



UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

Department of Business Administration
Industrial & Financial Management

Voluntary Disclosure of Financial Targets

Empirical Evidence from Manufacturing Firms Listed on the
Stockholm Stock Exchange during 2001 to 2009

Elies Bazine & Derya Vural

Tutor: Evert Carlsson

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Abstract

We examine 1041 annual reports individually, published by 149 manufacturing firms listed on the Stockholm Stock Exchange from 2001 to 2009. The purpose is to explain which firm characteristics influence voluntary disclosure of financial targets. Previous studies have focused on general differences in voluntary disclosure practices and on disclosure effects. This paper, however, focuses on financial targets, an uncharted research area in the field of voluntary disclosure and contributes the existing research with extensive empirical evidence on the first decade of the 2000s. The result, supported by agency theory, legitimacy- and signaling theory, indicate that firm size and industry sectors influence the degree of voluntary disclosure. Additionally, economic cycles, international disclosure practices and management behavior are plausible explanations for variations in voluntary disclosure practices.

[Keywords: Voluntary disclosure, Financial targets, Manufacturing firms]

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1 Introduction

The purpose of this paper is to examine the relationship between firm characteristics and voluntary disclosure of financial targets among manufacturing firms listed on the Stockholm Stock Exchange (SSE) during the period 2001 to 2009. The specific research question is:

Which firm characteristics influence voluntary disclosure of financial targets?

All disclosed information in excess of those required by law, accounting principles or stock exchange listing requirements is classified as voluntary disclosure (Watson, Shrivess, Marston, 2002). Schuster and O'Connell (2006) claim that firms disclose information voluntarily, in addition to the requirements; which has developed to a trend among corporations in order to increase firm value.

Previous studies in the field have focused on general differences in firm's voluntary disclosure practices (Cooke, 1989; Gray, Meek, Roberts, 1995; Clinch & Verrecchia, 1997; Cahan, 2005; Brobert, Tagesson, Collin, 2009) and on disclosure effects, *e.g.* cost of capital (Botosan, 1997; Luez & Verrecchia, 2000). In addition, studies have proven that firm characteristics, *e.g.* size, debt ratio and listing status, have a relationship with the extent of voluntary disclosure in annual reports (Cooke, 1989; Gray, Meek, Roberts, 1995; Broberg, Tagesson, Collin, 2009).

This paper, however, focuses on financial targets and does not aim to describe general voluntary disclosure practices, as previous studies have attempted. Furthermore, this study considers manufacturing firms listed on SSE from 2001 to 2009. Although research on voluntary disclosure among Swedish listed firms is growing; it is non-existent with respect to financial targets.

Disclosed financial information is essential for investors to efficiently allocate scarce resources (Cooke, 1989) and assess investment options (Gray, Meek, Roberts, 1995). Therefore, it is vital from an investor's point of view to indicate which firm characteristics influence voluntary disclosure in annual reports. This paper will widen the knowledge of various factors affecting voluntary disclosure and enlighten stakeholders, interest bodies and regulatory authorities.

Firms usually report according to two dominant standards, Generally Accepted Accounting Principles (GAAP) and International Accounting Standards (IAS). From an investor's perspective, these

standards do not provide all necessary information, and therefore have deficiencies (Schuster & O’Connell, 2006). Considering that investors request additional information (not provided by general standards *e.g.* GAAP and IAS), it is interesting to examine which firm characteristics influence voluntary disclosure.

Voluntary disclosure results in increased transparency and decreased information asymmetry. Agency costs are a consequence of information asymmetry and arise when investors undervalue the firm, due to insufficient information (Oxelheim, 2006). Corporations can decrease agency costs by disclosing additional information on a voluntarily basis (Gray, Meek, Roberts, 1995). Moreover, increased transparency shows the true firm value and makes investors more willing to invest (Leuz & Verrecchia, 2000; Oxelheim, 2006).

It is also shown that regulations and norms influence the degree of voluntary disclosure. Firms signal their legitimacy as a tool to gain support from its surroundings (Watson, Shrives, Marston, 2002). Based on these arguments, this paper adopts a multi-theoretical framework of agency theory, legitimacy- and signaling theory in order to explain variations of voluntary disclosure practices.

Healy and Palepu (2001) argue that firms can disclose voluntary information via other channels than annual reports, *e.g.* management forecasts, internet websites, press releases, experts and financial analysts. This paper, however, is restricted to annual reports, because the most relevant information of a firm’s actions are presented in this channel (Adams, Hill, Roberts, 1998).

The categorization of voluntary disclosure differs among previous studies. Scholars have categorized voluntary disclosure in; background information, business information, financial and non-financial information, historical, outlook and strategy (Boesso & Kumar, 2007; Xiao & Yuan, 2007). This study, however, focuses on voluntary disclosure of financial targets. Strategic and financial information have decision relevance to investors, while non-financial information is more towards a firm’s social accountability (Gray, Meek, Roberts, 1995). Since non-financial information is aimed to a broader group of stakeholders than investors (Gray, Meek, Roberts, 1995), we exclude this category and define our index for voluntary information of financial targets as; the position of financial targets, amount of financial targets, reflection in time of financial targets, and the strategy of financial targets.

Our data is gathered from annual reports of 149 manufacturing firms listed on SSE, during 2001 to 2009. In this study we examine the following firm characteristics; *Debt ratio*, *Foreign listing*, *Industry sectors*, *Size*, *Ownership concentration*, *Profitability* and *Regulations*, in association with the extent of voluntary disclosure.

We find a strong relationship between the extent of voluntary disclosure and the variables *Size* and specific *industry sectors*. Further, the impact of international disclosure practices, management behavior and economic cycles on voluntary disclosure are discussed.

The remainder of the paper is organized as follows: In Section 2, the multi-theoretical framework of agency theory, legitimacy- and signaling theory is presented. In Section 3, the index as well as the model are described.. The data are presented in Section 4, which is followed by the results in Section 5. Lastly, a concluding section of this research is comprised in Section 6.

2 Theory

Scholars argue that disclosure is a complex phenomenon that cannot be explained by one theory (Adrem, 1999; Cormier, Magnan, Van Velthoven, 2005). Hence, this paper adopts a multi-theoretical framework of agency theory, legitimacy- and signaling theory in order to explain variations of voluntary disclosure practices (Neu & Simmons, 1996; Watson, Shrives, Marston, 2002; Broberg, Tagesson, Collin, 2009).

Agency theory attempts to explain why managers decide to disclose voluntary information in annual reports (Leftwich, Watts, Zimmerman, 1981; Cooke, 1989; Watson, Shrives, Marston, 2002; Broberg, Tagesson, Collin, 2009). The theory was first derived from the dilemma of separated ownership and control (Berle & Means, 1932) and later refined by Jensen and Meckling (1976). Information asymmetry is central in agency theory, where managers possess more information than shareholders. Watts and Zimmerman (1986) argue that management make decisions based upon self interest. The scholars (Watts, Zimmerman, 1986) further claim that management (the agent) is aware of the information asymmetry and the control mechanism, contracts and monitoring, which shareholders (the principal) impose upon them. Providing additional information may reduce the firm's agency costs,

expenditure on monitoring and contracting, and earn shareholders' trust (Watson, Shrides, Marston, 2002). According to Diamond and Verrecchia (1991), information asymmetry hinders the efficient allocation of capital. A plausible solution is to increase disclosure, which reduces the information gap (Leuz & Verrecchia, 2002).

