2006; Alsaeed, 2006; Boesso & Kumar, 2007; Hossain & Reaz, 2007; Huafang & Jianguo, 2007; Lim, Matolcsy & Chow, 2007; Tsamenyi, Enninful-Adu & Onumah, 2007; Haat et al., 2008; Eng & Mak, 2003; Hossain & Hammami, 2009; Chau & Gray, 2010; Cheung et al., 2010; Depoers & Jeanjean, 2010; Lopes & Alencar, 2010; Mun, Courtenay & Rahman, 2011). The 96-item check list is categorized under 12 subtitles, namely, general information, corporate strategy, corporate governance, financial performance, key non-financial information, forward-looking information, employee disclosure, social responsibility, environmental disclosure, segment reporting, risk management, and customer and supplier disclosure. The checklist is reported in Appendix A.

To determine the disclosure level of voluntary items, earlier studies have utilized two approaches: weighted (Botosan, 1997; Ho & Wong, 2001; Patelli & Prencipe, 2007) or unweighted index (Cooke, 1989; Meek, Gray & Roberts, 1995; Alsaeed, 2006; Huafang & Jianguo, 2007; Hossain & Hammami, 2009; Chau & Gray, 2010). The utilization of a weighted disclosure index has been criticised since it may introduce a bias towards a particular user-orientation (Barako et al., 2006), and is based on a subjective importance rating ranked by the researchers (Alsaeed, 2006). Therefore, we adopted unweighted index in this research. In unweighted index, each item of disclosure is considered equally important (Cooke, 1989). Coding procedure was carried out with one co-author of the paper, but questionable disclosure items were discussed during the coding process by co-authors. Coding done by one author provides stability (the extent to which the same coder is consistent over time when coding the same content) which is considered as one of the reliability types (Krippendorff, 1980 in Beattie, McInnes & Fearnley, 2004). Disclosure level of a company was calculated by dichotomous procedure which assigns a score of one if a corporation discloses an item and a score of zero if it does not (Cooke, 1989; Huafang & Jianguo, 2007; Hossain & Hammami, 2009). Accordingly, the voluntary disclosure index (VDINDEX) for each company was calculated as follows (Cooke, 1989; Hossain & Reaz, 2007; Hossain & Hammami, 2009):

$$VDINDEX = \sum_{j=1} \frac{dj}{n}$$

where:

dj=1 if the item j is disclosed

0 if the item j is not disclosed

n=number of items

We have used $DSCORE = Log\left(\frac{VDINDEX}{1-VDINDEX}\right)$ as the dependent variable in the models.

Model development

We employed Ordinary Least Square (OLS) and Two-Stage Least Squares (2SLS) regressions to examine the association between the explanatory variables and voluntary disclosure level. Since there are multicollinearity problem between SALES and ASSETS, FFLOAT and INSOWN, as explained in the analysis and results section, these pairs of variables are not included in the models at the same time. Hence, the following models are established:

DSCORE=β_0 + β_1 SALES + β_2 ROE + β_3 LEVER + β_4 AUDITOR + β_5 FFLOAT + β_6 BSIZE + β_7INDIR+ β_8 LAGE + β_9 XCORP + ε   (1)

DSCORE=β_0 + β_1 SALES + β_2 ROE + β_3 LEVER + β_4 AUDITOR + β_5 INSOWN + β_6 BSIZE + β_7INDIR+ β_8 LAGE + β_9 XCORP + ε   (2)

DSCORE=β_0 + β_1 ASSETS + β_2 ROE + β_3 LEVER + β_4 AUDITOR + β_5 FFLOAT + β_6 BSIZE + β_7INDIR+ β_8 LAGE + β_9 XCORP + ε   (3)

DSCORE=β_0 + β_1 ASSETS + β_2 ROE + β_3 LEVER + β_4 AUDITOR + β_5 INSOWN + β_6 BSIZE + β_7INDIR+ β_8 LAGE + β_9 XCORP + ε   (4)

where:

$DSCORE = Log\left(\frac{VDINDEX}{1-VDINDEX}\right)$ such that VDINDEX is the ratio of total items disclosed to maximum score for firm;

SALES=total sales revenues;

ASSETS=total assets;

ROE=return on equity;

LEVER=leverage as measured by total liabilities divided by total assets;

AUDITOR=dummy variable for audit firm size, coded as 1 for Big-4 and 0 otherwise;

FFLOAT=Free float rate (i.e. percentage of shares held by unknown shareholders);

INSOWN=Institutional/corporate ownership (i.e. shares held by institutions and other corporations);

BSIZE=number of board members;

INDIR=proportion of independent directors on the board;

LAGE=listing age; and

XCORP= Listing in Corporate Governance Index of BIST, coded 1 for listing, 0 otherwise.

In the regression models above, SALES, INSOWN, and FFLOAT variables are potentially endogenous. Endogeneity is that there is a two way relationship between the dependent variable and some of the explanatory variables. In such a case, unlike the single equation models the system must be solved simultaneously (Gujarati & Porter, 2009). The result of endogeneity is that a regressor is correlated with the error-term and therefore OLS will lead to biased and inconsistent estimates. If there is no endogeneity, it is more efficient to use OLS. In endogeneity case, since OLS is biased and inconsistent, 2SLS is the best. The method of instrumental variables (IV) uses 2SLS. Instruments are new exogenous variables and not correlated with the error. In our model whether the SALES, INSOWN and FFLOAT variables are endogenous were determined by Durbin-Wu-Hausman Test. This test is formed by including the residuals of each endogenous variable as a function of all exogenous variables in a regression of the original model. Endogeneity is tested by using a t-test of the residuals in the regression model. Rejecting the null hypotheses indicates that the effects of endogenous regressors on the estimates are meaningful and instrumental variables methods are necessary. In the first model, since there is a suspicion that SALES and FFLOAT are endogenous variables, we choose owners' equity as potential instrumental variable for SALES and net profit and owners' equity for FFLOAT. Owners' equity doesn't seem to affect DSCORE but is a good predictor for SALES. Similarly net profit and owners' equity are not expected to affect directly DSCORE but affecting FFLOAT. In the second model potential endogenous variables are SALES and INSOWN. Instrumental variables for INSOWN are net profit and owners' equity like FFLOAT due to the high correlation and complementary situation between FFLOAT and INSOWN. A similar high correlation exists between SALES and ASSETS, therefore instrumental variable for SALES can also be used for ASSETS in the third and fourth models. When we test the

statistical significance of the coefficients on the residuals in the structural equations for each model separately by the Hausman Test, we find that SALES is the only endogenous variable at 10% level of significance. Other suspected variables in all the models are exogenous. The significance levels of the residuals for the models are as follows,

Model 1: SALES (P=0.056), FFLOAT (P=0.984); Model 2: SALES (P=0.07), INSOWN (P=0.632); Model 3: ASSETS (P=0.531), FFLOAT (P=0.279); Model 4: ASSETS (P=0.175), INSOWN (P=0.230).

As a result 2SLS regression has been run for the first and second models and classical OLS was used for the third and fourth models to find the effects of the variables on DSCORE.

Analysis and results

Descriptive statistics

The sample consisting of 131 manufacturing firms is broken down into seven sectors based on the BIST industry classification as shown in Table 1.

