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The Interpretation of Ambitions

– *An empirical study of the capital market effects of financial targets*

Abstract

Corporate disclosure is a means for communicating firms' private information to outside stakeholders. It is argued to be important for the functioning of an efficient capital market, exposed to potential information uncertainty and agency issues. This thesis investigates the capital market effects of the voluntary disclosure of financial targets using a sample of Swedish listed firms. Intuitively, the disclosure of financial targets could be a way of demonstrating ambition, while the achievement of historically disclosed targets could be a means of proving the ability to deliver upon such ambitions. Due to a scarcity of previous research studying financial targets explicitly, this thesis is unique in terms of the disclosure type investigated. Our results contribute to the existing research in three main ways. First, we show that the disclosure of financial targets mitigates information asymmetry in the capital markets. Secondly, the lack of significant effects from disclosure of financial targets on the cost of equity capital contrasts previous research and opens up for further studies in this field. Thirdly, the results underline that the effects of the disclosure and achievement of financial targets differ between different types of firms, depending on their growth opportunities.

Keywords: Voluntary disclosure, financial targets, information uncertainty, bid-ask spread, cost of equity capital

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1 Introduction

Financial reporting and disclosure are important means for communication of managers' private information to investors. Such information is critical for the functioning of an efficient capital market, as it is used as input in investors' decision-making and estimation processes and for evaluation purposes. Previous research states that information uncertainty and agency issues are the underlying drivers of the demand for voluntary disclosure (Verrecchia, 1983; Botosan, 1997; Healy et al., 2000). Information uncertainty impedes the investor decision-making process and estimation precision, and arises due to that managers typically possess monopolistic information about their firms. More specifically, two different information uncertainty effects, information asymmetry and information precision, will ultimately impact the value of the firm (Botosan, 2006; Armstrong et al., 2010; Lambert et al., 2011). Information asymmetry in the market leads to increased transaction costs, which can be measured through bid-ask spreads, and ultimately increases cost of equity capital. Furthermore, as the estimation of firm value is contingent upon the information precision, this will have an incremental effect on the cost of equity capital. In the next phase, as an investor has allocated capital with the manager, the investor seldom takes an active role in managing the investment. Uncertainty about whether or not the manager is acting in the interest of the investor leads to agency issues (Jensen and Meckling, 1976). Research has shown that voluntary disclosure has a decreasing effect on information uncertainty and that the disclosure of relevant information increases transparency and enables the investor to monitor the manager (Diamond and Verrecchia, 1991; Welker, 1995; Leuz and Verrecchia, 2000). The decreased information uncertainty has been documented through narrowed bid-ask spreads, and been proven to affect cost of equity capital (Diamond and Verrecchia, 1991; Botosan and Plumlee, 2002; Easley and O'Hara, 2004; Botosan 2006). Though, it is primarily forward-looking information, useful for forecasting, that affects the cost of capital (Bravo Urquiza et al., 2012). In addition, the extent to which voluntary disclosure mitigates market inefficiencies is dependent upon the credibility of information (Healy and Palepu, 2001).

Our thesis revolves around the voluntary disclosure of financial targets[1], a field characterized by scarcity in previous research. Nevertheless, the information content of financial targets is inherently forward-looking, and can serve as input in investors' decision-making and estimation processes. By measuring the achievement of historical financial targets, investors can evaluate and monitor the manager, and the ability to achieve disclosed targets could further be interpreted as evidence of information credibility. This becomes increasingly interesting as three different kinds of firms can be observed with regards to disclosure of financial target; firms that do not disclose financial targets, firms that disclose financial targets and continuously achieve those targets, and firms that disclose financial targets showing an inability to achieve them. Thus, it is intriguing to elaborate on whether any of these groups enjoy particular capital market effects from the information revealed through their behavior in this regard. Therefore, we intend to an-

[1] Targets concerning growth, margin, return, dividends, capital structure and cash flow

swer the following research question:

- *What effects do the disclosure and achievement of financial targets have on bid-ask spread and cost of equity capital?*

The research question implies that we first need to determine how the disclosure of financial targets prevails among Swedish listed firms. Then, we analyze whether variations in the disclosure of financial targets relate to bid-ask spread and the cost of equity capital, as well as whether the achievement of disclosed targets relate to bid-ask spread and the cost of equity capital. In addition, we account for the fact that firms are exposed to information uncertainty in different ways depending on their growth opportunities (Smith and Watts, 1992; Cooney and Kaley, 1993; Wu and Au Yeung, 2012).

We use a data set consisting of Swedish listed firms during the period from 2007 to 2012. We confirm a negative relationship between the disclosure of financial targets and bid-ask spread, indicating that the disclosure of financial targets decreases information asymmetry, for the overall sample. This result remains when controlling for firm characteristics, such as size, profitability and volatility. Furthermore, in order to account for the differences in growth opportunities, we split our sample into sub-samples, namely low, mixed, and high growth firms. In particular, the relationship between disclosure of financial targets and bid-ask spread prevails for low and high growth firms. These findings are economically relevant, as they indicate that firms going through phases of low or high growth can lower perceived information asymmetry through increasing the disclosure of financial targets. With regards to the cost of equity capital, no results with statistical significance have been found for the sample in general, suggesting that there are other factors deteriorating any cost of equity capital effects from information asymmetry mitigation. The cost of equity capital is only significantly affected for low growth firms, however this effect seems to stem from changes in disclosure rather than disclosure per se. Overall, the analysis with regards to target achievement provides little empirical support for any capital market effects. Yet, mixed growth firms receive the hypothesized benefits for the cost of equity capital from the achievement of disclosed targets, rather than from only disclosing financial targets. As this sub-sample does not enjoy any particular effects on bid-ask spread from achieving disclosed financial targets, it seems that it is the information precision that is the underlying driver of the decreased cost of equity capital rather than decreased information asymmetry per se. This suggests that just engaging in disclosure of financial targets, without considering the ability to achieve those targets, may impede the economic effect of such disclosures for mixed growth firms.

2 Theoretical framework

Given the scarcity of research on the disclosure of financial targets, the focus of our theoretical framework is the drivers and effects of voluntary disclosure in general. First, we review research covering the drivers behind voluntary disclosure. Previous research highlights the argument that the need for financial reporting and disclosure arises from information uncertainty and agency theory related issues. However, there are other determinants behind the final disclosure decision, including both managers' personal incentives and various costs associated with voluntary disclosure. Secondly, we review research relating to capital market effects of financial reporting and disclosure decisions. Previous research documents implications of voluntary disclosure for bid-ask spread and cost of capital, as well as other capital market variables.

2.1 Drivers of voluntary disclosure

In order to understand why firms communicate information voluntarily, in excess of what is required by regulation, we need to uncover the underlying issues leading to the need for firms to engage in this activity. The locus of much research within accounting and finance is the optimal allocation of monetary resources. Information uncertainty and agency issues impede the efficient allocation of such resources in the capital market (Akerlof, 1970; Jensen and Meckling, 1976; Barry and Brown, 1985). Previous research states that these market inefficiencies are the underlying drivers of the demand for voluntary disclosure, as information about firm performance and corporate governance is needed in investors' decision-making and estimation processes, and for evaluation purposes (Verrecchia, 1983, 2001; Botosan, 1997; Healy et al., 2000).

2.1.1 Information uncertainty and agency issues

Two different information uncertainty effects have been proven to affect the investors' assessment of firm value, namely information asymmetry and information precision (Botosan, 2006; Armstrong et al., 2010; Lambert et al., 2011). Generally, information asymmetry is related to the quantity of information communicated to the market, while information precision rather relates to the quality of information. If these information uncertainty issues are not resolved, the investors will rationally undervalue some good investments and overvalue some bad investments (Akerlof, 1970).

First, information asymmetry arises either between the firm and outside investors, or between different investors in the capital market (Leuz and Verrecchia, 2000). The fact that managers often have monopolistic access to information about their firms implies that there are differences in the amount of information held by managers and the amount of information publicly available to investors (Scholes, 1969; Jensen and Meckling, 1976). As a consequence, investors seeking to allocate their monetary resources are exposed to the risk that they are not being given all the relevant information regarding the investment opportunity. Furthermore, it can be assumed that managers are rational, indicating that they will base any sharing of private information upon their own best interest. This leads to that investors, conscious about

such behavior, cannot differ between good and bad investment opportunities, why they will value all these opportunities at the average level (Jensen and Meckling, 1976). In addition, there might be differences in the amount of private information held by investors. This information imbalance enhances information asymmetry in the market, depending on whether or not markets are perfectly competitive, and is further elaborated on in Section *2.2 Capital market effects of voluntary disclosure*.

Second, the fact that investors themselves estimate the parameters used in the assessment of firm value implies that the information precision, contingent upon the quality of information, might have an incremental effect beyond that of information asymmetry (Botosan, 2006; Armstrong et al., 2010; Lambert et al., 2011). Assume that two firms have identical estimated pay-off distributions, thus expected value, and the only difference between these two firms is the quality of information provided. Then, the relatively higher (lower) information precision corresponding to the firm providing higher (lower) quality information will lead to lower (higher) uncertainty regarding the expected value of that firm. Therefore, a change in the information precision could have two different effects. On the one hand, increasing information precision leads to higher investor confidence in the estimated pay-off distribution, thereby decreasing estimation risk, which is non-diversifiable (Barry and Brown, 1985; Clarkson et al., 1996; Botosan, 2006). Increased confidence should consequently narrow estimation intervals, thereby decreasing the dispersion in investor estimates (Barron and Karpoff, 2004). On the other hand, increasing information precision could have an effect on investors' prior expectations, thus alter investor estimates and lead to a revision of the expected value (Verrecchia, 1990; Barron and Karpoff, 2004; Hughes and Pae, 2004). Intuitively, such revisions should lead to that the average estimated pay-off distribution becomes closer to the actual pay-off distribution (Barron and Karpoff, 2004; Hughes and Pae, 2004). Ultimately, the quality of information is emphasized through information credibility, which could magnify the information precision effect (Healy and Palepu, 2001).

Differences in firm characteristics may further explain how information uncertainty prevails, as they give an indication of the firm-specific information environment. Previous research often categorizes firms with regards to growth and value characteristics[2] (Fama and French, 1992, 1996, 1998; Lakonishok et al., 1994). More specifically, the information uncertainty regarding firms' growth opportunities can be separated from the information uncertainty arising from firms' assets-in-place (Wu and Au Yeung, 2012). Previous research suggests that in a world with information uncertainty, two extreme groups of firms can be identified; those with information uncertainty primarily arising from growth opportunities, referred to as high growth firms, and those with information uncertainty primarily arising from assets-in-place, referred to as low growth firms. Firms not falling in to any of the previously mentioned groups populate a third group called mixed growth firms (Wu and Au Yeung, 2012). In particular, managers of high growth firms are argued to have monopolistic information about their firms' investment opportunity set (Smith

[2] Where growth firms are characterized by low book-to-market ratios and high price-earnings ratios

and Watts, 1992)[3].

Additionally, once an investor has chosen to allocate his or her capital with a firm, a second problem arises due to the fact that the investor seldom intends, or has the opportunity, to take an active role in managing the investment. In effect, an investor will not be able to directly ensure that the manager is acting in the best interests of the investor, thus giving rise to agency costs (Jensen and Meckling, 1976). The agency issue implies that the self-interested manager might be incentivized to expropriate the investor's allocated capital, and potentially make suboptimal investment decisions on behalf of the investor. However, the disclosure of relevant information increases transparency and enables the investor to monitor and evaluate the manager and the decisions made (Healy and Palepu, 2001).

2.1.2 Mitigation of market inefficiencies

Voluntary information sharing could help mitigating the information uncertainty and agency issues. Though, the extent to which such information mitigates the information uncertainty and resource misallocation is dependent upon the credibility of the information (Healy and Palepu, 2001). Furthermore, in addition to voluntary disclosures, several other solutions have been proven to have the same mitigating effect. First, accounting regulation obliging firms to provide information useful in the decision-making process reduces information asymmetry (Holthausen and Watts, 2001; Kothari, 2001). Secondly, optimal contracts between managers and investors could be structured to align interests and to provide incentives for disclosure of private information (Kreps, 1990). Finally, information intermediaries, such as financial analysts and rating agencies, operate in order to uncover managers' private information (Chan, 1983; Barth and Hutton, 2000). Yet, the ability to enforce contracts or incentive issues related to information intermediaries determine whether these solutions fully eliminate the theoretical issues, or if there is residual information uncertainty (Healy and Palepu, 2001).