Previous researchers have implemented legitimacy theory to explain the existence of voluntary disclosures in annual reports (Gray, Meek, Roberts, 1995; Watson, Shrides, Marston, 2002; Broberg, Tagesson, Collin, 2009). The following statement by Dowling and Pfeffer (p.131, 1975) suggests that legitimacy theory is valuable when examining corporate behavior:

“...because legitimacy is important to organizations, constraints imposed by social norms and values and reactions to such constraints provide a focus for analyzing organizational behaviors taken with respect to the environment.”

Legitimacy theory explains that regulations, network of organizations and norms influence the degree of voluntary disclosure. It is based upon the idea that firms signal their legitimacy by disclosing additional information in their annual reports (Watson, Shrides, Marston, 2002). DiMaggio and Powell (1983) argue that firms follow rules to gain legitimacy, support and to survive on the competitive market. Hence, adoption of rules is not always for efficient concerns. Implementing accepted rules and requirements increase the firms's survival capability and minimize the risk of bankruptcy (DiMaggio & Powell, 1983). By disclosing supplementary information, managers can communicate with stakeholders, shareholders and other investors, who will as a result feel more legitimate about the performance of the firm. This is seen as a way for the firm to reduce monitoring and other costs by signaling their legitimacy. The two theories, legitimacy and signaling, should be seen as overlapping, since the latter one can use the idea of signaling legitimacy (Watson, Shrides, Marston, 2002).

Signaling theory, developed by Spence (1973), is another motive explaining firms' adoption of voluntary disclosures. Moreover, the theory provides an understanding on how signals affect firm value. Corporations use voluntary disclosure to satisfy investors, by positive signaling about the firm value (Watson, Shrides, Marston, 2002). Information asymmetries can be reduced if the party with more information signals to others. High quality firms want to differentiate themselves from

Table 1: Theory and Variable Outlook

Variable	Agency Theory	Legitimacy Theory	Signaling Theory
<i>Debt Ratio</i>	✓		
<i>Ownership</i>	✓		
<i>Profitability</i>	✓		✓
<i>Regulation</i>		✓	
<i>Foreign Listing</i>		✓	
<i>Industry</i>	✓	✓	✓
<i>Size</i>	✓	✓	✓

Note Table 1: Variables and corresponding theories explaining the degree of voluntary disclosure.

low quality firms through voluntary disclosures. Furthermore, it is important for managers to signal quality successfully, *i.e.* the signals must be credible. But signaling can be misused if firms send false signals, *i.e.* when low quality firms signals high quality. When false information is discovered, voluntary disclosure will be seen as incredible (Watson, Shrives, Marston, 2002).

Signals may disclose strategic information to competitors and reduce the firm's competitive advantage. Consequently, depending on the information and market settings, disclosure may involve positive and negative effects on shareholders' wealth (Darrough, 1993).

A number of firm characteristics, derived from the theoretical framework, which could explain the variations in voluntary disclosures, are seen in Table (1). Below, a discussion of the relationship between the firm characteristics and the theories is presented.

2.1 Debt Ratio

Research has suggested that firms with a higher debt ratio disclose more information than corporations with a lower debt ratio (Ismail & Candler, 2005). Jensen and Meckling (1976), claims that a higher debt ratio increases agency costs. Firms can, however, decrease the uncertainty for creditors and investors by providing more information, and thereby decrease agency costs (Hossain, Perera, Rahman, 1995; Watson, Shrives, Marston, 2002; Principe, 2004). Broberg, Tagesson and Collin (2009) suggest that firms with a high debt ratio reduce the information to the owners and move the demand of disclosure to its debt holders.

Contrary, other scholars find that firms with a low debt ratio disclose more voluntary information in their annual reports (Gray, Meek, Roberts, 1995; Adrem, p.32, 1999). Jensen (1986) confirms the reversed relationship and claims that indebtedness entails more monitoring and controlling as the incurring of debt decreases.

2.2 Ownership

The separation of ownership and control, as well as, colliding interests between agents and principals are the fundamentals of agency theory (Fama & Jensen, 1983). Voluntary disclosure in annual reports is a tool for management to signal that their actions are in the best interest of the owners (Watson, Shrives, Marston, 2002; Cormier, Magnan, Van Velthoven, 2005). Studies have shown that shareholders with concentrated ownership tend to have access to the information they require (Cormier, Magnan, Van Velthoven, 2005). Conflict of interest between agents and principals is more likely to arise in firms with many owners (Adrem, 1999). Consequently, such firms are expected to disclose more voluntarily than corporations with concentrated ownership (Prencipe, 2004). However, previous researches are conflicting; Raffournier (1995) and Depoers (2000) found no relationship between ownership concentration and voluntary disclosure.

2.3 Profitability

Agency- and signaling theory suggest a positive relationship between voluntary disclosure and profitability (Watson, Shrives, Marston, 2002; Ismail & Chandler, 2005). Inchasusti (1997) argues that management in highly profitable firms provides more information to sustain its position and compensation. Similarly, Prencipe (2004), states profitable firms provide additional information to the market in order to signal quality. According to Ng and Koh (1994), profitable firms are more exposed to political pressure and public inspection and make use of more self regulating mechanisms, such as voluntary disclosure, to avoid regulation. As stated by Holland (2005), corporations disclose more voluntary information during prosperous times than during poor.

2.4 Regulations

Stricter law, standards and rules lead to increased voluntary disclosure among firms, since mandatory disclosure need a complement of additional information to appropriately illustrate the firm (Einhorn, 2005). Organizational networks may have their “own rules” and require that each member of the network adopt the same reporting standards. The impact of norms may cause pressure and increase the level of voluntary disclosures (Gibbins, Richardson, Waterhouse, 1990).

Eccles (2004) has a different view on the relationship between regulations and voluntary disclosure in annual reports. By implementing new regulations management may feel less enthusiastic to disclose additional information in the annual report, which reduces transparency. Known as the "unintended chilling effect" (Eccles, p.10, 2004). Furthermore, if new standards are not beneficial for the firm, management might oppose regulations. *“Duty of care comes from wanting to do the right thing, not from being told how to behave”* (Eccles, p.13, 2004).

2.5 Foreign Listing

Cooke (1989) indicated that Swedish firms listed on another stock exchange as well, disclose more voluntary information than firms only listed on SSE. Similar findings were found in other countries (Cooke, 1991; Hossain, Perera, Rahman, 1995; Ljungdahl, 1999). Adrem (p.34, 1999) assumes that the degree of voluntary disclosure in Sweden is lower than in North America and U.K. Therefore, it is expected that Swedish firms listed abroad are disclosing more information.