	Frequency	Percent
Food, beverage	18	13.7
Wood, paper, printing	16	12.2
Chemical, petroleum, plastic	21	16.0
Basic metal	14	10.7
Metal products, machinery	22	16.8
Nonmetal mineral products	26	19.8
Textile, leather	14	10.7
Total	131	100.0

Table 1. Industrial Breakdown of Sample Firms

Table 2 indicates descriptive statistics for the dependent and independent variables. The average disclosure index score is 44%, with a wide range of 6% to 80%. Thus, there is a large variety in voluntary disclosure practices among the sample corporations. While there are many profitable firms, there are also unprofitable ones (30 firms). The average return on equity ratio is 3%. The figures for firm size (i.e. sales and assets) are provided as well with average, minimum and maximum values in terms of Turkish Liras (TL). The average of audit firm size with 61% indicates that majority of the firms are clients of Big-4 auditing firms. The average free float rate with a mean of 35.02% shows that the firms' ownership is not diffused at all. On the contrary, the mean of institutional/corporate ownership with 55.79 indicates that substantial portion of ownership belongs to institutions and corporations. 44% average leverage ratio suggests that the firms are not highly leveraged. The board size ranges between 3 to 13 averaging 6.66 members. On average, 5% of board members are independent

directors. This result is quite below the average ratio provided in other studies such as Chen and Jaggi (2000), Chau and Gray (2010), Ho and Wong (2001), respectively, 28.2%, 35%, and 34%. The sample firms' average listing age is 17.67 years. The firms' average listing age is not very high, since the BIST was established at the end of 1985. Finally, the number of firms listed in the Corporate Governance Index of the BIST is 16, and therefore, the average of this variable is 12%.

	Minimum	Maximum	Mean	Std. Deviation
Disclosure score index	0.06	0.80	0.44	0.16
Sales (Turkish Liras)	4,090,310.00	26,165,954,000.00	1,015,119,239.79	2,937,426,045.47
Assets (Turkish Liras)	8,260,970.00	13,918,037,000.00	922,432,224.47	2,015,074,014.31
Return on equity	-0.76	0.56	0.03	0.23
Leverage	0.02	1.04	0.44	0.22
Auditor size	0.00	1.00	0.61	0.49
Free float rate	0.49	95.07	35.02	20.41
Institutional/corporate ownership	0.00	99.28	55.79	27.16
Board Size	3.00	13.00	6.66	2.03
Independent directors	0.00	0.60	0.05	0.11
Listing age	1.00	27.00	17.67	6.09
Listing in Corporate Governance Index of BIST	0.00	1.00	0.12	0.33

Table 2. Descriptive Statistics for All Variables (*N*=131, year 2010)

Table 3 presents means of the sub-disclosure indices. Based on the means, we can compare means of indices and say that general information items (mean=68.9%), financial performance items (mean=62.2%), key non-financial information items (mean=58.7%), and corporate governance items (mean=55.6%) are the most disclosed items among the sub-categories of disclosure items. The lowest disclosure index is found for forward-looking information (mean=17.8%). Means of other sub-categories vary between 30% and 40%. Hence, there is room for Turkish firms to improve themselves in relation to, at least, certain aspects of voluntary disclosure.

	Mean	Std. Deviation
General information index	0.689	0.217
Corporate strategy index	0.342	0.246
Corporate governance index	0.556	0.255
Financial performance index	0.622	0.213
Key non-financial information index	0.587	0.225
Forward-looking information index	0.178	0.207
Employee disclosure index	0.320	0.164
Social responsibility index	0.394	0.347
Environmental disclosure index	0.373	0.288
Segment reporting index	0.347	0.290
Risk management index	0.300	0.220
Customer and supplier disclosure index	0.310	0.180

Table 3. Means of Sub-Disclosure Indices

Univariate analysis

Before proceeding to multivariate tests we should investigate the correlation among the explanatory independent variables and check the existence of multicollinearity. For this purpose, the Pearson Correlation analysis was conducted. Table 4 reports the results of this analysis. According to the results, the disclosure index has significant positive correlation with sales, assets, return on equity, auditor size, institutional/corporate ownership, board size, proportion of independent directors on the boards, listing in the Corporate Governance Index of the BIST. It has significant negative correlation with only ownership diffusion. This implies that the more ownership is diffused, the less information firms are likely to disclose.