2.1.3 Other drivers and constraints to voluntary disclosure

Furthermore, there are other drivers of voluntary disclosure than those discussed so far. First, there are external factors affecting disclosure decision. Generally, studies conclude that the disclosure policies are complex and influenced by factors such as culture, and political and economic systems (Archambault and Archambault, 2003; Skogsvik and Gray, 2004; Boesso and Kumar, 2007). Second, voluntary disclosure is linked to firm characteristics, for instance size, ownership structure and new capital offerings[4] (Ruland et al., 1990; Lang and Lundholm, 1993; Healy et al., 1999; Karim et al., 2013). Other research documents a strong relation between earnings performance and voluntary disclosure, indicating that firms increase

[3] Similar to Fama and French's three factor definitions, Smith and Watts (1992) use the ratio of the market value of firm assets to the book value of assets as a proxy for the growth options in the firm's investment opportunity set

[4] Fama and French (2002), elaborates on that small growth firms, encumbered by high levels of asymmetric information, rely heavily on new equity financing without suffering from adverse selection effects, which contrasts the classical pecking order theory (Myers and Majluf, 1984). The generalized Myers-Majluf model, on the other hand, predicts that more asymmetric information, arising mainly from growth, can facilitate new equity issues and in some cases even produce a positive announcement effect of new equity issues (Cooney and Kalay, 1993)

disclosure in periods of earnings increases, and shift to disclosures focusing on the positive short-term results as periods of earnings declines approach (Miller, 2002). Additionally, several researchers have studied and discussed corporate governance, some in relation to voluntary disclosure, and how its systematic use can improve the performance of firms and ensure transparency towards the capital market (Kaplan and Norton, 1992; Simons, 1995; Maiga and Jacobs, 2003; Elijido-Ten, 2013; Prince and Dwivedi, 2013). Third, depending on managers' characteristics, ability and underlying objectives, managers might choose whether or not to disclose certain information depending on both the firm specific capital market effects and on their personal reputation among investors (Truman, 1986; Beyer and Dye, 2012). For instance, there is evidence showing that voluntary disclosure tends to increase in relation to the point in time when management share option programs are becoming exercisable, or similarly when share option compensation is at risk (Aboody and Kasznik, 2000; Miller and Piotroski, 2000).

However, there are economic forces that limit the amount of voluntary disclosures made. Verrecchia (1983) argues that the manager's decision to disclose or withhold information depends upon the effect of that decision on the price of the asset concerned in the information, and that the equilibrium threshold level of disclosure will rely on the existence of a cost associated with the disclosure of information. Costs include proprietary costs that may arise from competitors gaining access to certain private information revealed through voluntary disclosures (Hayes and Lundholm, 1996; Verrecchia, 2001). In addition, monetary costs associated with increased disclosure must be considered in contrast to the benefits they can generate (Jensen and Meckling, 1976). Nevertheless, Miller and Bahnson (2004) find that the costs linked to disclosing more information are minor in comparison to the benefits it may generate.

2.2 Capital market effects of voluntary disclosure

Several effects of overbridging information uncertainty through increased disclosure and transparency in reporting have been documented[5]. We focus primarily on the effects that are connected to capital market variables in order to serve the purpose of our thesis. Together, the research presented in this section provides empirical support for theories suggesting that firms' disclosure policies have important consequences including improved stock liquidity and cost of equity capital. First, however, we need to define under which market conditions increased information sharing will imply any capital market effects.

An efficient market is a market in which prices provide accurate signals for resource allocation, where investors can choose securities assuming that security prices, at any time, fully reflect all available information (Fama, 1970, 1991; Kothari, 2001). The semi-strong form of market efficiency, i.e. when prices are assumed to fully reflect all publicly available information, has been supported through previous research (Ball and Brown, 1968; Fama, 1970, 1991). Even though the market is often assumed to be semi-strong

[5] For instance, studies indicate that firms with more forthcoming disclosures have greater analyst coverage, more consensus among analyst's earnings forecasts, more accurate forecasts, and less variable forecast revisions (Eng and Teo, 2000; Lang and Lundholm, 1996). Other capital market effects covered by previous research include stock returns and institutional ownership (Healy et al., 1999)

form efficient, a separation can be made with regards to market conditions underlying the applicability of the previously described information uncertainty attributes. According to Lambert et al. (2011), the market can be either perfectly or imperfectly competitive. If the market is perfectly competitive, whether or not some investors are better informed than others does not matter, even considering private information, since information is shared between investors through the pricing of the firms' shares. Thus, when the market is perfectly competitive, the value of the firm will be determined based on the average level of information. This implies that it is not information asymmetry per se that affects a firm's cost of capital, rather differences across investor's estimation precision. However, when the market is imperfectly competitive, the private information of certain investors is not fully communicated through share price. Thus, the fact that there is information asymmetry will affect the cost of equity capital through increased transaction costs, and indicates that information precision constitutes an incremental effect on the cost of equity capital.

As a result, an important determinant of how the firm value is affected by information uncertainty is the market conditions. Whereas we do not make any assumption regarding the level of perfect competition, we consider the effects applicable to bid-ask spread and cost of equity capital separately, which allows us to study the information uncertainty attributes individually.

2.2.1 Bid-ask spread

Looking at the effects of voluntary disclosure on specific information asymmetry measures constitutes an indirect approach of assessing the effect of information asymmetry on the cost of equity capital, but is not the same as looking explicitly at the impact of voluntary disclosure on the cost of equity capital (Botosan, 1997). However, in this manner, we separate out the information asymmetry effect through looking at measures specifically related to this particular information uncertainty attribute. While a firm's information asymmetry cannot be observed directly, the bid-ask spread has been commonly used as a proxy to measure the level of information asymmetry for individual firms. Previous research indicates that the bid-ask spread includes an adverse selection component, which increases with the degree of information asymmetry.

Through previous research, an inverse relationship has been established between bid-ask spread and firm specific disclosure ratings (Diamond and Verrecchia, 1991; Kim and Verrecchia, 1994; Welker, 1995). The notion is contingent upon markets being imperfectly competitive, and it has been shown that firms with lower disclosure ratings have significantly higher bid-ask spreads than their industry peers (Kyle, 1989; Healy et al., 1999; Lambert et al., 2007; Lambert and Verrecchia, 2010; Armstrong et al., 2011). Research furthermore provides evidence for that firms that switch to an international reporting regime[6], thereby

[6] All listed firms within the EU must comply with IAS/IFRS standards since 2005, requiring firms to disclose more information than previously. Furthermore, under most accounting standards managers must disclose information that is considered material. Therefore, tests of voluntary disclosure incentives must consider the role that materiality

committing themselves to increased levels of disclosure[7], acquire economically significant benefits in terms of lower bid-ask spreads and higher share turnover (Leuz and Verrecchia, 2000). Additional evidence has been provided by a study on Danish and US data, indicating that voluntary disclosure is negatively associated with proxies for information asymmetry, represented by both bid-ask spreads and share turnover (Petersen and Plenborg, 2006)[8]. As previously mentioned, the firm type should be taken into consideration when interpreting the firm specific information asymmetry. In line with this, previous research has shown a strong positive association between spread-based information asymmetry measures and growth opportunities (Smith and Watts, 1992; Clarke and Shastri, 2000).

2.2.2 Cost of equity capital

The effects of voluntary disclosure on cost of equity capital have been widely investigated. Most research has concluded that there is a negative association between the amount of information disclosed by a firm and the firm specific cost of equity capital (Diamond and Verrecchia, 1991; Botosan, 1997; Easley and O'Hara, 2004; Baginski and Rakow Jr., 2012). Research suggests that increased disclosure reduces transaction costs through lowering the previously mentioned bid-ask spread, thereby decreasing the cost of equity capital (Healy et al., 1999; Leuz and Verrecchia, 2000). However, some argue that the only information that has a negative association with cost of capital is that referring to forward-looking information useful for forecasting, stating that this information is particularly important for estimation purposes (Bravo Urquiza et al., 2012). In addition, another stream of research claims that there is no alignment in what underlying theoretical connection there is between disclosed information and the cost of equity capital (Botosan and Plumlee, 2002; Botosan, 2006; Francis et al., 2008), while others show that a positive association between disclosure and cost of equity capital may prevail. For instance, more extensive disclosures may give rise to enhanced incentives for some investors to acquire private information, implying greater information asymmetry and thus, as a result of increased transaction costs, a higher cost of equity capital (Kim and Verrecchia, 1994)[9].

Though, the quantity of information provided, and information asymmetry in particular, is not a separate factor in determining the cost of equity capital (Hughes et al., 2007; Lambert et al., 2007). Rather, it is ultimately determined based on the risk-return relationship, implying that the investor will demand additional return per unit of risk borne (Sharpe, 1964). Furthermore, the cost of equity capital is directly asso-

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plays in shaping firms' disclosure practices, which implies that certain disclosures might seem voluntary while they are actually mandatory due to the materiality criterion (Heitzman et al., 2010)

[7] Leuz and Verrecchia (2000) study a sample of German firms, distinguishing between firms following an international reporting strategy (IAS or US GAAP) and firms preparing financial statements in line with German GAAP

[8] Petersen and Plenborg (2006) further state that the relationship between voluntary disclosure and information asymmetry prevails independent of the institutional setting, that is, independent of factors such as ownership concentration, litigation costs, investor protection and accounting regime

[9] Kim and Verrecchia (1994) specifically model the effect on information asymmetry at the time of earnings announcements

ciated with the value of the firm[10]. Therefore, the information sought by investors is that enabling them to make the most accurate estimations about the firm specific risk and pay-off distribution. Previous research suggests that qualitative disclosures increase the information precision, thereby reduce the estimation risk arising from investors' level of confidence in estimates of the input variables of an asset's pay-off distribution. In particular, investors create estimates based on available information, and the accuracy of the estimated variables depends on the information quality (Botosan, 2006). As stated, estimation risk is non-diversifiable, implying that cost of equity capital is higher for firms with low quality information (Barry and Brown, 1985; Clarkson et al., 1996; Botosan, 2006). This further implies that the higher the information precision, the lower the dispersion in investors estimates of the pay-off distribution (Barron and Karpoff, 2004). However, increasing information precision could have an effect on investors' prior expectation, thus alter investor estimates and lead to a revision of their expectations (Verrecchia, 1990; Barron and Karpoff, 2004; Hughes and Pae, 2004). Intuitively, such revisions should lead to that the average estimated pay-off distribution becomes closer to the actual pay-off distribution (Barron and Karpoff, 2004; Hughes and Pae, 2004). The effect on the cost of equity capital from increasing information precision would therefore depend on how the prior estimated pay-off distribution relates to the actual pay-off distribution.

In sum, our review of previous research shows that two information attributes, as well as the need to mitigate agency issues, primarily drives the disclosure of voluntary information. Voluntary disclosure can have a decreasing effect on the information asymmetry in the market, leading to lower bid-ask spread. This implies, in turn, lower transaction costs and thus, a lower cost of equity capital. Voluntary disclosure can also have an increasing effect on information precision. This leads to two different effects potentially influencing the cost of equity capital. On the one hand, increased information precision should lower estimation risk and increase investor confidence in estimates, leading to a decrease in the cost of equity capital. On the other hand, increased information precision might affect investors' prior estimates, which will have different implications for the cost of capital depending on how the prior estimated pay-off distribution relates to the actual pay-off distribution. In addition, depending on the firm growth type, information uncertainty will have different implications for capital market variables. Thus, the firm type might further explain the need for voluntary disclosures, as well as how overbridging information uncertainty will affect capital market variables.