Further, it is likely that firms have to increase its investor’s relations efforts to obtain the potential benefits of a foreign listing, lower cost of capital and increased marketability (Adrem, p.34, 1999). Adrem (1999) explains this relation as a result of “international capital market pressure” (Adrem, pp.34-35, 1999). It is more likely that firms listed abroad face additional capital market pressures to disclose information (Gray, Meek, Roberts, 1995). Moreover, these firms have to report according to different international disclosure regulations to gain legitimacy (Biddle & Saudagaran, 1989). This poses the question whether international capital market pressures have an impact on firms’ disclosing practices.

Previous studies (Gray, Meek, Roberts, 1995; Adrem, 1999) have shown that capital market pressures influence foreign listed firms' voluntary disclosure practices. Furthermore, there is a trend towards an internationalization of capital markets; which may decrease differences in disclosing practices between foreign and domestic listed firms (Adrem, p.88, 1999).

2.6 Industry

Industry affects the level of voluntary disclosure in annual reports (Verrecchia, 1983; Cooke, 1989; Gray, Meek, Roberts, 1995; Adams, Hill, Roberts, 1998). Signaling theory (Watson, Shrivies, Marston, 2002) and legitimacy theory (Broberg, Tagesson, Collin, 2009) have been used in order to explain the industry variables. According to these theories, the connection between industry and the supply of information can be explained by a behavior to follow best practices and market benchmarks (Holland, p.254, 2005). Adams, Hill and Roberts (1998) highlight the increasing globalization that harmonize and form international accounting standards, weaken country and culture specific factors, while strengthen corporate and industry specific factors. Industry may, however, be influenced by size (Watts & Zimmerman, 1986).

2.7 Size

Studies have shown a positive relationship between firm size and the degree of voluntary disclosure (Cooke, 1989; Scott, 1994; Gray, Meek, Roberts, 1995; Hussein, 1996; Zarzeski, 1996; Neu, Warsame, Pedwell, 1998; Adrem, 1999; Jaggi & Low, 2000). Jensen and Meckling (1976) claim that agency costs increase with the share of external capital, while Leftwich, Watts, Zimmerman (1981) state that the share of external capital is higher in larger firms. There are, however, other explanations for the relationship between firm size and voluntary disclosure, such as, public demand for more information from larger firms than from smaller (Schipper, 1991; Lang & Lundholm, 1996; Zarzeski, 1996; Adrem, 1999). Cormier, Magnan and Van Velthoven (2005) argue that firm's size is related to visibility, which increases monitoring by analysts; while Watts and Zimmerman (1986) mentions a political dimension (political costs) in the size discussion. Ness and Mirza (1991), as well as Gray, Meek and Roberts

(1995), and Scott (2003), argue that voluntary disclosure can be explained as an effort to reduce monitoring and political costs by signaling their legitimacy.

3 Method

3.1 The Index

Firms' annual reports may include mandatory and voluntary information. All corporations are required to adhere to law, standards and regulatory authorities when disclosing mandatory information in their reports; while voluntary information is not depended on regulatory standards, but on the management's will to disclose additional information (Watson, Shrivess, Marston, 2002). Hence, we ignore mandatory disclosure. In addition, we do not regard non-financial targets such as environmental, social and ethical targets.

The index is based on annual reports of manufacturing firms listed on SSE during the period 2001 to 2009. Swedish manufacturing firms represent a large portion of the SSE listed firms and serve under similar regulations, while *e.g.* finance and the real estate sectors serve under different regulations (Adrem, 1999; Broberg, Tagesson, Collin, 2009). In order to obtain a high number of observations, we have selected an industry which is homogenous in regulatory framework and of larger size.

This research examines annual reports and does not consider other alternative reporting channels, such as websites, media, press releases, newspaper advertisements and interim financial reports. This limitation is not only due to practical reasons, but also because the most important information of a firm's activities are presented in the annual report (Adams, Hill, Roberts, 1998). Further, firms are legally liable for disclosures in annual reports (Leftwich, Watts, Zimmerman, 1981). Additionally, annual reports are archived and available for later review.

When constructing the disclosure index for financial targets we adopted an evaluation principle founded on quantitative and qualitative information (Hoskin, Hughes, Ricks, 1986; Broberg, Tagesson, Collin, 2009). This study takes on an equally weighted index for disclosure. However, some disclosures might be of greater importance than others (Cooke, 1989; Adams, Hill, Roberts, 1998), but giving

weight to different disclosures is a subjective task (Gray, Meek, Roberts, 1995; Broberg, Tagesson, Collin, 2009).

$$Index_{it} = \frac{\sum components}{n_{components}} = \frac{Position + Targets + Time + Strategy}{4} \quad (1)$$

In order to minimize subjectivity; the index is created out of four equally weighted sub-components; *Position*, the position of financial targets; *Targets*, the amount of financial targets; *Time*, reflection in time of financial targets; *Strategy*, the strategy of financial targets (similar components used by Gray, Meek and Roberts, 1995, as well as, Broberg, Tagesson and Collin, 2009).

Position, indicates where management has placed the targets in the annual report and scores it according to its location. The *Position* component represents the visibility of the targets and the firm's will to clearly state financial targets. If targets are mentioned in the table of contents it will earn the highest possible score of 3; followed by decreasing values for statements in the later parts of the annual report, 2 if published before the board reports and 1 if placed in the board report. If no targets are stated, 0 points are awarded.

Target, indicates the number of targets that firms are disclosing. In order to maintain an equally weighted category we have divided financial targets into six groups; capital structure, dividends, growth, margin, return and other absolute targets. In order to obtain the highest score, all six groups need to be disclosed with at least one target. Consequently, firms will receive a score that equals the amount of financial target groups they have disclosed, divided by 6, the total amount of groups.

Time, is an indication of how a firm reflects on previous stated targets and how they predict the outcome for their targets in the future. Highest score of 2 is awarded if the firm has reflected on previous outcomes in a qualitative manner and/or mentioned the outcome for several years in a target oriented context. If the firm only discloses the previous year's outcome, it will be awarded with 1 point. Additionally, if the firm discloses a prognosis of earnings, or related to financial targets, 2 points are awarded. If the firm provides a general prediction of the future, 1 point is awarded. All outcomes need to be disclosed in a context with the financial targets.

Strategy, describes the firm's strategic measures to reach their financial targets. If the firm has

disclosed a strategy related to its financial targets it will be granted 2 points. If the firm mentions a general strategy it is awarded with 1 point. In addition we consider vision and mission in the annual reports and award it with 1 point, if it is disclosed in a context with the financial targets. For a detailed description for the calculation of the index see Appendix A.

3.2 The Model

In this study we adopted a quantitative approach and collected our data by analyzing 1041 annual reports individually. Further, we ran a panel regression to estimate the firm characteristics effect on the index, a proxy for voluntary disclosure of financial targets.