Furthermore, high correlation coefficients between sales and assets, and institutional/corporate ownership and free float rate attract the attention. Although 0.80 (Bryman & Cramer, 2001) or 0.90 (Hair, Black, Babin & Anderson, 2009) is considered as a threshold for multicollinearity problem, we decided to be a bit more conservative and to accept the existence of multicollinearity between institutional/corporate ownership and free float rate with correlation coefficient approaching 0.80.

	DSCORE	SALES	ASSETS	ROE	LEVER	AUDITOR
DSCORE	1					
SALES	**0.427	1				
ASSETS	**0.466	**0.859	1			
ROE	*0.174	0.143	*0.185	1		
LEVER	-0.079	0.167	0.107	**-0.470	1	
AUDITOR	**0.345	*0.187	**0.231	0.078	-0.044	1
FFLOAT	*-0.201	-0.076	-0.048	-0.131	-0.059	**-0.287
INSOWN	**0.285	0.139	0.138	*0.192	-0.086	**0.357
BSIZE	**0.326	**0.295	**0.328	**0.265	-0.166	**0.247
INDIR	*0.203	0.028	0.038	0.037	-0.009	-0.071
LAGE	0.090	0.024	0.041	0.079	-0.024	0.171
XCORP	**0.435	**0.370	**0.399	0.153	0.048	*0.202

	FFLOAT	INSOWN	BSIZE	INDIR	LAGE
DSCORE					
SALES					
ASSETS					
ROE					
LEVER					
AUDITOR					
FFLOAT	1				
INSOWN	**-0.763	1			
BSIZE	-0.164	*0.218	1		
INDIR	0.079	0.018	0.124	1	
LAGE	*-0.178	*0.190	0.026	**-0.251	1
XCORP	0.006	0.105	**0.281	0.147	-0.118

DSCORE	Disclosure score index
SALES	Total sales revenue
ASSETS	Total assets
ROE	Return on stockholders' equity
LEVER	Leverage as measured by total liabilities divided by total assets
AUDITOR	Audit firm size
FFLOAT	Free float rate
INSOWN	Institutional/corporate ownership
BSIZE	Board size
INDIR	Independent directors
LAGE	Listing age
XCORP	Listing in Corporate Governance Index of the BIST

** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed)

Table 4. Pearson Correlation Analysis

Multivariate analysis

We performed Ordinary Least Square (OLS) and Two-Stage Least Squares (2SLS) regressions to examine the association between the explanatory variables and voluntary disclosure level. The results of the regressions are presented in Table 5 for four models.

Independent variables [a]	Expected sign	Model 1	Model 2	Model 3	Model 4
		(2SLS)	(2SLS)	(OLS)	(OLS)
Intercept	?	-0.467	***-0.866	*-0.604	***-1.028
		(-1.39)	(-2.95)	(-1.92)	(-3.77)
ASSETS	+			***1.06E-10	***1.02E-10
				(3.67)	(3.51)
SALES	+	***1.14E-10	***1.10E-10		
		(3.57)	(3.43)		
ROE	+	-0.206	(-0.166	-0.128	-0.092
		(-0.73)	-0.60)	(-0.48)	(-0.35)
LEVER	+	**-0.642	*(-0.548	*-0.450	-0.358
		(-2.21)	(-1.92)	(-1.70)	(-1.36)
AUDITOR	+	**0.231	**0.236	**0.232	**0.233
		(1.99)	(2.00)	(2.05)	(2.03)
FFLOAT	+	*-0.005		**-0.005	
		(-1.86)		(-2.03)	
INSOWN	+		0.003		*0.003
			(1.47)		(1.69)
BSIZE	+	0.009	0.012	0.020	0.023
		(0.29)	(0.40)	(0.71)	(0.810)
INDIR	+	***1.286	**1.205	***1.233	**1.146
		(2.69)	(2.51)	(2.66)	(2.46)
LAGE	+	0.013	0.013	0.013	0.012
		(1.44)	(1.41)	(1.46)	(1.41)
XCORP	+	**0.456	**0.432	***0.542	***0.513
		(2.45)	(2.32)	(3.13)	(2.96)
F-value		4.780	4.620	9.180	8.950
Adjusted R^2		0.323	0.322	0.362	0.355
Significance		0.000	0.000	0.000	0.000

[a] Independent variables are explained in model development section and Table 4.
[b] t-values are presented in parentheses.
* Significant at 10% level.
** Significant at 5% level.
*** Significant at 1% level.