[10] Intuitively, the cost of equity capital is directly related to the value of the firm as exemplified through its use in various valuation models, see for instance Equation 2 in Section *4.3.3 Cost of equity capital*

3 Hypotheses

Our hypotheses are based upon the consensus findings presented in the theoretical framework. Whereas previous research has primarily focused on voluntary disclosure in general[11], we focus on a specific voluntary disclosure type, financial targets. Referring to financial targets, we explicitly mean targets regarding growth, margin, return, dividends, capital structure and cash flow, as further described in Section *4.3.1 Disclosure of financial targets*. Because of their forward-looking nature, financial target disclosures might reduce information asymmetry and increase information precision, as envisioned by disclosure theorists, through adding to the relevant information set sought by investors. Therefore, financial targets provide an opportunity to test the previously noted association between voluntary disclosure and capital market variables. Other than providing investors with forward-looking information, disclosure of financial targets could provide insight into whether or not firm specific ambitions are realistic. The targets can be contrasted against historical results in order to create an apprehension about the achievements of the firm relative to the firm specific level of ambition. The relationship between achievement of reported targets and capital market variables is somewhat more difficult to predict, since investors themselves can determine such achievement. However, achieving historical targets could be seen as proof of targets being realistic and therefore information regarding them credible, which would magnify the information uncertainty mitigating effect of target disclosure.

We look specifically at two capital market variables, namely the bid-ask spread and the cost of equity capital. Historically, research has mainly concluded that these variables are affected by changes in information sharing. First, information asymmetry mitigation should be reflected in increased share liquidity, commonly represented by lower bid-ask spreads. Thus, we suggest a negative relationship between the bid-ask spread and disclosure of financial targets. The same relationship is suggested between the bid-ask spread and target achievement, as such information might also add to investors' information set. The relationship is contingent upon that markets are imperfectly competitive. Secondly, both the decreased information asymmetry and the higher information precision, i.e. lower estimation risk, associated with increased information sharing imply that the cost of equity capital should decrease. These effects seem more prevailing than the fact that increased information precision could lead to revised estimates that could either increase or decrease the cost of equity capital. Thus, we suggest a negative association between the cost of equity capital and disclosure of financial targets. The same relationship is suggested between the cost of equity capital and target achievement, since the achievement of financial targets should underpin the credibility of information thus further enhance information precision. The relationship between cost of equity capital and information precision is hypothesized to hold independent of whether markets are perfectly or imperfectly competitive. However, would markets be perfectly competitive, information asymmetry per se will not affect the cost of equity capital, and the effect of information precision will be the remaining

[11] Rather than looking specific types of disclosures, previous research has often turned to different empirical disclosure proxies in order to measure the overall level of voluntary disclosures provided by each firm

driver of the cost of equity capital.

The purpose of our thesis is to create an understanding of if and how the disclosure and achievement of financial targets affect capital market variables. We intend to do so through studying what implications the disclosure of financial targets has for bid-ask spread and cost of equity capital. Furthermore, we study what implications the achievement of disclosed financial targets has for bid-ask spread and cost of equity capital. In line with this purpose and the implications from previous research, we formulate the following hypotheses:

Bid-ask spread

H_1: Disclosure of financial targets is negatively related to bid-ask spread

H_2: Achievement of disclosed financial targets is negatively related to bid-ask spread

Cost of equity capital

H_3: Disclosure of financial targets is negatively related to cost of equity capital

H_4: Achievement of disclosed financial targets is negatively related to cost of equity capital

3.1. Underlying assumptions and delimitations

Our analysis is based on the notion that the market is semi-strong form efficient (Fama, 1970). This implies that market prices incorporate all publicly available information including that disclosed in financial statements, i.e. accounting information. However, the publicly available information ranges far beyond that disclosed in financial reports. This implies that prices most likely contain information other than that included in annual reports, and if this information constitutes an important part of the price, the accounting information itself becomes less relevant. The semi-strong form efficiency allows for markets to be both perfectly and imperfectly competitive with regards to private information held either by managers or certain investors. In this thesis, whether or not markets are perfectly or imperfectly competitive is an endogenous feature (in line with Lambert et al., 2011), regarding which we do not make any further assumptions. We acknowledge, however, that the degree of market imperfection influences the effect of information asymmetry on capital market variables.

The main purpose of this thesis is not to investigate the signaling effect of financial targets, that is, the direct market reactions to the announcement of such accounting information. Neither is the object of interest the capital market effects of individual firms' disclosure policies, nor the explicit determinants behind such policies. Rather, our thesis aims to measure the relationship between mentioned capital market variables and the information uncertainty reduction implied by disclosure of financial targets and the achievement of the same.

4 Research design

4.1 Methodological approach

In order to test our set of hypotheses, we use a quantitative approach consisting of univariate and multivariate regressions. This approach has been commonly used, for instance by Botosan (1997) and Francis et al. (2008). In line with what previous research has shown for voluntary disclosure in general, our analysis is contingent upon the hypothesis that there is a relationship between disclosure of financial targets and bid-ask spread as well as cost of equity capital, which our regression models aim to determine the nature of.

Our analysis is performed in two steps. First, we map the occurrence and characteristics of financial targets in order to arrive at our primary data sample. The mapping includes target achievement, where we compare the reported performance with the historical financial targets. Our data collection procedure is further described in Section *4.2.1 Data gathering*. The data from the mapping serve as the independent variables used in the second step, where we investigate the capital market effects of the disclosure and achievement[12] of financial targets through regression analysis.

4.2 Data sample

4.2.1 Data gathering

Manual data collection

For each firm and year in the sample, annual reports have been assessed in order to collect data regarding financial target disclosure and achievement. All reports were collected from the firms' websites. In most cases, the version of the annual report written in the primary language of each individual firm (thus mainly the Swedish version) was used, in order to ensure consistency. A random sample showed that the English version of the annual report of firms publishing reports in multiple languages is at times less exhaustive when it comes to voluntary disclosure than the Swedish version[13].

We have ensured the consistency in mapping through thoroughly reading each individual annual report, scanning them for statements regarding financial targets. In addition, the usage of predetermined search words and definitions of targets were used (see *Delimitations and further definitions* in Section *4.3.1 Disclosure of financial targets*). The search words used for English reports include "target", "goal", "objective" and "policy". Corresponding words have been searched for in Swedish reports.

[12] The approach with regards to achievement is comparable to what has been documented in the area of the effects of meeting or beating market expectations on stock performance (see Bartov et al., 2002; Kasznik and McNichols, 2002; Dopuch et al., 2008)

[13] Smaller firms sometimes report more extensively in Swedish, while larger firms often publish complete versions of their annual reports both in Swedish and English

Database data

The Thomson Reuters Datastream database has been used to collect the market data used in our thesis. For the sake of computing our dependent variables, namely bid-ask spread and cost of equity capital, as well as some of the control variables, daily observations were collected. The granularity in data is needed in order to correctly estimate the market variables in line with the time period corresponding to that between the issuance of two consecutive annual reports. The database has also been used to collect accounting information such as firm specific leverage and book value of equity per share. All data has been downloaded in SEK.

4.2.2 Population

Our data set consists of non-financial firms listed on the Nasdaq OMX Stockholm exchange during the full period from 2007 to 2012[14]. The firms were selected based on data from Nasdaq OMX on current listings, which was combined with data from the Datastream database on historical listings in order to arrive at the final set of firms in the sample. Furthermore, we have ensured that the data used is correctly retrieved through controlling our sample against the Swedish Tax Agency filings (Sw. Skatteverket).

The resulting cross-sectional panel data set consists of enough accessible data to allow for an assessment of the metrics in the study, even after data eliminations. By choosing firms listed on the Nasdaq OMX Stockholm exchange rather than other market places, such as First North or Aktietorget, we ensure that the sample is exposed to the same requirements regarding financial reporting. For instance, the requirements placed on firms whose shares are traded on regulated markets include that the consolidated accounts must be prepared according to IFRS and that price-sensitive information and periodic financial information must be published[15].

The time period was chosen primarily in order to reflect the most recent data available, but also since previous research indicates that the relative importance of disclosures is greater in situations where there is more capital market uncertainty[16]. Our sample expands historically to before the financial crisis, thus includes periods of market stability and financial turbulence[17]. However, the sample has been selected in

[14] Out of the 256 firms listed on the Nasdaq OMX Stockholm exchange as per December 2013, 4 were banks and 21 were financial service firms. Following common practice, and to make sure that skewed financial data do not impede our results, these have been excluded from our sample. Furthermore, we have excluded firms that were not listed as per December 2006 in order to ensure that the report released in 2007 followed all the requirements imposed on listed firms

[15] According to the Swedish Financial Supervisory Authority (Sw. Finansinspektionen)

[16] Previous research indicates that the relative importance of disclosures is greater in situations where there is more uncertainty about the firm, and that detailed disclosures reduce investors' perception of the default risk of the disclosing firm (Sengupta, 1998)

[17] Since financial targets in a given year can be influenced by time-period specific conditions, investigating financial targets over a period of time enables us to capture long-term disclosure policies as well as changes in disclosure. This argumentation is in line with Baginski and Rakow Jr. (2012), who shows a similar reasoning with regards to the disclosure of management earnings forecasts

order to make sure that the new disclosure requirements of IFRS coming into effect in 2005 were fully considered and observed by the firms.

In order to increase the comparability of our study, we do not make any adjustments to our sample based on neither the industry categorizations nor the segment categorizations as found through Nasdaq. As illustrated by Panel A and B of Table 1, our sample consists of firms from a majority of the industries and all of the segments represented on the Nasdaq OMX Stockholm exchange. Specifically, fourteen out of a total of eighteen industries are represented[18], and the number of firms within each industry group ranges from 1 to 49. Since we do not analyze differences between industries, the fact that some industries have fewer observations than others does not affect our results. Our mapping of financial targets reveals how disclosure of financial targets varies across industries and size segments, and the results from this mapping are presented in Appendix 1.

Industry	Number of firms
Automobiles & Parts	4
Basic Resources	10
Construction & Materials	11
Food & Beverage	1
Health Care	20
Industrial Goods & Services	49
Media	3
Oil & Gas	2
Personal & Household Goods	11
Real Estate	14
Retail	9
Technology	24
Telecommunications	3
Travel & Leisure	5
Sum	166

Table 1A. Number of firms per industry

Segment	Number of firms
Small Cap	72
Mid Cap	44
Large Cap	50
Sum	166

Table 1B. Number of firms per segment

Both the collected[19] and estimated[20] variables include extreme cases of observations. In order to minimize the risk that such observations cause a bias in the analysis and distort the results, we eliminate the most extreme cases from our sample. Following the procedure of Hellström (2006), we first eliminate observa-

[18] Firms within Chemicals, Utilities, Banks and Financial service industries are not represented, due to lack of data or to reasons previously explained

[19] Market value of equity (the logarithm used in regressions), leverage, ROA, share turnover (the logarithm used in regressions) and share price

[20] Cost of equity capital, bid-ask spread, beta and volatility

tions that lie outside five standard deviations from the mean value for each individual variable. Second, we estimate new mean values and standard deviations with respect to the adjusted sample, and observations that lie outside three standard deviations from the new mean values are excluded. These adjustments eliminate between 0% and 9% of the observations for each individual variable, resulting in our final sample.