Since panel data contains a cross-sectional and a time-series dimension, the procedure to fit an appropriate approach becomes more complex compared to a cross sectional data set. A benefit of panel data is that it forms a possible solution to biases from heterogeneity, a common problem in fitting a model for cross sectional data sets. Panel data also allows for dynamics to be revealed through time and allows for more observations and a higher degree of freedom (Baltagi, pp.4-9, 2005).

We have adopted a Random Effect (RE) approach (see Appendix B for further elaboration on approach) and a model which is defined as:

$$\begin{aligned}
 Index_{it} = & \beta_0 + \beta_1 Debteq_{it} + \beta_2 Owncon_{it} + \beta_3 ROE_{it} + \beta_4 Regulation_{it} + \\
 & \beta_5 Foreign_{it} + \beta_{6-13} Industry_i + \beta_{14} lnsize_{it} + \beta_{15-23} Year + \varepsilon_{it} \quad (2)
 \end{aligned}$$

Where $Index_{it}$ represents voluntary disclosure of financial targets for the i :th firm, the t :th year; β_0 , the intercept for the model; $Debteq_{it}$, debt to equity ratio; $Owncon_{it}$, ownership concentration (defined as the percentage of the five largest owners in votes at the end of the year); ROE_{it} , return on equity; $Regulation_{it}$ a dummy variable for accounting standards; $Foreign_{it}$, a dummy variable for foreign listing; $Industry_i$ a time invariant dummy for industry category; $lnsize_{it}$, ln size (balance sheet total); $Year$ for indication of year; ε_{it} , error term, denotes the unobservable individual effects, which are assumed to be randomly drawn, combined with the remaining disturbance.

Table 2: Mean Values for Index, Regulations, Firms and Missing Observations

Year	Firms	# miss. obs.	Index	Position	Target	Time	Strategy	pre-IFRS	post-IFRS
2001	115	0	0.429	0.559	0.299	0.333	0.678	115	0
2002	118	0	0.449	0.599	0.294	0.343	0.650	118	0
2003	118	0	0.458	0.616	0.302	0.371	0.675	118	0
2004	119	0	0.487	0.627	0.293	0.368	0.723	118	1
2005	115	0	0.485	0.635	0.306	0.396	0.693	4	111
2006	118	0	0.482	0.630	0.307	0.398	0.655	0	118
2007	116	2 ^A , 3 ^{BCDE}	0.471	0.609	0.323	0.390	0.629	0	116
2008	112	0	0.476	0.658	0.316	0.388	0.640	0	112
2009	110	1 ^{ABCDE} , 3 ^A	0.476	0.664	0.317	0.384	0.655	0	110

Note Table 2: miss. obs, number of missing observations; A, Assets; B, Debt to equity; C, Owners concentration; D, Dividends; E, Return on equity; pre- IFRS, before implementation of IFRS; post-IFRS, after implementation of IFRS; IFRS, International Financial Reporting Standards.

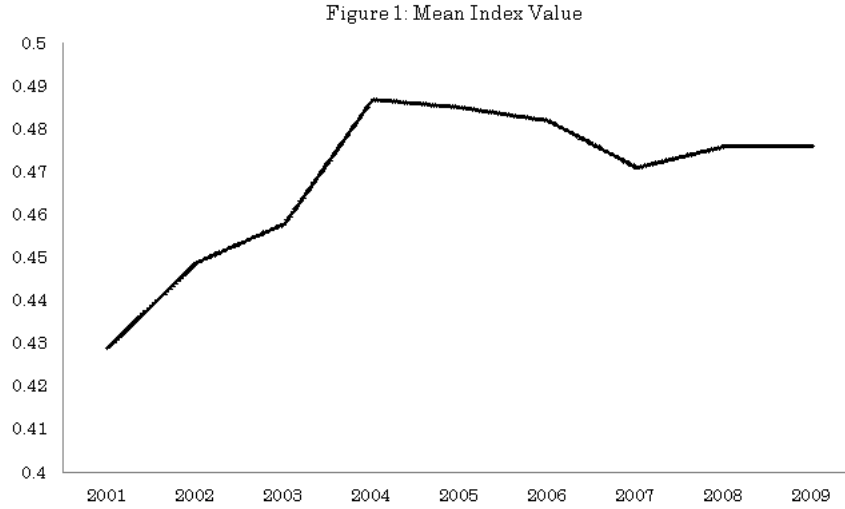
In order to capture large changes over time, we have included a set of dummy variables, one for each year. Thereby we hope to capture year specific effect on voluntary disclosure, *i.e.* the recession in the early 2000s, the boom year of 2005 and the late 2000s financial crisis. For a detailed description of the independent variables, see Table (C1).

4 Data

Our observations, collected from 2001 to 2009 annual reports, created an unbalanced panel of data. A panel is described as balanced if there is an observation for every unit of observation for every time period, and as unbalanced if some observations are missing (Brooks, 2008).

As seen in Table (2), the number of firms varies each year due to mergers and acquisitions, delisting from the exchange and bankruptcy.

From the column “missing observations”, we observe that the unbalanced data set is missing a few variables during year 2007 and 2009. The number indicates the amount of missing observations per variable, while the superscript indicates the variable name. In 2007, the data set misses a total of 14 observations, distributed on 2^A and 3^{BCDE}, while in 2009 there is a total of 8 missing observations distributed on 1^{ABCDE} and 3^A (For further explanations, see note Table (2)).



Note Figure 1: Mean index over time, derived from Table 2.

In Figure (1), we observe changes in the *index* value over time. The *index* value results from the four components, *Position*, *Target*, *Time* and *Strategy*. We see an increasing mean index value from 2001-2004, which is derived from a rise in *Position*, *Time* and a rapid increase in *Strategy* (2002-2004). In addition, the stabilization between years 2004-2006 is a consequent of a combined increase in *Time*, *Target* and *Position*, and a decrease in *Strategy*. However, we notice a minor bend in the line during 2007, one year before the financial recession. In 2007-2009, *Position* and *Strategy* increase, while *Time* and *Target* remain stable.

In Table (3), the mean values with standard deviations and corresponding percentiles for the *Index* and the firm characteristics are presented. Firms disclose on average 0.47 and the distribution is slightly skewed to the left with the lower percentile at 0.00 and the highest percentile reaching 0.90.

The mean values are, however, difficult to interpret, but the percentiles and standard deviations shows widely diversified firm characteristics within the sample. *e.g.* the variable *Debt to equity* has a high standard deviation of 5.93 compare to its mean value of 1.62.