Table 5. OLS and 2SLS Regression Results

In models 2 and 4, the effect of institutional/corporate ownership on voluntary information disclosure level was tested. As seen from the results, there is a significant association between INSOWN and DSCORE in Model 4 at the 10% level, but not in Model 2. Thus, Hypothesis 1 is accepted. This finding is contradictory to the findings of Haniffa and Cooke (2002) and Eng and Mak (2003) but it supports El-Gazzar (1998) who argued that institutional ownership may induce a higher voluntary disclosure level. This finding may suggest that institutional/corporate ownership contributes to better development of corporate disclosure culture, and improves transparency leading to less information asymmetry and reduced agency costs.

The second hypothesis suggests a positive association between a firm's ownership diffusion

and the level of voluntary disclosure. Models 1 and 3 test the presence of this association between FFLOAT and DSCORE. We found an unanticipated significant negative association between the two variables at the 10% level in model 1 and 5% level in model 3, thus rejecting Hypothesis 2. Hence, we can say that the more diffused ownership a firm has, the less voluntary information it discloses. The rejection of this hypothesis might be due to the fact that when ownership is too much diffused, the firm's shareholders are generally too diversified to take much direct interest in a particular firm (Fama, 1980). Thus, there is no strong mechanism to monitor what information firm discloses; in other words no one cares information disclosure. It is also probable that the management of firms which have diffused ownership structure tend to disclose less information not to harm the competitive position of the firm in the market.

In the third hypothesis, we suggest that there is a positive association between INDIR and DSCORE. The results provide empirical evidence for such association in models 2 and 4 at the 5% level, and in models 1 and 3 at the 1% level. This implies that the higher the proportion of independent directors on the board, the more the firm discloses voluntary information. Hence, Hypothesis 3 is accepted. This result confirms Cheng and Courtenay (2006), Huafang and Jianguo (2007), Patelli and Prencipe (2007), and Chau and Gray (2010) but contradicts Forker (1992), Ho and Wong (2001), Haniffa and Cooke (2002), Eng and Mak (2003), Gul and Leung (2004) and Hossain and Reaz (2007). This finding provides support to the argument that the inclusion of independent directors on board is actually effective in reducing agency problems, is perceived as a potential solution to many of the corporate governance problems, and serves as a check on management on behalf of external shareholders (Patelli & Prencipe, 2007).

We next tested whether board size affects the voluntary disclosure level of firms. No significant association was found between BSIZE and DSCORE. Hence, Hypothesis 4 is rejected. This could be explained by the fact that board size may not mean board quality if it does not operate efficiently. While the board's monitoring capacity increases as more directors are added to the board, the benefit may be outweighed by the incremental cost of poorer communication and decision-making associated with larger groups (John & Senbet, 1998). Thus, the efficiency of board's working is important rather than its size.

Listing in the XCORP of the BIST was assumed to have positive relationship with the disclosure level. The hypothesis testing provided evidence that there is a significant positive association between listing the XCORP and DSCORE at the 5% level in models 1 and 2, at the 1% level in models 3 and 4. Therefore, it can be said that listing in the XCORP improves the disclosure level of voluntary information. Hence, Hypothesis 5 is accepted. A similar result was found by Uyar (2012). This finding is not surprising due to the fact that firms included in the XCORP are

the ones that have high rating in implementing corporate governance principles, one dimension of which is public disclosure and transparency.