Sub-samples

Since previous research has shown that firms are exposed to information uncertainty in different ways depending on their growth opportunities, we classify our data into three mutually exclusive and collectively exhaustive sub-samples. We turn to the commonly used concept of value and growth stocks in order to account for differences in firm growth type (Fama and French, 1992, 1996, 1998; Lakonishok et al., 1994). Previous research suggests that information uncertainty for firms with extensive growth opportunities primarily relate to these opportunities, while firms experiencing low growth have information uncertainty primarily arising from ambiguity regarding assets-in-place (Smith and Watts, 1992; Wu and Au Yeung, 2012). Hence, the firm type likely has implications for the way information uncertainty affects capital market variables (Cooney and Kalay, 1993; Fama and French, 2002). In line with Smith and Watts (1992), we incorporate the firm type concept into our study by using the book-to-market ratio as a proxy for the growth options in the firm's investment opportunity set. Furthermore, we take the price-earnings ratio into consideration, in line with Fama and French (1992, 1996). This allows us to divide our sample of observations into three categories: low growth, mixed growth and high growth. More specifically, a firm is defined as a low growth firm if the book value of equity exceeds the market value of equity or if the price-to-earnings ratio falls into the tenth lowest percentile. A firm is defined as a high growth firm if the book-to-market value falls into the tenth lowest percentile, or if the price-to-earnings ratio falls into the tenth highest percentile. Firms neither falling into the low nor the high growth firm definition populate the mixed growth sub-sample. Naturally, any given firm can oscillate between the sub-samples during the time period measured. Using this approach classifies approximately 24% of our observations as low growth firms, and 28% as high growth firms. The yearly number of low growth firms varies between 24 and 71, with a median of 34, corresponding to approximately 20% of the total number of firms. Similarly, the yearly number of high growth firms varies between 33 and 59, with a median of 45, corresponding to approximately 27% of the total number of firms. The characteristics of our sub-samples are presented in Panel A to C of Table 9 in Section *5.1.2 Sub-sample descriptive statistics*.

4.3 Regression variables

4.3.1 Disclosure of financial targets

Several ways of assessing the voluntary disclosure of firms have been used in previous research. Most commonly, different empirical disclosure proxies have been used in order to measure the overall level of voluntary disclosures provided by each firm. Historically, most proxies of this kind have been based on voluntary disclosure as found in annual or quarterly financial reports. The purpose of these disclosure

proxies is to produce a cross-sectional ranking of disclosure levels based on the amount of voluntary disclosure provided by firms in their financial reporting. A number of studies have based their disclosure proxies on recommendations such as those provided in the American Institute of Certified Public Accountants study of business reporting (Jenkins Committee report), the SRI International survey of investor information needs, the Canadian Institute of Chartered Accountants study of the annual report, or annual publications made by the Association for Investment Management Research and Corporate Information Committee (CIC). Whereas these proxies measure voluntary disclosure levels in general, we focus on financial targets in particular.

Furthermore, some studies turn to measures such as management earnings forecasts and analyst expectations. These studies further add to our set of relevant observations given the purpose of our thesis, and underpin the relevance of using disclosure and achievement of financial targets as the primary independent variable. First, previous research has argued that management earnings forecasts include management uncertainty[21], and might therefore be better predictors of future earnings than actual earnings when used in valuation (Baginski et al., 1993). The same argument could be made for financial targets. Secondly, several authors have concluded that firms meeting or beating analysts' expectations experience a higher return than firms that fail to meet these expectations (Bartov et al., 2002; Kasznik and McNichols, 2002; Dopuch et al., 2008). These findings make us question whether the same patterns could be observed with respect to disclosure of forward-looking measures that can be viewed with regards to the "meeting or beating" notion, that is through assessing the achievement of historically disclosed financial targets. Our main independent variables can be divided into two different sets:

1. Disclosed financial targets[22], and
2. Achievement of disclosed financial targets

As financial targets, by definition, concern a time horizon that is equal to, or further in the future than, one year, it is possible that there is a large consistency of the disclosure of financial targets over time. Consequently, changes to the disclosure of financial targets could add relatively more to the investors' information set. Such changes may include information important in investors' decision-making and estimation processes. Therefore, we use four additional independent variables in order to control for disclosure changes, namely positive and negative revision, and added and removed targets. These are further described below. The achievement of disclosed financial targets reflects the ability of firms to perform in line with what has previously been stated, and thereby indicates something about the credibility of future targets. The time horizon concerned when mapping financial targets and target achievement is further described elaborating on Figure 1 below.

[21] The uncertainty is further documented through the fact that most forecasts are not point estimates but rather open interval, closed interval or general impressions

[22] The targets documented are forward-looking, that is, in the case of a firm reporting dual targets in the form of historical and future, the latter are the ones included in our sample as they reflect the ambitions of the firm going forward

The data included in our two sets of variables have been manually collected through screening of annual reports for each firm and year. More specifically, our mapping identified seven groups of financial targets, as presented in Table 2. Thus, the maximum number of financial targets for firm i and year X is seven, while the minimum number is zero. Per definition, this implies that the maximum number of targets per target group is one, for each firm and reporting period. This implication is representative, as our mapping revealed that reporting several targets within one target group is extremely rare among the sample firms.

Target group	**Description**
Growth	Growth targets primarily include growth in sales, either organic or a combination of organic and acquired. However, our mapping conveys that there are also other growth targets, such as relating to invoicing or order intake. Furthermore, we have encountered growth targets relating to earnings and EPS.
Margin	Margin targets most commonly tie either to EBITDA, EBITA, EBIT or profit margin.
Return	Return targets include a number of different measures, the most prevailing being ROE, ROCE and RONA. Other examples of return targets in our sample include profit as a percentage of working capital and earnings per share.
Dividend	Dividend targets are most often stated as a share or percentage of an income statement measure. These income statement measures include net income, and profit before and after tax (sometimes being the effective tax, and sometimes tax computed using a predetermined rate). Furthermore, measures related to the balance sheet include dividends as a percentage of equity. Other measures observed in our sample are dividends as a percentage of earnings per share as well as of operating cash flow and total cash flow.
Capital structure[23]	Capital structure targets are seldom point estimates, rather they relate to intervals, or, most commonly, to the notion of "larger than" or "smaller than" a certain threshold level. The capital structure measures include (net) debt-to-equity, equity-to-assets, (net) debt-to-assets, and similar.

[23] All capital structure targets have through calculation been adjusted to reflect the equity-to-assets ratio. This is needed in order to interpret target achievement in a consistent manner. Furthermore, considering our expectations regarding the impact of positive revisions on information precision, and in particular prior estimates, a higher solvency would imply a lower cost of equity capital. Nevertheless, we acknowledge that differences exist among investors' risk appetite, why our assumption is not necessarily valid the investor society in full. As it lies outside the scope of this thesis, we will not elaborate on this further

Cash flow	Cash flow targets differ in nature, consisting of measures such as cash conversion, and free cash flow as percentage of sales or operating income.
Other	Other targets include a large variety of measures, which do not conform to any of the former mentioned target groups. For instance there are measures of investments in the form of investment as a percentage of sales, reinvestment in R&D and capital expenditure as a percentage of cash flow. Interest coverage ratio and capital turnover rate are other common targets included in this group.

Table 2. Target definitions

In order to compute the independent variables used in our regressions, two different measures per target group have been defined for each firm i: (A) a variable assuming the value one if a target has been stated and the value zero if there is no target stated for the specific target group in year X annual report, and (B) a variable assuming the value one if a target stated earlier has been achieved in year X and the value zero if the target has not been achieved, as further described below.

Figure 1 describes the timeline that underlies the measurement of our target disclosure and achievement variables. The figure illustrates that there is not an exact timing correspondence between the measures relating to the annual report (the financial targets and other accounting information) and the capital market variables. This stems from the fact that the annual reports are released with a certain delay after the closing of the books. We define target disclosure in year X as the event where firm i discloses one or more targets in year X's annual report relating to period X+y, where y is defined as either a predetermined period or point in time as disclosed by the firm, alternatively as the subsequent year after disclosing the target unless any time period has been specified (as exemplified in Figure 1). Similarly, we measure firm i's year X target achievement as the achievement of targets disclosed in period X-y. As an example, consider a target disclosed by a firm referring to period X+y, where y = 3, and furthermore assume that the firm keeps this target for each period until X+3. This implies that the firm will be considered disclosing that target for each respective period, i.e. a total of three periods (X, X+1, X+2). The achievement, on the other hand, will only be measured at one point in time, i.e. at time X+3, as this is the point in time when the target expires as defined by the firm. On the other hand, if y is defined as an interval, for instance 2009-2011, then target achievement is mapped for each year in the interval, as long as the target remains disclosed in the precedent year. In Figure 1, y is assumed to be equal to one year.

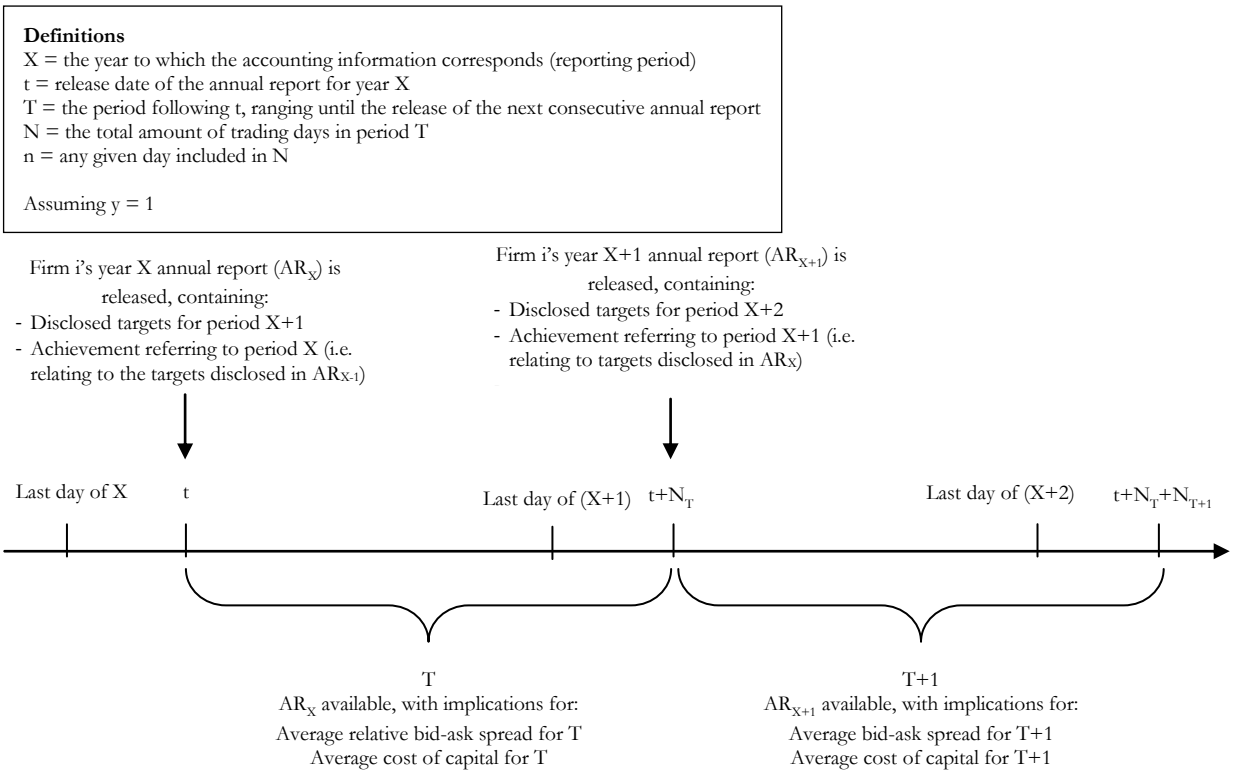

Figure 1. Timeline of target measurement

The defined target groups and timeline underlie our calculation of the independent variables used in our regression models. Rather than using a disclosure index, we use several measures relating to target disclosure and achievement, each of which is described in greater detail in Table 3.

Target variable	**Formula**	**Description**
Target score	$Target\ score_{i,T} = \frac{\sum disc\ target\ Z_{i,X}}{7}$	The percentage of the maximum number of targets that is disclosed in the annual report for year X, referring to future periods. In order to adjust the data to better suit regression analysis, we scale the sum variable by the maximum number of target groups, generating the Target score variable as a proxy for the amount of targets disclosed.
Achievement score	$Achievement\ score_{i,T} = \frac{\sum achieved\ \ target\ Z_{i,X}}{\sum disc\ target\ Z_{i,X-1}}$	The percentage of disclosed targets relating to year X-1 (or in a previous year depending on firm specific time periods for target achievement) that were reported as achieved in the annual report for year X.