The variances between the firms' capital structures is more visible when observing the extreme values of 0.03, primarily equity founded firms, and 6.35, a plus six to one ratio in outstanding debt. The difference between the firm characteristics is due to the inclusion of large Multinational Corporation, listed on multiple exchanges with dispersed ownership structure; in a combination with small national

Table 3: Descriptive Statistics of Index and Firm Characteristics

<i>Variable</i>	N	mean	std.dev	Percentiles				
				1%	25%	50%	75%	99%
<i>Index</i>	1041	0.47	0.26	0	0.23	0.52	0.69	0.90
<i>Debt/EQ</i>	1037	1.62	5.93	0.03	0.46	1.10	1.85	6.35
<i>Own con</i>	1036	0.55	0.21	0.15	0.38	0.53	0.71	0.95
<i>ROE</i>	1037	0.03	1.12	-1.40	-0.08	0.05	0.16	0.57
<i>Ln size</i>	1038	7.28	2.08	3.56	5.80	6.95	8.59	12.39
<i>Size</i>	1038	13045	37926	31	328	1037	5318	239222
<i>Foreign</i>	1037	.08						

Note Table 3: *Debt/EQ*, Debt to equity ratio; *ROE*, return on equity; *own con*, the percentage of the five largest owners at the end of the year; *ln size*, log total assets; *size*, total assets; *Foreign*, percentage of foreign listed firms; *n*, total firm years; *std.dev*, standard deviation of the mean value.

firms, with high *Ownership concentration*. As our data stretches from 2001 to 2009, we include the early 2000s recession, the boom year of 2005 and the late 2000s financial crisis, which may affect variables such as *ROE*. Out of the 149 firms, 8 per cent are listed on another exchange than SSE. These 8 per cent consists of larger firms; mean *Size* of 94747 million and mean *Ln size* of 10.831, compare to the total average *Size* of 13045 million and *Ln size* of 7.28.

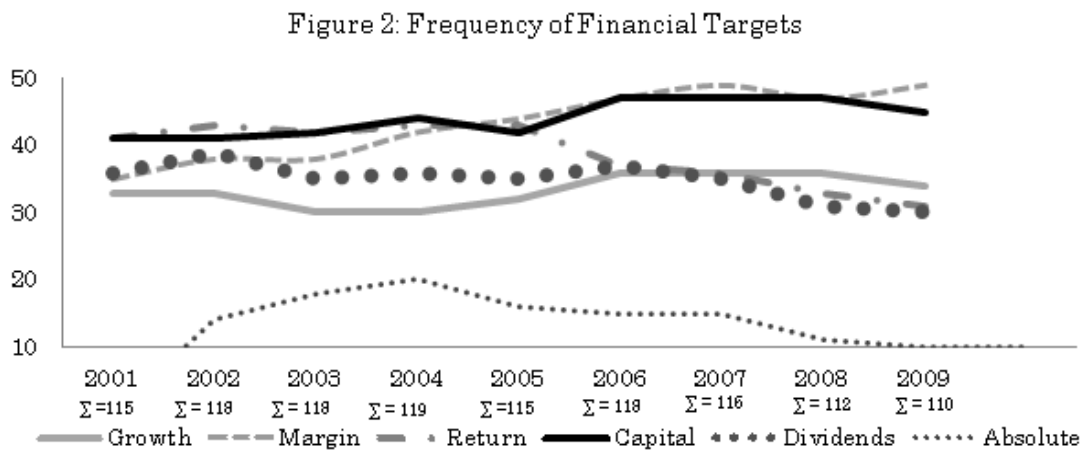
The columns “pre-IFRS” and “post-IFRS” in Table (1), show the firms’ adoption of IFRS (International Financial Reporting Standards). The deadline for implementation of IFRS was in January 2005, and four firms decided to not disclose according to IFRS in advance.

The total 149 firms are further divided into ten Industry sub-sectors presented in Table (4). We observe differences between the industry sectors. *Building & construction* firms disclose the most information on average (*index* of 0.69); mainly due to the *Position* component (0.95), which is highest among all other industry sectors. *Process industry* is the second highest disclosing sector (0.61) with a noticeable high disclosure of *Targets* (0.51) and reflection in *Time* (0.57). *Industrial manufacturing* is the largest in size (observations) of all industry sector and places itself close to average on all index components. We observe that *Development firms* have the lowest *index* value of 0.30. Figure (2), displays the frequency of financial targets over time. We notice that *Capital structure*, solid black line, and *Return*, grey dash dot, have been frequently stated targets in 2001 until the boom of 2005.

Table 4 : Mean Values for Industry Categories

Industry	%	Index	Position	Targets	Time	Strategy	Size
<i>Building & construction</i>	4.0	0.69	0.95	0.46	0.53	0.67	28766
<i>Process manufacturing</i>	1.7	0.61	0.81	0.51	0.57	0.67	3369
<i>Miscellaneous</i>	6.7	0.57	0.70	0.41	0.51	0.71	992
<i>Multi-industry</i>	5.9	0.53	0.73	0.24	0.37	0.75	780
<i>Raw materials</i>	9.2	0.51	0.70	0.30	0.43	0.61	11663
<i>Industrial manufacturing</i>	33.8	0.51	0.68	0.41	0.42	0.73	23542
<i>Pharmaceuticals & medical technology</i>	4.1	0.45	0.56	0.28	0.40	0.81	9207
<i>Consumer manufacturing</i>	11.6	0.45	0.51	0.33	0.45	0.55	19418
<i>Prospecting</i>	1.5	0.44	0.60	0.00	0.17	0.75	249
<i>Development firms</i>	21.3	0.30	0.43	0.09	0.16	0.59	296

Note Table 4: Percentage of total observations; Position, Target, Time and Strategy are Index components; size, balanced sheet in million SEK



Note Figure 2: Σ , sum of all targets per year.

Capital structure has kept its frequency, but *Return* lost ground after the introduction of IFRS and the boom of 2005. *Dividends*, large dots, and *Growth*, solid grey line, have kept a steady frequency until 2006, where we notice a decrease of disclosed *Dividends* targets.

Further, it is noticeable that *Margin*, gray dash, has become a more prominent target than any other and is the only target which increased in frequency after the financial crisis of 2008. *Absolute* targets, small dots, are less frequent than any other targets and lost ground since 2003. Below the time line in the Figure (2), we notice that the sum of disclosed targets increased from 2001 to 2004. In 2005, after the introduction of IFRS, we observe minor fluctuation in total disclosed targets until 2008, where the total disclosed targets decrease.

5 Results

5.1 Debt Ratio

As shown in Table (5), the *Debt ratio* coefficient is insignificant. According to previous research, shown section 2.1, a low debt ratio increases voluntary disclosure, which is in line with the negative coefficient in Table (5). This is inconsistent with the belief of positive relationship between leverage and the extent of voluntary disclosure (Ismail & Candler, 2005). However, the *Debt ratio* coefficient is insignificant and cannot suggest conclusive findings.

5.2 Ownership

As seen in Table (5), we find no significant effect of *Owners concentration* on the degree of voluntary disclosure. Cormier, Magnan and Van Velthoven (2005) argue that firms with concentrated ownership disclose less voluntary information in their annual reports, since shareholders already have access to the required information. Our result is supported by Raffournier (1995) and Depoers (2000) finding; an insignificant relationship between *Owners concentration* and voluntary disclosure.