Listing age was also expected to have positive impact on the disclosure level. However, hypothesis testing yielded no significant result in all models. We can say that voluntary information disclosure level is independent of listing age in the BIST. Thus, Hypothesis 6 is rejected. Likewise, Haniffa and Cooke (2002) reached the same conclusion. They explain this situation saying that "newly listed companies need to disclose more information to reduce scepticism and boost confidence of investors who may perceive them as more risky" (Haniffa & Cooke, 2002: page 330).

We tested whether firm size has an impact on the extent of voluntary disclosure level. The variables of SALES in models 1 and 2 and ASSETS in models 3 and 4 are positive and significant at 1% level which suggests that firm size affects the voluntary disclosure level positively. The findings lend support to Hypothesis 7 regarding firm size. Hence, there is a significant positive association between firm size and voluntary disclosure level. Our finding confirms many previous studies (Wallace et al., 1994; Inchausti, 1997; Eng & Mak, 2003; Aksu & Kosedag, 2006; Alsaeed, 2006; Hossain & Reaz, 2007; Huafang & Jianguo, 2007; Hossain & Hammami, 2009; Uyar, 2009; Chau & Gray, 2010). The impact of firm size on disclosure level could be explained by the fact that larger firms have better organization structure, more developed information system, more complex operating activities and segments, and more diversified. All these factors might be the reasons of why large firms stay ahead of small firms in terms of voluntary disclosure.

As seen from the results, profitability (i.e. ROE) has no significant association with DSCORE in all models. This implies that the profitability does not explain the variation of disclosure level among Turkish companies. Hence, Hypothesis 8 in relation to profitability is rejected. This finding is inconsistent with Haniffa and Cooke, (2002), Gul and Leung (2004) and Cheng and Courtenay (2006) who found positive significant association, but confirms Ho and Wong (2001), Alsaeed (2006), Hossain and Hammami (2009), Wallace et al. (1994), Inchausti (1997) and Chau and Gray (2010) who found no significant association. The rejection of this hypothesis might be explained by the proprietary cost hypothesis, according to which firms' decisions to disclose information is affected by concern that such disclosures can damage their competitive position in product markets (Healy & Palepu, 2001).

In models 1, 2 and 3, it can be observed that LEVER has significant negative association with the extent of voluntary disclosure level at 10% level. The significant negative relationship between LEVER and DSCORE shows that the leveraged firms disclose less voluntary information contrary to our expectation. In model 4, no significant relationship exists between

LEVER and DSCORE. Hence, the results of all models reject Hypothesis 9 which presumed significant positive association between the two variables. This result is consistent with the result of Eng and Mak (2003) which also found negative significant association, but inconsistent with many earlier studies (Malone et al., 1993; Hossain et al., 1995; Wallace et al., 1994; Inchausti, 1997; Ho & Wong, 2001; Aksu & Kosedag, 2006; Alsaeed, 2006; Huafang & Jianguo, 2007; Chau & Gray, 2010) which either found a positive or no significant association. Negative association between information disclosure level and leverage might be attributable to the rationale of signalling theory that lower-geared companies may wish to draw attention to their financial structure by disclosing more voluntary information (Akerlof, 1970). They might make more presentation regarding their risk management policy by disclosing related items particularly. Alternatively, the negative association between the two variables might be explained by the fact that when debt level of a firm is high, it tends to disclose less information not to damage their competitive position in the market.

According to the results of all models, significant positive association exists between AUDITOR and DSCORE at 5% level. The clients of Big-4 auditing companies are more likely to disclose more voluntary information. Thus, Hypothesis 10 stating a positive association between auditor size and the level of voluntary disclosure is accepted. Although the result agrees with the findings of Singhvi and Desai (1971), Inchausti (1997), Patton and Zelenka (1997) and Uyar (2011), it disagrees with the results of Wallace et al. (1994), Alsaeed (2006), Huafang and Jianguo (2007) and Chau and Gray (2010). This finding, which is in line with expectations, might signal that large auditing firms do not only audit financial statements of their clients, but also guide them towards better corporate reporting and higher corporate transparency.