Positive revision	$Positive\ revision_{i,T} = \sum \left(\Delta target\ Z_{i,X} \middle| \Delta target\ Z_{i,X} > 0\right)$	The sum of percentage upward revisions of a financial target from year X-1 to year X. If there have been no upward revisions in any of the seven target groups, the variable assumes no value.
Negative revision	$Negative\ revision_{i,T} = \sum \left(\Delta target\ Z_{i,X} \middle| \Delta target\ Z_{i,X} < 0\right)$	The absolute sum of percentage downward revisions of a financial target from year X-1 to year X. If there have been no downward revisions in any of the seven target groups, the variable assumes no value.
Added targets	$Added\ targets_{i,T} = \sum \left(disc\ target\ Z_{i,X} \middle| disc\ target\ Z_{i,X-1} = 0\right)$	The sum of variables assuming one for each target that has been added from year X-1 to year X. If there have been no target additions in any of the seven target groups, the variable assumes no value.
Removed targets	$Removed\ targets_{i,T} = \sum \left(disc\ target\ Z_{i,X-1} \middle| disc\ target\ Z_{i,X} = 0\right)$	The sum of variables assuming one for each target that has been removed from year X-1 to year X. If there have been no target removals in any of the seven target groups, the variable assumes no value.

Table 3. Description of the main independent variables

Where:

$target\ Z_{i,X} =$ the actual target Z stated in the annual report of firm i for year X,

$\Delta target\ Z_{i,X} =$ the change in actual target Z from the annual report of firm i for year X-1 to year X,

$disc\ target\ Z_{i,X} =$ a variable that assumes the value one if target Z has been stated and the value zero if there is no target stated for the specific target group in the annual report of firm i for year X, and

$achieved\ target\ Z_{i,X} =$ a variable that assumes the value one if target Z sated earlier has been achieved by firm i in year X and the value zero if target Z has not been achieved.

Using the above described measures, we capture four different notions in our empirical design; that of disclosing forward-looking targets, that of achieving previously stated targets, that of revising targets downwards or upwards, and that of removing or adding targets. Rather than computing a disclosure index through the weighting of the seven different groups of target variables, we include a general target disclosure measure, i.e. Target score. Since there is no explicit intuition regarding how to allocate weights across target groups, target score is equally weighted between the seven target groups. Achievement score

is computed in a similar manner, however based on the amount of targets disclosed in previous periods. The actual achievement of targets has primarily been mapped corresponding to the achievement reported by firms, thus avoiding issues relating to firm specific definitions. This implies that we have assumed reported achievement to be correctly computed. Furthermore, if a firm has not explicitly stated the actual achievement but this can easily be estimated without making any further assumptions, we have computed such achievement accordingly. On the other hand, if estimations require assumptions, regarding for example the net debt measure, or a separation of growth into organic and acquired growth, we have not computed the achievement, but mapped such achievement as undefined. In addition, as explained earlier, changes in disclosure of financial targets could add relatively more to the investors' information set than the otherwise, occasionally, time-invariant targets. Changes of financial targets may include information important in investors' decisions making and estimation processes, why we control for targets being revised, downwards or upwards, as well as targets being added or removed from one year to another. Furthermore, we allow separate coefficients on the different measures because we expect that they have different explanatory power, and therefore may be valued differently.

As previously mentioned, we expect both Target score and Achievement score to show a negative relation to both capital market variables. The changes in financial targets, however, will have different implications. First of all, revisions to targets do not add to the quantity of information, thereby should not affect information asymmetry. However, positive revisions are expected to affect information precision in a manner that would univocally benefit cost of equity capital. Negative revisions, on the other hand, would presumably decrease estimation risk, however might affect information precision such that investors revise their prior estimates causing the cost of equity capital to increase. Adding or removing targets will increase or reduce information asymmetry. Added targets are assumed to have the same effect on capital market variables as Target score itself, that is reducing both bid-ask spread and cost of equity capital. As a consequence, the opposite is expected with regards to the Removed targets variable. The distribution of target variables is further described in Table 4 and Table 5 below.

Table 4 shows descriptive statistics of the target data for all firms in the sample. Target score shows a mean value of 0.33 out of a maximum of 1.00. Turning to each of the target groups, the mean is highest for dividend targets, reflecting that such targets are most commonly disclosed, followed by capital structure targets, margin targets and growth targets. As mentioned, Achievement score refers to the amount of firms disclosing targets that manage to achieve them and report that they have done so. Seemingly, some targets are more commonly achieved than others. These include capital structure and cash flow targets. "Other" targets and dividend targets are achieved in more than half of the cases, while growth, margin and return targets have been reported achieved in less than one third of the cases.

Added and removed targets are assigned the value of one respectively. Thus, the potential maximum of additions or removals equals the number of target groups, i.e. seven. However, Table 4 shows that the maximum number of targets that have been added or removed between two consecutive years is four.

Additionally, the rather low mean values for Positive and Negative revisions, as well as for Added and Removed targets, suggest that firms rarely change their disclosure of financial targets. This is further enhanced by the disclosure of financial targets being stable over time (see Table A.1 in Appendix 1.1).

Descriptives: Targets	n	min	mean	max	std	p10	p25	p50	p75	p90
Target score	829	0.000	0.326	1.000	0.239	0.000	0.143	0.286	0.429	0.571
Growth	829	0.000	0.358	1.000	0.480					
Margin	829	0.000	0.454	1.000	0.498					
Return	829	0.000	0.252	1.000	0.434					
Dividend	829	0.000	0.517	1.000	0.500					
Capital structure	829	0.000	0.474	1.000	0.500					
Cash flow	829	0.000	0.046	1.000	0.209					
Other	829	0.000	0.180	1.000	0.384					
Achievement score	829	0.000	0.385	1.000	0.376	0.000	0.000	0.333	0.667	1.000
Growth	289	0.000	0.322	1.000	0.468					
Margin	364	0.000	0.255	1.000	0.437					
Return	200	0.000	0.255	1.000	0.437					
Dividend	415	0.000	0.619	1.000	0.486					
Capital structure	377	0.000	0.820	1.000	0.385					
Cash flow	39	0.000	0.718	1.000	0.456					
Other	144	0.000	0.528	1.000	0.501					
Positive revision	829	0.000	0.014	1.333	0.088					
Negative revision	829	0.000	0.021	0.833	0.104					
Added targets	829	0.000	0.105	4.000	0.458					
Removed targets	829	0.000	0.106	4.000	0.449					

Table 4. Descriptive statistics: Targets for all firms in sample

When investigating the distribution of targets per sub-sample, as presented in Table 5, we find that low growth firms have the highest mean Target score, which would indicate that they on average disclose the most financial targets. Speculating in the reasons behind this leads us to believe that there are two potential explanations; either these firms are more certain regarding their own future, since they are highly dependent on assets-in-place, or they adhere to a potentially higher demand for information from investors. While the mixed growth firms on average almost report in line with low growth firms, the high growth firms show the lowest mean Target score, indicating that the average high growth firm only disclose one fourth of the potential financial targets. In line with our previous speculation, this could indicate that high growth firms chose not to disclose information about the future, since managers of these firms themselves are not entirely certain about the credibility of such information. The table further allows us to draw conclusions regarding what targets each firm type most commonly discloses. For low growth firms, the capital structure targets seem especially prevalent, followed by dividend and margin targets. Mixed growth firms commonly disclose dividend and margin targets, as well as growth targets. Also high growth firms are seemingly focusing on disclosing dividend and margin targets, if any.

Descriptives: Targets Low growth firms	n	min	mean	max	std	p10	p25	p50	p75	p90
Target score	197	0.000	0.365	1.000	0.234	0.000	0.143	0.429	0.571	0.714
Growth	197	0.000	0.284	1.000	0.452					
Margin	197	0.000	0.431	1.000	0.497					
Return	197	0.000	0.305	1.000	0.461					
Dividend	197	0.000	0.553	1.000	0.498					
Capital structure	197	0.000	0.665	1.000	0.473					
Cash flow	197	0.000	0.015	1.000	0.123					
Other	197	0.000	0.299	1.000	0.459					

Table 5A. Descriptive statistics: Targets for low growth firms

Descriptives: Targets Mixed growth firms	n	min	mean	max	std	p10	p25	p50	p75	p90
Target score	399	0.000	0.355	1.000	0.232	0.000	0.143	0.429	0.571	0.714
Growth	399	0.000	0.436	1.000	0.497					
Margin	399	0.000	0.514	1.000	0.500					
Return	399	0.000	0.268	1.000	0.444					
Dividend	399	0.000	0.574	1.000	0.495					
Capital structure	399	0.000	0.486	1.000	0.500					
Cash flow	399	0.000	0.058	1.000	0.233					
Other	399	0.000	0.150	1.000	0.358					

Table 5B. Descriptive statistics: Targets for mixed growth firms

Descriptives: Targets High growth firms	n	min	mean	max	std	p10	p25	p50	p75	p90
Target score	233	0.000	0.243	1.000	0.237	0.000	0.000	0.143	0.429	0.571
Growth	233	0.000	0.288	1.000	0.454					
Margin	233	0.000	0.369	1.000	0.484					
Return	233	0.000	0.180	1.000	0.385					
Dividend	233	0.000	0.391	1.000	0.489					
Capital structure	233	0.000	0.292	1.000	0.456					
Cash flow	233	0.000	0.052	1.000	0.221					
Other	233	0.000	0.129	1.000	0.336					

Table 5C. Descriptive statistics: Targets for high growth firms

Delimitations and further definitions

The financial targets considered are those concerning each firm as a whole, rather than sub-units of firms[24]. We differ between financial targets and operational targets, defining financial targets as those relating to the financial statements. Operational targets, on the other hand, includes targets such as those relating to market share, CSR, HR, production efficiency and similar. Such operational targets have not been considered in our analysis.

We also distinguish between quantified and non-quantified financial targets. We define quantified targets as those including a pre-defined point estimate or interval for the measure in question. Non-quantified targets are targets relating the outcome to measures that are not firm specific (e.g. "the return should be five percentage units above the risk free rate"), or targets not at all defining a measure for the outcome (e.g. "sustained growth"). In our analysis, we only consider quantified financial targets, thus, as with operational targets, disregard those that are not quantified. The reason for this is to enable comparative analysis of target achievement.

In defining financial targets, the time period considered implies that financial targets concerns a time horizon that is equal to, or further in the future than, one year, e.g. a specified date, an explicit time interval, or a more loosely defined time concept such as "business cycle" or "long term". Furthermore, we differ between financial targets and management earnings forecasts, assuming that targets are inherently reflecting the ambitions of a firm rather than what management believes to be the most likely outcome in the short term. Specifically, the disclosure of management earnings forecasts has been subject to several SEC prohibitions and regulations (Cholakis, 1999), which are not applicable to financial targets.

[24] Hayes and Lundholm (1996) document that it is in particular when firms engage in segment reporting that proprietary costs come into play. Thus our approach somewhat contrasts their study in only documenting financial targets that are applicable to the company as a whole, rather than targets applicable to different sub-units

4.3.2 Bid-ask spread

The capital market variables are measured as averages over the twelve-month period between the issuance dates of two consecutive annual reports. Hence, the methodology ensures that the annual reports are publicly available and that capital markets have been able to access the disclosure, or lack of disclosure, of financial targets and historical target achievement.

Assessing information asymmetry, we use relative bid-ask spreads in order to take into consideration the differences in share price level. In line with previous research, we use daily bid-ask spreads and share prices for each firm i, which are then averaged over period T:

$$\frac{Bid-ask\ spread_{i,T}}{P_{i,T}} = \frac{\sum_{n=1}^{N} \frac{\overline{Ask_{i,n}} - \overline{Bid_{i,n}}}{P_{i,n}}}{N} \quad (1)$$

Where:

$\frac{Bid-ask\ spread_{i,T}}{P_{i,T}}$ = the relative bid-ask spread during the time period T,

$\overline{Bid_{i,n}}$ = daily average of bid prices,

$\overline{Ask_{i,n}}$ = daily average of ask prices,

$P_{i,n}$ = the closing price on each trading day, n, and

100<N<(trading days in period T)[25].