Table 5: Selected Regression Results

Variable	Coefficient (β)	Std. Error	z-Statistics
<i>Debt to Equity Ratio</i>	-0.001	0.001	-0.960
<i>Owners concentration</i>	0.068	0.083	0.820
<i>Return on Equity</i>	0.004	0.004	0.080
<i>Regulation</i>	-0.029	0.051	-0.570
<i>Foreign listing</i>	0.045	0.071	0.630
<i>Ln Size</i>	0.028**	0.012	2.290
<i>Process manufacturing</i>	0.076**	0.031	2.460
<i>Building & construction</i>	0.117***	0.046	2.580
<i>Development Firms</i>	-0.137**	0.054	-2.520
<i>Year 2001</i>	-0.028*	0.015	-1.860
<i>Year 2004</i>	0.030**	0.030**	2.450

Note Table 5: *, ** and *** represent 10, 5 and 1 per cent significance level. Std.Error, robust standard error; Industrial manufacturing and year 2003 are reference categories. Derived from Table C2.

5.3 Profitability

The result in Table (5) shows a positive and insignificant coefficient of our proxy for Profitability, *Return on equity*. Further, we find a significant negative coefficient for the recession year of 2001. Similarly, the 2004 dummy variable, the year before the economic boom, is significant and positive. However, year 2007 (the previous year to the late financial crisis), is insignificant, but Figure (2) shows a modest decrease in the index. This is supported by Holland (2005), which suggests that degree of voluntary disclosure increase during prosperous times and a decrease during poor.

5.4 Regulation

We see a negative effect in the change of regulatory system between the years of 2004 and 2005, contrary to Gibbins, Richardson and Waterhouse (1990) findings. The result for *Regulation* is insignificant, which makes further comments inconclusive.

5.5 Foreign Listing

We find an insignificant and positive value for the *Foreign listing* coefficient in Table (5). The data in section 4 shows that 8 percent of the firms are foreign listed and larger than average. This is in line with the finding of a positive correlation between *Size* and *Foreign listing* (Broberg, Tagesson, Collin, 2009).

5.6 Industry

In Table (5), we observe three significant industry sectors; *Development firms*, *Process manufacturing* and *Building & constructing*. *Development firms* demonstrate a negative coefficient, which can be explained by R&D intensive biotech firms included in this group. A plausible explanation is that R&D intensive firms differ in their core business, phase oriented process, compare to other industry groups. Since the success of R&D projects are difficult to predict, due to uncertainties in future cash flows, management discloses less voluntary information. Signaling financial targets or predicting the outcome for a volatile business might be a sensitive matter for biotech firm, which wish to maintain credibility and legitimacy towards investors. The fear of exposing valuable information is another plausible reason. Hence, loss of potential patents and decreased competitive advantages, which may have a negative effect on shareholders' wealth (Darrough, 1993).

Moreover, recently listed and founded *Development firms* have not established disclosure practices and can neither reflect on disclosed targets nor outcomes. Consequently, these firms attain a lower index value compare to firms who have established disclosure practices during several years.

Watts & Zimmerman (1986), argue that industry is influenced by *Size*, which is noticeable in Table (3). Both *Process manufacturing* and *Building & construction* are above average *Size*, while *Development firms* are below average.

5.7 Size

This study further establishes the significant relationship between *Size* and voluntary disclosure, which is confirmed by a significance of 99 per cent for the positive coefficient. This result matches previous

findings (Cooke, 1989; Meek, Gray, Roberts, 1995; Adrem, 1999; Broberg, Tagesson, Collin, 2009). As previous studies have discussed; *Size* can be a proxy for several other variables *e.g.* agency cost, political cost and visibility, which increase contracting, monitoring and public scrutiny. Our result confirms that larger firms have greater public pressure to signal additional information in their annual reports.

In addition, *Size* can be an indicator for established disclosure practices, were smaller firms, *Development firms*, has unestablished practices, while larger firms, *Process manufacturing* and *Building & constructing* have been on the market for a longer time. Thus established voluntary disclosure practices over time.

Size is, however, difficult to interpret from a theoretical point of view; it does not provide any further guidance in to what distinctive affects it has on the extent of voluntary disclosure. As firm *Size* increase, regardless of its implicit effects on other firm characteristics, additional voluntary information ought to follow, in order to maintain legitimacy. This is especially important for firms in rapid growth, with increasing political costs and monitoring, as well as decreasing *owner concentration*.

6 Conclusion

This study focus on which firm characteristics effect voluntary disclosure of financial targets among manufacturing firms listed on SSE during the period 2001 to 2009. After analysing 1041 observations individually, industry sectors and *Size* show a significant effect on voluntary disclosure. Firm size is, however, difficult to interpret from a theoretical point of view; it does not provide any further guidance to what distinctive affects it has on the extent of voluntary disclosure. As firm size increase, regardless of its implicit effects on other firm characteristics, additional voluntary information ought to follow in order to maintain legitimacy. This is especially important for firms in rapid growth, with increasing political costs and monitoring, as well as decreasing owner concentration.

Development firms disclose less information due to cash flow uncertainties, fear of exposure and unestablished disclosure practices. *Building & construction* as well as *Process manufacturing* disclose more information than other firms on SSE. *Building & construction* and *Process manufacturing* are,

however, influenced by *Size*, which has great explanatory power on the extent of voluntary disclosure. Our study verifies Raffournier (1995) and Depoers (2000) finding of *Owners concentration* as insignificant when explaining voluntary disclosure. Similarly, we find no significance for *ROE* as a proxy for profitability.

We suggest that firms adjust the degree of voluntary disclosure in their annual reports before a change in the economic situation. Hence, firms take the advantage of voluntary disclosure as a signaling tool to inform investors about their upcoming success. As firms neither want to signal decreased firm value nor lose credibility of their signals; they avoid voluntary disclosure as a signaling tool during poor times.

The results indicate that *Debt Ratio* has no effect on the extent of voluntary disclosure in annual reports. We conclude that highly leveraged firms satisfy its debt holders by disclosing additional information via other channels *e.g* in forms of credit ratings or other information channels not covered in this study.

Furthermore, we find *Foreign listing* and *Regulation* as insignificant due to internationalized disclosure practices. In addition, “the unintended chilling effect”, possible loss of competitive advantages and negative effect on shareholders’ wealth, as well as Sweden’s relatively high disclosure level may explain the insignificance.

Applying one of the three theories would not be sufficient to explain which firm characteristics influence voluntary disclosure of financial target. Hence, the multi-theoretical framework proves appropriate when explaining particular firm characteristics influence on voluntary disclosure. However, the continues financial variables did not provide much assistance.

Further comparison between differences in national disclosure practices and specific stock exchange listing may lead to greater understanding of *Foreign listing*. Additionally, further studies attempting to dismantle the *Size* variable would enrich the research of voluntary disclosure and entail more precise understanding in to what distinctive affects *Size* has on voluntary disclosure.