Depending on the results obtained from all models, we can conclude that there is not much variety among the four models. The results of all models indicate that the F-ratio is between 4.620 ($p=0.000$) and 9.180 ($p=0.000$). These results statistically support the significance of all models. Adjusted-R^2 values, between 0.322 and 0.362 for all models, imply that the independent variables explain between 32.2% and 36.2% of the variance in voluntary disclosure index and this result compares favourably with similar studies of Huafang and Jianguo (2007) at 7.9 %, Chen and Jaggi (2000) at 30%, Gul and Leung (2004) at 19%, Hossain and Reaz (2007) at 25.6% and Ho and Wong (2001) at 31.4%.

Conclusions

The objective of this study was to determine which factors impact voluntary information disclosure level of Turkish listed manufacturing companies for the year 2010. We extend previous research on the determinants of voluntary information disclosure in some aspects. First, unlike many earlier studies conducted in developed countries, this study examines the

voluntary information disclosure practices of companies in Turkey which is an important developing country. Secondly, this study utilized a comprehensive set of variables and tested ten hypotheses to provide evidence regarding disclosure practices of companies. Thus, the study provides empirical evidence in relation to the effects of these variables on the information disclosure level.

The present study has demonstrated that Turkish firms' disclosure level is at moderate level. Although the regulations of the CMB, particularly regarding corporate governance principles, contributed to the improvement of voluntary disclosure practices of the firms, there is a need to improve disclosure standard to higher levels. Therefore, there is still a considerable way to go, particularly in some aspects of disclosure practices such as forward-looking information, social responsibility, human resources, risk management-related disclosure, and environmental disclosure.

The findings of the study provide evidence of a positive association between voluntary information disclosure level and the variables such as firm size, auditing firm size, proportion of independent directors on the board, institutional/corporate ownership, and listing in the Corporate Governance Index of the BIST. However, leverage and ownership diffusion were found to have negative significant association with the extent of voluntary disclosure. The remaining variables, namely, profitability, listing age, and board size were found to have insignificant effect.

Furthermore, the study has some implications for firms, auditors, investors, and regulators. All these parties play an important role in improving the transparency and disclosure practices of corporations. Firms may increase voluntary information disclosure by being aware of advantages of information disclosure. Investors may demand higher disclosure from management. Regulatory bodies, such as the Capital Markets Board, may guide firms by issuing guidelines for proper voluntary disclosure practices in annual reports. Finally, auditing firms may also make contributions in improving firms' corporate culture about disclosure practices.

The study has got some implications for emerging markets such as Turkey particularly. These markets have high growth rate and are expected to sustain their growth in the coming years. To finance growth, they need external capital. In this respect, attracting international capital flow to these markets is very important. On the other hand emerging markets have some deficiencies such as concentrated ownership, high information asymmetry, greater agency costs which hinder free flow of capital. Consequently, voluntary disclosure contributes to alleviate these problems, makes the firms more transparent and accountable, and open the way for capital flow. Therefore, the subject is quite important for emerging markets. However,

it should be kept in mind that firms cannot carry out this transformation without support of regulatory bodies as mentioned above.

The findings have some theoretical implications as well. Theoretical bases discussed in the literature review and hypothesis development sections are partially validated. We found that some variables play significant role on the level of voluntary disclosure as hypothesized, however some variables do not, contrary to expectations (i.e. profitability, listing age, and board size). Furthermore, two variables' (i.e. leverage and ownership diffusion) signs were not in the direction of hypothesized relationship. Thus, further studies are needed to provide more empirical evidence.