4.3.3 Cost of equity capital

As suggested by Setterberg (2011), we use a residual income valuation (RIV) method to derive the cost of equity capital. We solve for the cost of equity capital using the following formula:

$$P_{i,0} = bps_{i,0} + \sum_{t=1}^{12} \frac{(ROE_{i,t} - r_E) * bps_{i,t-1}}{(1+r_E)^t} + \frac{\left(\frac{V_{12}}{BV(E)_{12}} - 1\right) * bps_{i,12}}{(1+r_E)^{12}} \quad (2)$$

Where:

$P_{i,0}$ = the share price at time t=0,
$bps_{i,t}$ = the book value of equity per share at time t,
$ROE_{i,t}$ = the return on owners' equity for period t,
$\frac{V_{12}}{BV(E)_{12}} - 1$ = permanent measurement bias of owners' equity at time t=12, and
r_E = cost of equity capital.

Our model used is similar to that of Setterberg (2011), and incorporates the permanent measurement bias as suggested by Runsten (1998), however estimates ROE as per Gebhardt et al. (2001). Whereas

[25] Normally assumed to be 252, however the maximum in our sample is 466 due to changes in reporting year. The mean number of observations during one reporting period amounts to 262

Setterberg (2011) uses backward-looking, historical means of ROE as estimates for the first years, Gebhardt et al. (2001) use forecasted earnings per share. In our model, analyst forecast earnings are used to estimate ROE for the first two years, and then it is assumed that the forecasted ROE of year two linearly fades towards ROE in the steady state. The ROE in steady state is the median ROE of the industry in which the firm operates, estimated using five year historical data (Gebhardt et al., 2001). The reason for using forecasts rather than a backward looking measure is that we want the estimated cost of equity capital to incorporate information uncertainty (Botosan and Plumlee, 2005).

$$ROE_t = ROE_2 + \left(\frac{ROE_{SS} - ROE_2}{11}\right)(t-2) \quad (3)$$

Where:

$ROE_t =$ the return on owners' equity for period t,
$ROE_{SS} =$ the return on owners' equity in steady state, and
$3 \leq t \leq 12$

The RIV method assumes that the clean surplus relation holds, and we have used a constant dividend payout ratio based on historical observations in order to compute future book value. We relate book value per share to ROE, thus both ROE and the growth in owners' equity are assumed to change linearly over time from year three to steady state. A more thorough description of our estimation of cost of equity capital is provided in Section *7.1.3 Cost of equity capital.*

4.3.4 Control variables

In line with previous research, our independent variables are complemented by control variables, which add to explaining variances in the dependent variables. Contingent upon the independent variable and equation used, a selection of the variables presented in this section is controlled for in the regression. Details on how each control variable has been included in previous research, the rationale behind disclosing it in our study and the specific measurement and timeliness of each variable can be found in Appendix 3.

For analyses with the bid-ask spread measure as the dependent variable, we control for size, profitability, volatility, share turnover, and share price. Findings in previous research suggest that firm size is negatively associated with bid–ask spread (Leuz and Verrecchia, 2000). In order to ensure that the association between the relative spread and disclosure is not driven by firm performance rather than disclosure as such, we include return on assets (ROA) as a control variable. This is in line with previous research suggesting that firms may increase disclosure when they are performing well (Miller, 1999; Francis et al., 2008). However, since there is no clear intuition regarding the relation between ROA and bid-ask spread, we do not estimate any specific direction of the relation. Low volatility implies low risk of value changes in the investors' inventory of stock, which narrows the bid-ask spread (Glosten and Milgrom, 1985), thus we expect a positive relationship between spreads and return volatility. Furthermore, relative spreads have been documented to be strongly negatively related to share prices and trading volume (Welker, 1995).

Table 6 summarizes our expectations with regards to the relation between the bid-ask spread and our independent variables.

Independent variable	Expected relation
Target score	–
Achievement score	–
Positive revision	+/–
Negative revision	+/–
Added targets	–
Removed targets	+
Size	–
ROA	+/–
Volatility	+
Share turnover	–
Share price	–

Table 6. Expected relation between independent variables and bid-ask spread

Similarly, when performing analyses based on the cost of equity capital, we control for size, leverage, profitability and beta. As suggested by previous research, size might affect firms' risk such that there is an indicated negative relation to cost of equity capital (Botosan, 1997; Gebhardt et al., 2001; Botosan, 2006; Francis et al., 2008). Leverage affects the financial risk (Gebhardt et al., 2001; Francis et al., 2008) and is controlled for with an expected positive relation to cost of equity capital. Assuming the same line of argument as for the bid-ask spread measure, in order to ensure that the association between cost of equity capital and disclosure or achievement is not driven by firm profitability rather than disclosure as such, we include ROA as a control variable. We do not estimate any specific direction of the association between the ROA measure and the cost of equity capital. In order to control for systematic risk, that has a positive association with the cost of equity capital as indicated by the Capital Asset Pricing Model (CAPM), we control for beta. Table 7 summarizes our expectations with regards to the relation between the cost of equity capital and our independent variables.

Independent variable	Expected relation
Target score	–
Achievement score	–
Positive revision	–
Negative revision	+/–
Added targets	–
Removed targets	+
Size	–
Leverage	+
ROA	+/–
Beta	+

Table 7. Expected relation between independent variables and cost of equity capital

4.4 Regression models

The ability of financial targets to capture information that affects capital market variables is referred to as the capital market effect of targets. A disclosed financial target has a capital market effect when it is significantly associated with capital market variables. Intuitively, if financial targets generate capital market effects, the voluntary disclosure of such targets should be reflected in capital market variables related to a firm's shares. Furthermore, if the ability or inability to achieve financial targets generates capital market effects, the reporting of target achievement should be reflected in the capital market variables. Empirically, this can be measured as the statistical association between capital market variables and the disclosure of financial targets. This section further describes the regression models introduced underlying our investigation of the hypothesized relationships. We elaborate on the characteristics of the statistical models as such, and provide definitions of the variables used. In total, we use six different models; two univariate models, I and II, and four multivariate models, III-VI. Models IV and V are the ones that best fit into our analysis and include control variables, why they serve as our core models.

4.4.1 Bid-ask spread regression

For the sake of this thesis, we use the bid-ask spread measure as a proxy for information asymmetry. The disclosure of financial targets is expected to show a negative relation to the bid-ask spread. The following models consider the relative bid-ask spread as the dependent capital market variable, with the purpose of determining how the disclosure and achievement of financial targets is associated to information asymmetry. Thus, we propose the following regression models:

I: $$\frac{Bid-ask\ spread_{i,T}}{P_{i,T}} = \beta_0 + \beta_1 Target\ score_{i,T} + \varepsilon_{i,T} \quad (4)$$

II: $$\frac{Bid-ask\ spread_{i,T}}{P_{i,T}} = \beta_0 + \beta_1 Achievement\ score_{i,T} + \varepsilon_{i,T} \quad (5)$$

III: $$\frac{Bid-ask\ spread_{i,T}}{P_{i,T}} = \beta_0 + \beta_1 Target\ score_{i,T} + \beta_2 Achievement\ score_{i,T} + \varepsilon_{i,T} \quad (6)$$

IV: $$\frac{Bid-ask\ spread_{i,T}}{P_{i,T}} = \beta_0 + \beta_1 Target\ score_{i,T} + \beta_2 Achievement\ score_{i,T} + \beta_3 Size_{i,T} + \beta_4 ROA_{i,T} + \beta_5 Volatility_{i,T} + \beta_6 Share\ turnover_{i,T} + \beta_7 Share\ price_{i,T} + \varepsilon_{i,T} \quad (7)$$

V: $$\frac{Bid-ask\ spread_{i,T}}{P_{i,T}} = \beta_0 + \beta_1 Target\ score_{i,T} + \beta_2 Achievement\ score_{i,T} + \beta_3 Size_{i,T} + \beta_4 ROA_{i,T} + \beta_5 Volatility_{i,T} + \beta_6 Share\ turnover_{i,T} + \beta_7 Share\ price_{i,T} + \beta_8 Positive\ revision_{i,T} + \beta_9 Negative\ revision_{i,T} + \beta_{10} Added\ targets_{i,T} + \beta_{11} Removed\ targets_{i,T} + \varepsilon_{i,T} \quad (8)$$

VI: $$\frac{Bid - ask\ spread_{i,T}}{P_{i,T}} = \beta_0 + \beta_1 Achievement\ score_{i,T} + \beta_2 Size_{i,T} + \beta_3 ROA_{i,T} + \beta_4 Volatility_{i,T} + \beta_5 Share\ turnover_{i,T} + \beta_6 Share\ price_{i,T} + \beta_7 Growth\ target_{i,T} + \beta_8 Margin\ target_{i,T} + \beta_9 Return\ target_{i,T} + \beta_{10} Dividend\ target_{i,T} + \beta_{11} Capital\ structure\ target_{i,T} + \beta_{12} Cash\ flow\ target_{i,T} + \beta_{13} Other\ target_{i,T} + \varepsilon_{i,T} \quad (9)$$

Where:

$\frac{Bid-ask\ spread_{i,T}}{P_{i,T}} =$	the average relative bid-ask spread for firm i estimated over period T,
$Target\ score_{i,T} =$	the percentage of the maximum number of targets disclosed,
$Achievement\ score_{i,T} =$	the percentage of historically disclosed targets reported as achieved,
$Size_{i,T} =$	the log of the market value of equity of firm i measured at the beginning of each time period T,
$ROA_{i,T} =$	the operating income divided by total assets reported for the fiscal year ending prior to the beginning of each period T,
$Volatility_{i,T} =$	the firm-specific volatility estimated using daily returns averaged over period T,
$Share\ turnover_{i,T} =$	the average daily SEK value of trading volume averaged over period T,
$Share\ price_{i,T} =$	the daily closing price averaged over period T,
$Positive\ revision_{i,T} =$	the sum of percentage upward revisions of financial targets,
$Negative\ revision_{i,T} =$	the absolute sum of percentage downward revisions of financial targets,
$Added\ targets_{i,T} =$	the number of targets added, and
$Removed\ targets_{i,T} =$	the number of targets removed.

4.4.2 Cost of equity capital regression

For the sake of this thesis, we assess the effects of disclosure of financial targets on the cost of equity capital. As previously stated, the cost of equity capital could be affected by information asymmetry and/or information precision. Assessing the separate information asymmetry effects through the bid-ask spread regression, any incremental beneficial effects on the cost of equity capital are hypothesized to stem from increased information precision. The disclosure of financial targets is expected to show a negative relation to cost of equity capital. We estimate our regression models, considering the cost of equity capital as the dependent capital market variable, with the purpose of determining how disclosure and achievement of financial targets are associated with the market value of firms. Hence, our empirical models for measuring the effect of financial targets on the cost of equity capital are:

I: $$r_{E\,i,T} = \beta_0 + \beta_1 Target\ score_{i,T} + \varepsilon_{i,T} \quad (10)$$

II: $$r_{E\,i,T} = \beta_0 + \beta_1 Achievement\ score_{i,T} + \varepsilon_{i,T} \quad (11)$$

III: $$r_{E\,i,T} = \beta_0 + \beta_1 Target\ score_{i,T} + \beta_2 Achievement\ score_{i,T} + \varepsilon_{i,T} \quad (12)$$

IV: $$r_{E\,i,T} = \beta_0 + \beta_1 Target\ score_{i,T} + \beta_2 Achievement\ score_{i,T} + \beta_3 Size_{i,T} + \beta_4 Leverage_{i,T} + \beta_5 ROA_{i,T} + \beta_6 Beta_{i,T} + \varepsilon_{i,T} \quad (13)$$

V: $$r_{E\,i,T} = \beta_0 + \beta_1 Target\ score_{i,T} + \beta_2 Achievement\ score_{i,T} + \beta_3 Size_{i,T} + \beta_4 Leverage_{i,T} + \beta_5 ROA_{i,T} + \beta_6 Beta_{i,T} + \beta_7 Positive\ revision_{i,T} + \beta_8 Negative\ revision_{i,T} + \beta_9 Added\ targets_{i,T} + \beta_{10} Removed\ targets_{i,T} + \varepsilon_{i,T} \quad (14)$$

VI: $$r_{E\,i,T} = \beta_0 + \beta_1 Achievement\ score_{i,T} + \beta_2 Size_{i,T} + \beta_3 Leverage_{i,T} + \beta_4 ROA_{i,T} + \beta_5 Beta_{i,T} + \beta_6 Growth\ target_{i,T} + \beta_7 Margin\ target_{i,T} + \beta_8 Return\ target_{i,T} + \beta_9 Dividend\ target_{i,T} + \beta_{10} Capital\ structure\ target_{i,T} + \beta_{11} Cash\ flow\ target_{i,T} + \beta_{12} Other\ target_{i,T} + \varepsilon_{i,T} \quad (15)$$

Where:

$r_{E\,i,T} =$	the cost of equity capital for firm i estimated over a period T,
$Target\ score_{i,T} =$	the percentage of the maximum number of targets disclosed,
$Achievement\ score_{i,T} =$	the percentage of historically disclosed targets reported as achieved,
$Size_{i,T} =$	the log of the market value of equity of firm i measured at the beginning of each time period T,
$Leverage_{i,T} =$	the debt-to-assets ratio as reported for the fiscal year ending prior to the beginning of each period T,
$ROA_{i,T} =$	the operating income divided by total assets reported for the fiscal year ending prior to the beginning of each period T,
$Beta_{i,T} =$	the firm-specific beta estimated through a market model using a rolling twelve-month period,
$Positive\ revision_{i,T} =$	the sum of percentage upward revisions of financial targets,
$Negative\ revision_{i,T} =$	the absolute sum of percentage downward revisions of financial targets,
$Added\ targets_{i,T} =$	the number of targets added, and
$Removed\ targets_{i,T} =$	the number of targets removed.