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Appendix

A Definition of Dependent Variable

A.1 The Index

For proximating voluntary disclosure, the study adopts the following index:

$$Index_{it} = \frac{\sum components}{n_{components}} = \frac{Position + Targets + Time + Strategy}{4} \quad (A.1)$$

In order to obtain a straightforward overview of the *index*; we divide the outcome of the components *Position*, *Target*, *Time* and *Strategy* by 4, the total amount of components. Hence, complete disclosure equals an *index* value of 1 and when no information has been disclosed, 0.

A.2 Position

The *Position* component indicates where the targets are located in the annual report. The location is described by $x_{location}$, a binary variable, set to 1 if the target is found at a given location.

$$x_{location} \in (0, 1) \quad (A.2)$$

As seen in Equation (A.3), $f_{location}$ takes on the different values if $x_{location}$ is an element (\in) of either *header* or (\wedge) *pre-board report* or *board report* (*förvaltningsberättelse*), or not an element (\notin) of

any location.

$$f_{location}: \begin{cases} 3, & x_{location} \in header \wedge x_{location} \notin pre - board report \wedge x_{location} \notin board report \\ 2, & x_{location} \notin header \wedge x_{location} \in pre - board report \wedge x_{location} \notin board report \\ 1, & x_{location} \notin header \wedge x_{location} \notin pre - board report \wedge x_{location} \in board report \\ 0, & x_{location} \notin header \wedge x_{location} \notin pre - board report \wedge x_{location} \notin board report \end{cases} \quad (A.3)$$

$f_{location}$ receives 3 points for adding targets or financial targets in the table of contents, *header*. If the targets are located in the earlier sections of the annual report, between the table of contents and the board report, *pre-board report*, 2 points are awarded. If targets are located in the *board report*, the firm is given 1 point, and if no targets are disclosed, 0 points are awarded.

$$Position = \frac{f_{location}}{3} \quad (A.4)$$

By dividing $f_{location}$ by the maximum score of 3, we assure that Position is equally weighted in the index.

A.3 Targets

This component indicates the amount of targets stated in the annual report. The financial targets were categorized into 6 groups; capital structure (f_{cs}) dividends (f_{div}), growth (f_{gr}), margin (f_{mr}), return (f_{rt}) and absolute targets (f_{at}).

$$x_{1...n} \in (0, 1) \quad (A.5)$$

Within these groups, firms may disclose multiple targets in the same group, *e.g.* return (f_{rt}) consists of return on capital x_1 , or return on operating capital, x_2 or return on capital employed x_3 , *etc.* Each target is represented by a binary variable, x_n , in Equation (A.6).

$$f_{group}: \begin{cases} 1, & x_1 \vee x_2 \vee x_3 \dots \vee x_n \\ 0, & x_1 \vee x_2 \vee x_3 \dots \vee x_n \end{cases} \quad (A.6)$$

We solved for a possible accumulating effect by setting f_{group} , equals 1 if (\forall) any of the targets x_n are disclosed.

$$Targets = \frac{\sum f_{group}}{n_{group}} = \frac{f_{cs} + f_{div} + f_{gr} + f_{mr} + f_{rt} + f_{at}}{6} \quad (A.7)$$

In order to be awarded the highest score, all 6 groups need to be disclosed. Similar to *Position*, we divided the outcome by n_{group} , 6, in order to obtain an equally weighted *index*.

A.4 Time

Reflection in time of financial targets is an indication for how a firm reflects on previous stated targets and how they predict the outcome for the future. We assume two different sub-groups, f_{past} and f_{future} . Within past discussion, f_{past} , we identified two levels of disclosure; p_1 , if the firms only disclose information on the outcome for the previous year, and p_2 , if the firms disclose a qualitative discussion of the outcome or the outcomes for several years. Disclosure of the outcomes must, however, be in a context with financial targets.

$$f_{past} : \begin{cases} 0, & \neg p_1 \wedge \neg p_2 \\ 1, & p_1 \wedge \neg p_2 \\ 2, & \neg p_1 \wedge p_2 \end{cases} \quad (A.8)$$

As seen in Equation (A.8), disclosure of p_1 and not (\wedge) p_2 awards with 1 point, while further disclosure of past outcomes, p_2 and not p_1 awards with 2 points. If not p_1 and not p_2 , 0 points are awarded. Future predictions f_{future} , are constructed in a similar manner. Where q_1 indicates a general prediction of the firm's future, while q_2 represents disclosure of future prediction in terms of financial targets or earning outcomes.

$$f_{future} : \begin{cases} 0, & \neg q_1 \wedge \neg q_2 \\ 1, & q_1 \wedge \neg q_2 \\ 2, & \neg q_1 \wedge q_2 \end{cases} \quad (A.9)$$

As seen in Equation (A.9), disclosure of q_1 and not q_2 gives 1 point, while further disclosure of future prediction, q_2 and not p_1 gives 2 points. If not q_1 and not q_2 is disclosed, 0 points are awarded.

$$f_{time} = \frac{\sum Time}{n_{max}} = \frac{(f_{past} + f_{future})}{4} \quad (\text{A.10})$$

In Equation (A.10), we combined the *Time* variables; sum of past outcomes, f_{past} and future prediction, f_{future} and divide it by the highest attainable score, n_{max} , 4, in order to maintain an equally weighted *index*.

A.5 Strategy and Vision

Strategy and *Vision* indicates the disclosure of strategic measures from the firm. Where s_1 indicates an overall strategic plan and s_2 indicates that the firm has disclosed specific strategic information towards its target.

As described in Equation (A.11), disclosure of a general strategy in the annual report, s_1 gives 1 point. Additional disclosure of target specific information in the strategy section s_2 , gives 2 points. If not s_1 and not s_2 , is disclosed, 0 points is given.

$$f_{vision} : \begin{cases} 0, v_1 \\ 1, v_1 \end{cases} \quad (\text{A.11})$$

In addition, we consider *Vision* in the annual report, v_1 and award this with 1 point. If v_1 is not disclosed, 0 points is awarded. Disclosure of Vision must, however, be in a context with the financial targets

$$Strategy = \frac{\sum Strategy}{n_{max}} = \frac{(f_{strategy} + f_{vision})}{3} \quad (\text{A.12})$$

Finally, we sum $f_{strategy}$ and f_{vision} and divide it by the maximum score, n_{max} , 3, in order to maintain an equally weighted *index*.

B Statistical Approach

We considered two possible approaches when running the regressions of the panel data, Fixed effect model (FE) and Random effect model (RE). The paper, however, does not present a deeper breakdown of the mentioned models; for a comprehensive treatment, see Wooldrige (2002) and Baltagi (2005). A standard specification of the model is:

$$Y_{it} = \beta_0 + \sum \beta X_{it} + \beta Z_i + \delta t + \alpha_i + \varepsilon_{it} \quad (\text{B.1})$$

Y_{it} , dependent variable; β_0 , the intercept for the model; βX_{it} , observed time variant firm characteristics; βZ_i , observed time invariant firm characteristics; δt , time variable; α_i , unobserved effect that represents the joint impact of the unobserved explanatory variables; ε_{it} , error-term.