Limitations and further research

Since this study was conducted solely on listed manufacturing companies, the results should be interpreted cautiously. Findings may not indicate the voluntary information disclosure practices of unlisted companies and other industries such as service and merchandising industries. In the future, we aim to enlarge the sample by including those industries and renew the study. Secondly, the study is a snapshot of only one point in time. Further longitudinal studies covering several periods could reveal more substantial and interesting results, and trends. Over time, the quality of disclosure might improve (Kanto & Schadewitz, 1997). Gray, Kouhy and Lavers (1995) and Gao, Heravi and Xiao (2005) conducted such longitudinal research studies and indicated that information disclosure practices do change over time. Thirdly, this study used the annual reports of firms as the information disclosure source, not other sources such as web sites, press releases, and prospectuses.

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Appendix A. Voluntary disclosure items

A	General information
1	Brief history of the company
2	Ownership structure
3	Ethical rules
4	Values
5	Principal products
6	Principal markets
7	Main corporate events
8	Official address/registered address/address for correspondence
9	Web address of the company/email address
10	English summary of the annual report or translation of the complete annual report
B	**Corporate strategy**
11	Strategic information (Mission &Vision)
12	Statement of strategy and objectives-general
13	Statement of strategy and objectives-financial
14	Statement of strategy and objectives-marketing
15	Statement of strategy and objectives-social
C	**Corporate governance**
16	Detail about the chairman
17	List of board members
18	Detail or bibliographies of the board members
19	List of senior managers/senior management structure
20	Background of senior managers
21	Comprehensive information on independent directors
22	Message of the Chairman
23	Picture of all directors/board of directors
24	Picture of chairperson only
D	**Financial Performance**
25	Brief discussion and analysis of a financial position
26	R&D expenditures
27	Operating costs/Income
28	Comparative information with industry or competitors
29	Sales growth
30	Earnings growth
31	Profitability Ratios
32	Activity Ratios
33	Leverage Ratios

34	Liquidity ratios
35	Share Price Information
36	Performance at a glance
E	**Key non-financial information**
37	Percentage of sales in products in several years
38	Market share
39	Competitor analysis
40	Units sold
41	Production volume
42	Growth in units sold
43	Quality certificates
44	Awards
45	Dividend policy
F	**Forward-looking information**
46	Forecasted profits/profitability (quantitative & qualitative)
47	Market share forecasts (quantitative & qualitative)
48	Sales forecast (quantitative & qualitative)
49	Forecasted cash flows (quantitative & qualitative)
50	Capital expenditure forecast (quantitative & qualitative)
51	New investments (quantitative & qualitative)
52	Share price estimation (quantitative & qualitative)
G	**Employee disclosure**
53	Age of employees
54	Number of employees
55	Gender of employees
56	Functional categorization of employees
57	Training and developing investments described
58	Several activities about employees and their families
59	Employee compensation
60	Stock option schemes
61	Value-added per employee
62	Productivity indicator/Performance evaluation
63	Safety policy
64	Data on accidents
65	Cost of safety measures
66	Policy on communication
67	Equal opportunity policy statement
H	**Social responsibility**
68	Sponsoring public health
69	Sponsoring sport activities
70	Sponsoring cultural recreations
71	Sponsoring education
72	Charitable donations
I	**Environmental disclosure**
73	Environmental policy
74	Environment friendly products
75	Environmental indicators
76	Environmental awards and certificates
77	Environmental costs
78	Environmental education for employees and others
J	**Segment reporting**
79	Segment reporting based on products
80	Geographical Segment reporting (sales, assets)
81	Geographical capital expenditure
82	Line-of-business production
K	**Risk management**
83	General risk policy
84	Information on risk management committee
85	Information on risk management structure

86	Information on credit risk management structure
87	Disclosure of credit rating system/process
88	General descriptions of market risk segments
89	Disclosure of interest rate risk
90	Disclosure of foreign currency risk
L	**Customer and supplier disclosure**
91	Main customers, contractual relationships, prices, bargaining power
92	Geographic diversification and characteristic of retail network
93	Customer satisfaction, retention, loyalty
94	Customer profitability and reliance
95	Main suppliers, contractual relationship, and bargaining power
96	Supplier satisfaction, retention and commitment