5 Results

5.1 Descriptive statistics

In this section, descriptive statistics for the main variables are presented. Note that descriptive statistics regarding our target variables are presented in Section *4.3.1 Disclosure of financial targets*.

5.1.1 Full-sample descriptive statistics

Table 8 presents descriptive statistics for the 166 firms in the sample, over the five years of data used in our regression analyses[26]. The relative bid-ask spread, which is bid-ask spread scaled by share price, show a mean of 0.012 with a standard deviation of 0.009. The bid-ask spread data is somewhat deviating from a normal distribution, with a positive skew indicated by the median lying below the mean value. The mean for the cost of equity capital is approximately 11.0% for the sample. The median value of 10.3% indicates that the majority of firms are below the mean. Thus, the sample has a positive skew, caused by a few firms having relatively high costs of equity capital. This is to be expected given that the time period studied includes years when market uncertainty and estimation risk increases, for example due to market volatility.

Other individual firm characteristics vary substantially across the sample. The difference in size can be illustrated by the market capitalization. The median value is SEK 1.6bn while the 90th percentile value is equivalent to SEK 37.5bn. The mean of SEK 17.3bn and standard deviation of SEK 54.4bn all describe the sample to have a few, considerably larger firms as defined by market capitalization[27]. The descriptive statistics of the leverage variable indicates that it is largely approximating a normal distribution. Looking closer at the distribution of the variable however, reveals that the variable is relatively platykurtic. The ROA measure represents the profitability of firms in the sample, and varies from negative figures to large positive numbers. Again, given the time period, this is not too surprising. The mean ROA value of 6.2% lies below the median of 6.3%, and with only the 10th percentile consisting of negative values, the descriptive statistics suggest that a few firms have shown a very poor profitability during the time period[28]. Furthermore, the density of the ROA measure shows some excess positive kurtosis. The mean beta lies below one, which might be due to the fact that our sample only consists of 166 of the approximately 260 firms listed on the Nasdaq OMX Stockholm exchange. Furthermore, firms included in the sample have been listed throughout the full period from 2007 to 2012, possibly explaining why our sample of firms does not reflect the average riskiness of the market (which it would if the average beta was one). The beta approximates a normal distribution. The daily volatility measure assumes a mean of 2.8%, which is in line

[26] For the sake of our study, data from 2007 is used for comparable purposes only, assessing target achievement

[27] It should be noted that the logarithm of market value and share turnover are used in regressions, rather than the absolute values

[28] As a ROA of -33.0% is considered to be extreme, the underlying reasons should be considered. When studying the ROA in more detail, it turns out that these extreme negative values largely relate to firms operating within the Health Care and Technology industries, i.e. industries characterized by fluctuations

with the overall Nasdaq OMX Stockholm for the period. There are large variations in the share turnover measure across our sample. Since we have included all firms listed on the Nasdaq Stockholm OMX during the full period, this is to be expected. Intuitively, smaller firms with less dispersed ownership and a lower amount of free-float shares might experience less frequent trading than some of the larger, or the riskier, firms with large institutional owners.

Descriptives:										
Full sample	n	min	mean	max	sd	p10	p25	p50	p75	p90
Bid-ask spread	817	0.001	0.012	0.048	0.009	0.002	0.004	0.010	0.017	0.025
r_E (%)	609	2.147	10.975	34.763	5.621	4.288	7.088	10.334	13.619	17.337
Market value (MSEK)	829	18.760	17 293.480	498 839.000	54 415.520	227.970	495.000	1 638.870	8 463.950	37 465.930
Leverage	726	0.000	0.337	0.933	0.209	0.044	0.157	0.339	0.503	0.608
ROA (%)	778	-33.040	6.236	38.080	9.899	-4.140	2.330	6.270	11.000	16.740
Beta	819	-1.349	0.680	2.096	0.363	0.280	0.422	0.643	0.889	1.201
Volatility	816	0.010	0.028	0.238	0.016	0.016	0.020	0.025	0.033	0.042
Share turnover (MSEK)	829	0.003	69.092	2 402.832	195.013	0.181	0.538	2.546	20.051	221.451
Share price (SEK)	829	0.110	73.758	694.000	79.858	5.750	23.800	51.000	103.300	161.500

Table 8. Descriptive statistics: Firms in sample

5.1.2 Sub-sample descriptive statistics

Table 9 shows descriptive statistics for our sub-samples. Whereas the characteristics of the bid-ask spread is relatively similar across the sub-samples, some distinction can be made with regards to that low and high growth firms seems to have slightly higher bid-ask spreads in general. Low growth firms show a higher mean cost of equity capital than the rest of the sample, while mixed growth firms show the highest profitability in terms of ROA. This could be explained by the fact that the low growth firms often include distressed firms (Fama and French, 2002), and that high growth firms might have high costs related to R&D. However, as can be seen, the ROA for low growth firms is, in terms of distribution, similar to that of high growth firms, and the maximum reported figure of ROA is still considered to be high. This pattern can be clarified by our classification. As low growth firms are argued to be relatively more distressed, as seen by book value of equity exceeding the market value, they are also argued to be poor performers in terms of the price-to-earnings ratios. Though, a low price-to-earnings ratio could be explained by extreme profitability for a particular year. This would however not oppose the low growth concept, as extreme levels of profitability are seldom persistent, but rather fades over time. Turning to the median of market value, it seems that the largest listed firms normally fall into the mixed growth category. Furthermore, as expected given the findings of Wu and Au Yeung (2012), low growth firms have higher leverage ratios in comparison with high growth firms. Seemingly, low growth firms have the largest variation in beta, with both the highest maximum, and the lowest minimum values. As expected, the average volatility is the lowest in the mixed growth sub-sample. Furthermore, the share turnover is highest for the mixed growth sample.

Descriptives:										
Low growth firms	n	min	mean	max	sd	p10	p25	p50	p75	p90
Bid-ask spread	195	0.001	0.014	0.048	0.010	0.004	0.006	0.013	0.021	0.027
r_E (%)	163	5.142	15.846	34.762	6.328	9.389	10.833	14.912	18.784	24.557
Market value (MSEK)	197	34.190	4 348.563	204 563.900	15 565.280	186.580	344.490	883.170	4 371.150	9 555.140
Leverage	192	0.006	0.402	0.818	0.196	0.124	0.255	0.424	0.551	0.655
ROA (%)	181	-33.030	2.320	26.980	8.847	-8.300	-0.160	3.120	6.850	10.930
Beta	189	-1.349	0.715	2.096	0.441	0.280	0.433	0.675	0.943	1.289
Volatility	184	0.012	0.034	0.238	0.026	0.019	0.022	0.029	0.036	0.051
Share turnover (MSEK)	197	0.003	26.041	1 235.979	107.739	0.132	0.285	1.011	9.250	44.093
Share price (SEK)	197	0.190	34.362	256.000	36.164	2.260	11.300	25.800	49.200	68.500

Table 9A. Descriptive statistics: Low growth firms

Descriptives:										
Mixed growth firms	n	min	mean	max	sd	p10	p25	p50	p75	p90
Bid-ask spread	394	0.001	0.011	0.048	0.009	0.001	0.003	0.009	0.016	0.022
r_E (%)	345	2.147	9.527	31.945	4.022	4.239	6.563	9.670	12.244	14.351
Market value (MSEK)	399	20.820	18 533.120	334 055.800	44 285.140	339.610	741.050	2 589.670	12 652.830	47 199.970
Leverage	363	0.001	0.306	0.844	0.200	0.042	0.137	0.294	0.480	0.588
ROA (%)	391	-14.860	9.292	37.610	6.442	3.670	5.380	8.180	12.200	17.330
Beta	397	-0.033	0.694	1.589	0.356	0.280	0.411	0.648	0.951	1.233
Volatility	399	0.011	0.024	0.080	0.009	0.016	0.018	0.022	0.029	0.036
Share turnover (MSEK)	399	0.034	84.490	1 286.730	191.861	0.240	0.654	3.335	51.353	279.070
Share price (SEK)	399	0.140	83.843	445.000	60.569	21.200	40.000	68.000	116.000	163.000

Table 9B. Descriptive statistics: Mixed growth firms

Descriptives:										
High growth firms	n	min	mean	max	sd	p10	p25	p50	p75	p90
Bid-ask spread	228	0.001	0.013	0.046	0.010	0.001	0.005	0.011	0.018	0.028
r_E (%)	101	2.186	8.058	20.542	4.133	3.313	4.588	7.739	10.985	13.448
Market value (MSEK)	233	18.760	26 155.490	498 839.000	82 314.480	137.080	351.460	1 173.790	8 239.450	40 913.000
Leverage	171	0.000	0.333	0.933	0.226	0.028	0.139	0.297	0.517	0.612
ROA (%)	206	-33.040	3.876	38.080	13.665	-12.540	-2.630	3.625	12.360	20.920
Beta	233	-0.048	0.629	1.488	0.294	0.276	0.431	0.595	0.783	1.024
Volatility	233	0.010	0.031	0.079	0.013	0.016	0.022	0.028	0.036	0.048
Share turnover (MSEK)	233	0.026	79.123	2 402.832	246.352	0.218	0.821	2.686	18.109	244.600
Share price (SEK)	233	0.110	89.798	694.000	116.665	2.870	14.650	43.600	119.000	221.000

Table 9C. Descriptive statistics: High growth firms

5.2 Correlation

In order to control for the existence of a relation between the disclosure of financial targets and capital market variables, we study the pairwise correlation between our target variables and bid-ask spread and the cost of equity capital respectively. Other control variables are included as well. The results from the correlation analysis are reported in Table 10, with significance levels reported according to the two-tailed test of statistical significance[29]. The Pearson pairwise correlations are reported below the diagonal in Table 10, primarily applicable to variables that are approximately normally distributed and assume a linear relationship. Above the diagonal, the Spearman coefficients are reported. While Pearson coefficients are more accurate, the Spearman coefficients are more adequate for data sets containing large outliers. Thus, differing correlation coefficient signs indicate that the variables do not have a linear relationship or that

[29] The correlation measures the strength of the relationship between two variables. We have used two methods for correlation measurement: Pearson and Spearman correlation. The Pearson correlation method is the most common and measures the strength of the linear relationship between normally distributed variables. The Spearman rank correlation method, on the other hand, makes no assumptions about the distribution of the sample. Because ranks are used for the calculation, the size of the largest and smallest values has no effect, and the Spearman measure may therefore be more appropriate for data with large outliers. The conversion to ranks dilutes some of the precision in the data, why the Pearson correlation is preferred as long as the data is approximately normally distributed

one of them is not normally distributed, why the Spearman coefficient should be the preferred measure of the association between the variables.