FE assumes an a correlation between the α_i , unobserved effect and independent variables X_{it} , $Cov(X_{it}, \alpha_i) \neq 0$ (Baltagi, pp.12-14, 2005). Another crucial assumption of the FE model is that time invariant characteristics, Z_i (industry category), is distinctive to the firm and ought not to be correlated with other characteristics, X_{it} . Subsequently, when running regressions with FE, the industry variables, Z_i becomes omitted due to collinearity. Hence, time-invariant variables cannot be used to investigate the effects on the dependent variable. FE aims to analyze the effects of changes within a firm; a time invariant characteristics cannot cause a change, since industry is constant for each firm (Brooks, 2008). Therefore, FE is not suitable when analyzing industry effects, which is an important independent variable according to previous studies (Verrechia, 1983; Cooke 1989; Gray, Meek, Roberts, 1995; Adams, Hill, Roberts, 1989).

Hence, we turn to the RE model which assumes that the unobserved effect is not correlated with the independent variables ($Cov(X_{it}, \alpha_i) = 0$) and that its possible to treat the unobserved effect as being drawn randomly. Therefore, the α_i , unobserved effect is subsumed in to the error term. The advantage with the RE is that we can include time-invariant variables, industry, as an explanatory variable (Baltagi, pp.14-19, 2005).

To retrieve further guidance in the selection of the statistical model we apply two tests, Hausman

and Breush-Pagan Lagrange Multiplier (LM). The key consideration in selection of a RE or FE approach is whether independent variables and the error term are correlated. Hausman (1987) proposed a test on the difference between RE and FE estimates. FE is consistent when independent variables and the error term are correlated, but RE is not. A statistically significant difference is interpreted as an evidence for FE and a rejection of the RE model, due to unobserved heterogeneity bias for the RE estimates (Baltagi, pp.14-19, 2005). By running two similar RE and FE regressions, we retrieve a value of $\chi^2(14) = 15.23$ and $\text{prob.} > \chi^2 = 0.3629$, which does not reject the null hypothesis and suggest RE as a plausible approach. If proven significant, RE estimates will be subject to unobserved heterogeneity bias.

In combination with the Hausman test we perform a Breush-Pagan Lagrange Multiplier test (LM) for random effects. The null hypothesis in the LM test checks if the variance across firms is zero - no panel affect. If the variance between them equals zero, there are no significant difference across units; the model has been so well specified that the error term contains no unobserved characteristics and is purely random. Hence, there is no need to apply RE. However, we retrieve a value of $\chi^2(1) = 1648.85$ and $\text{prob.} > \chi^2 = 0.000$, rejecting the null hypothesis and suggesting RE and not an ordinary least square (OLS) approach. Consequently, we can include invariant characteristics in the model and assume panel affect (Baltagi, pp.59-60, 2005).

Given suggestion from previous studies on invariant industry variables as a significant factor for differences in voluntary disclosure; the Hausman test and the Breush-Pagan Lagrange multiplier test, we conclude that RE is a suitable approach. In Table (C2), we observe that the F-statistics reject the null hypothesis. Hence, the coefficients (β -values) in the model are significantly different from zero. The R^2 values indicate that the model does not include all characteristics affecting voluntary disclosure (otherwise, $R^2 = 1$). Therefore the inclusion of the error terms, ε_{it} in Equation (1).

B.1 Tables

Table C1: Independent Variables

Variable	Definition	Previous Studies
<i>Debt ratio</i>	Total liabilities divided by equity	Adrem, 1999; Watson Shrivvers, Marston, 2002; Cormier, Magnan, Van Velthoven, 2005; Broberg, Tagesson, Collin, 2009.
<i>Owners concentration</i>	Total share of votes for the five largest owners at the end of the year	Raffournier 1995; Adrem 1999;
<i>Profitability</i>	Return on equity, net income divided by total equity	Prencipe, 2004; Broberg, Tagesson, Collin, 2009.
<i>Regulation</i>	Dummy variable, years pre-IFRS are set to 0, and years post-IFRS are set to 1	Lim, Matolezy, Chow, 2007; Frabcaus, Nanda, Olsson, 2007. Gibbins, Richardson, Waterhouse, 1990; Eccles, 2004; Cormier, Magnan, Van Velthoven, 2005.
<i>Foreign listing</i>	Dummy variable, 1 if the firm is listed on another stock exchange in addition to SSE, 0 if only listed on SSE	Adrem, 1999; Broberg, Tagesson, Collin, 2009.
<i>Industry</i>	Set of dummy variables categorized by Ph.D M. Hamberg, who have conducted extensive research on SSE listed firms.	Hamberg & Novak, 2010.
<i>Size</i>	Log balance sheet total	Zarzeski 1996; Watson, Shivers, Marston, 2002; Jaggi & Low, 2002; Cormier, Magnan, Van Velthoven, 2005.

Note Table C 1: Variable definitions and previous studies applying similar definitions.

TABLE C2: Regression Results Full Model

Variable	Coefficient (β)	Std.Error	z-Statistic
<i>Debt to Equity Ratio</i>	-0.001	0.001	-0.960
<i>Owners concentration</i>	0.068	0.083	0.820
<i>Return on Equity</i>	0.004	0.004	0.080
<i>Regulation</i>	-0.029	0.051	-0.570
<i>Foreign listing</i>	0.045	0.071	0.630
<i>Ln Size</i>	0.028**	0.012	2.290
<i>Multi-industry</i>	0.046	0.064	0.720
<i>Consumer manufacturing</i>	-0.060	0.064	-0.930
<i>Prospecting firms</i>	-0.037	0.124	-0.300
<i>Raw materials</i>	-0.031	0.046	-0.680
<i>Pharmaceuticals & medical tech</i>	-0.141	0.088	-1.610
<i>Process manufacturing</i>	0.076**	0.031	2.460
<i>Building & construction</i>	0.117***	0.046	2.580
<i>Miscellaneous Manufacturing</i>	0.051	0.064	0.790
<i>Development Firms</i>	-0.137**	0.054	-2.520
<i>Year 2001</i>	-0.028*	0.015	-1.860
<i>Year 2002</i>	-0.016	0.016	-0.940
<i>Year 2004</i>	0.030**	0.012	2.450
<i>Year 2005</i>	0.049	0.052	0.930
<i>Year 2006</i>	0.049	0.055	0.880
<i>Year 2007</i>	0.042	0.058	0.730
<i>Year 2008</i>	0.050	0.058	0.850
<i>Year 2009</i>	0.052	0.058	0.890
<i>Constant</i>	0.255**	0.102	2.500
<i>Chi²</i>	148.54	R ² within	0.027
<i>Prob > Chi²</i>	0.000	R ² between	0.255
<i># Firms</i>	146	R ² overall	0.193
<i># Observation</i>	1032		

Note Table C 2: *, ** and *** represent 10, 5 and 1 per cent significance level. Std.Error, robust standard error; Industrial manufacturing and year 2003 are reference categories.