First, the correlation matrix reveals an expected, significant, negative relation between the disclosure of financial targets and the bid-ask spread. The magnitude of this particular correlation coefficient is similar between the two estimation methods, -0.101 using Pearson and -0.094 using Spearman, which would indicate a linear relationship between the variables. Second, the results regarding the relation between the disclosure of financial targets and estimated cost of equity capital might seem somewhat ambiguous. However, due to the underlying characteristics of the data, the Spearman coefficient should be considered the most adequate. Nevertheless, the lack of significance implies we cannot conclude that there is any relationship between target disclosure and the cost of equity capital based on this test. These results suggest that the existence of a relation between disclosure of financial targets and capital market variables is partially confirmed. In particular, the negative relationship between the disclosure of financial targets and the bid-ask spread is consistent, independent of the correlation test used.

Several other observations can be made from the correlation test. For instance, the correlation between the achievement of the disclosed financial targets and the capital market variables is significant and negative independent of the estimation method used. It should also be mentioned that the correlation test shows a positive correlation between the bid-ask spread and the cost of equity capital, and in the case of the Spearman test, the coefficient is significant on the 5% level. This confirms the underlying relationship between the two capital market variables. In addition, most coefficients of the control variables regarding firm characteristics obtain the expected sign in relation to our capital market variables. Considering the relative bid-ask spread measure, the results indicate positive correlation with volatility, and negative correlation with size, ROA and share turnover, all being statistically significant on the 1% level. For the cost of equity capital, we obtain the expected correlations with size, leverage, and beta with an overall strong statistical support. Furthermore, as expected from the review of previous research, a positive correlation between the disclosure and share turnover has been documented. Our correlation analysis confirms this finding with statistical significance on a 5% level or better. Even though our expectations regarding the association between variables are referring to the expected outcome using a robust fixed effects regression analysis, the before stated expectations are simple in their nature and thus, should apply in this setting as well[30].

[30] We acknowledge that coefficients estimated through a regression not necessarily coincide with those estimated through pairwise correlation, and that the regression coefficients will be more accurate both with regards to significance levels and sign

Table 10. Correlation coefficients[a,b]

Variables	Target score	Achievement score	Positive revision	Negative revision	Added targets	Removed targets	Bid-ask spread	r_E	Size	Leverage	ROA	Beta	Volatility	Share turnover	Share price
Target score	**1.000**	0.327***	0.133***	0.170***	0.103***	-0.136***	-0.094**	-0.039	0.074*	0.202***	0.092**	0.166***	0.073*	0.101**	0.107**
Achievement score	0.327***	**1.000**	0.145***	0.012	-0.081**	-0.055	-0.288***	-0.107**	0.360***	0.108**	0.245***	0.076*	-0.301***	0.282***	0.341***
Positive revision	0.094***	0.117***	**1.000**	0.108***	0.061	0.031	-0.162***	-0.096**	0.135***	-0.020	0.041	0.075*	-0.087**	0.131***	0.128***
Negative revision	0.177***	0.004	0.113***	**1.000**	0.050	0.094**	-0.062	-0.008	0.036	0.049	-0.025	0.052	0.032	0.064	0.065
Added targets	0.143***	-0.084**	0.009	0.030	**1.000**	0.071*	0.026	0.045	-0.052	-0.141**	0.007	-0.043	0.040	-0.028	-0.070
Removed targets	-0.107***	-0.049	0.058*	-0.098***	-0.001	**1.000**	-0.053	0.050	0.024	-0.019	-0.072	0.065	0.059	0.049	-0.072
Bid-ask spread	-0.101**	-0.288***	-0.059*	-0.020	-0.011	-0.020	**1.000**	0.036	-0.890***		-0.268***		0.297***	-0.937***	-0.583***
r_E	0.015	-0.065*	-0.051	0.010	0.001	0.033	0.088**	**1.000**	-0.156***	0.195***	-0.153***	0.044			
Size	0.143***	0.372***	0.040	0.028	-0.001	-0.016	-0.787***	-0.141***	**1.000**	0.206***	0.354***	0.631***	-0.271***	0.917***	0.661***
Leverage	0.172***	0.103***	-0.076**	0.047	-0.077**	-0.003		0.183***	0.180***	**1.000**	-0.130***	0.180***	0.075*	0.209***	0.089**
ROA	0.082**	0.247***	0.048	-0.028	0.080	-0.017	-0.278***	-0.055	0.322***	-0.112***	**1.000**	0.034	-0.099**	0.142***	0.351***
Beta	0.140***	0.067*	0.049	0.077**	-0.033	0.045		0.082**	0.535***	0.179***	0.037	**1.000**			
Volatility	-0.099***	-0.222***	-0.054	0.003	0.004	0.031	0.205***		-0.215***	0.065*	-0.202***		**1.000**	-0.134***	-0.418***
Share turnover	0.109***	0.298***	0.047	0.032	0.007	0.009	-0.823***		0.902***	0.183***	0.643***		-0.144**	**1.000**	0.569***
Share price	0.185***	0.392***	0.058*	0.018	-0.055	-0.020	-0.498***		0.618***	0.046	0.383***		-0.329***	0.555***	**1.000**

Note that Pearson correlation coefficients are illustrated below the diagonal; Spearman correlation coefficients are illustrated above the diagonal.

[a] Target score is the firms' individual disclosure score measured as the percentage of disclosed financial targets in relation to the maximum number of targets. Achievement score measures firms' percentage of disclosed financial targets that were reported as achieved. Positive revision and Negative revision is the sum of percentage upward and downward revisions of financial targets respectively. Added targets and Removed targets measures the sum of added and removed financial targets between reporting periods respectively. Cost of equity capital, r_E, is estimated using a RIV approach. Bid-ask spread is the relative bid-ask spreads averaged over a twelve-month period. Size is the log of the market value of equity. Leverage is the debt-to-assets ratio. ROA, obtained by dividing operating income and total assets, controls for profitability. Beta is the firm specific beta estimated using a rolling twelve-month period. Volatility measures risk as the standard deviation estimated using daily returns. Share turnover is the SEK value of trading, and share price is the daily closing price averaged over the same period as bid-ask spreads. For details regarding the variables, see Section *4.3 Regression variables*. The data is obtained from Thomson Reuters Datastream and annual reports. For details regarding the data gathering, see Section *4.2.1 Data gathering*. For definitions of the individual financial target variables, see Table 4.

[b] Significance levels quoted are for a two-tail test of statistical significance

* Significance at $0.05 < \propto \leq 0.10$

** Significance at $0.01 < \propto \leq 0.05$

*** Significance at $\propto \leq 0.01$

5.3 Bid-ask spread

5.3.1 Full-sample tests

Table 11 reports the results from regressing bid-ask spread on the previously explained set of independent variables. The explanatory power of the regression models increases significantly for the sub-samples compared to the full sample regressions. The table shows coefficient estimates, t-statistics and significance levels from a two-tail test. Furthermore, the table shows six regression models, where the univariate models, I and II, use Target score and Achievement score respectively as independent variables, and III is performed with both. Our multivariate core models, IV and V, control for firm specific characteristics, i.e. size, profitability, volatility, share turnover and share price, whereas Model V also includes variables controlling for changes in the disclosure of financial targets. Finally, Model VI is similar to Model IV, except for splitting the Target score into each separate target variable.

The results reported in Table 11 support the expected negative relation between the disclosure of financial targets and bid-ask spread, a result that persists across all regression models. In particular, the multivariate models in which we control for firm characteristics, lends support for H_1. While the direction of the relation between bid-ask spread and achievement is in line with expectation, the results show diverging significance levels. The regression output shows a negative effect of the Achievement score variable using Model II and III, significant on the 1% level. Though, the significance level does not remain when controlling for firm characteristics. Only considering Models II and III would confirm H_2, however, the core models, Models VI and V, can neither reject nor confirm the hypothesis.

With regards to changes in targets, Model V indicates that Positive revision and Removed targets significantly and negatively impact the bid-ask spread. This is opposite to what we expected. The other change variables do not show any significant relation to the bid-ask spread measure. Extending the model to include the individual target variables, i.e. Model VI, allows us to evaluate their respective relation to bid-ask spread, thus their ability to reduce information asymmetry. Except for Return and Cash flow, all target groups show a negative relation to bid-ask spread, nevertheless the results do not allow us to draw conclusions with statistical significance.

Given the fairly low R^2-values, our results should be interpreted with caution. Including the variables controlling for changes in disclosure practices increases the R^2 to a maximum of 29.2%, implying that significant variation in bid-ask spread remains to be explained by other factors. We elaborate on the results with regards to our control variables in Section *7.2.1 Model verification*.

Table 11. Bid-ask spread regression[a,b]

	All firms in sample					
	I	II	III	IV	V	VI
Target score	-0.004*		-0.004*	-0.003*	-0.007***	
t-stat	*-1.91*		*-1.74*	*-1.79*	*-2.83*	
Achievement score		-0.002***	-0.002***	-0.001	-0.001	-0.001
t-stat		*-3.38*	*-3.27*	*-1.55*	*-1.19*	*-1.51*
Size				-0.001***	-0.001***	-0.001**
t-stat				*-2.71*	*-2.73*	*-2.57*
ROA				-0.007**	-0.007**	-0.007**
t-stat				*-2.16*	*-2.11*	*-2.16*
Volatility				0.048**	0.050**	0.048**
t-stat				*1.96*	*2.08*	*2.00*
Share turnover				-0.003***	-0.003***	-0.003***
t-stat				*-7.58*	*-8.04*	*-7.64*
Share price				0.000	0.000	0.000
t-stat				*1.25*	*1.34*	*1.22*
Positive revision					-0.003**	
t-stat					*-2.13*	
Negative revision					0.001	
t-stat					*0.65*	
Added targets					0.000	
t-stat					*0.26*	
Removed targets					-0.001***	
t-stat					*-3.08*	
Growth target						-0.001
t-stat						*-0.85*
Margin target						-0.000
t-stat						*-0.08*
Return target						0.000
t-stat						*0.46*
Dividend target						-0.002
t-stat						*-1.53*
Capital structure target						-0.000
t-stat						*-0.26*
Cash flow target						0.000
t-stat						*0.22*
Other target						-0.001
t-stat						*-0.70*
Constant	0.014***	0.013***	0.014***	0.047***	0.048***	0.047***
t-stat	*16.82*	*44.50*	*17.09*	*8.52*	*8.80*	*8.71*
n	735	735	735	735	735	735
F-stat	3.640	11.430	7.000	13.470	9.470	8.300
R^2	0.010	0.020	0.028	0.269	0.292	0.274

[a] The dependent variable bid-ask spread is the relative bid-ask spreads averaged over a twelve-month period. Target score is the firms' individual disclosure score measured as the percentage of disclosed financial targets in relation to the maximum number of targets. Achievement score measures firms' percentage of disclosed financial targets that were reported as achieved. Size is the log of the market value of equity. ROA, obtained by dividing operating income and total assets, controls for profitability. Volatility measures risk as the standard deviation estimated using daily returns. Share turnover is the SEK value of trading, and share price is the daily closing price averaged over the same period as bid-ask spreads. Positive revision and Negative revision is the sum of percentage upward and downward revisions of financial targets respectively. Added targets and Removed targets measures the sum of added and removed financial targets between reporting periods respectively. For definitions of the individual target groups, see Table 2. For details regarding the variables, see Section *3.4 Disclosure of financial targets and, capital market variables*. The data is obtained from Thomson Reuters Datastream and annual reports. For details regarding the data gathering, see Section *4.2.1 Data gathering.*

[b] Significance levels quoted are for a two-tail test of statistical significance

* Significance at $0.05 < \propto \leq 0.10$

** Significance at $0.01 < \propto \leq 0.05$

*** Significance at $\propto \leq 0.01$

5.3.2 Sub-sample tests

Table 12 provides results regarding the bid-ask spread from our two core regression models on sub-samples. The Target score variable remains negative for all regressions. Furthermore, isolating low and high growth firms confirms H_1, as the relation between the Target score and bid-ask spreads is negative and significant on the 10% level or better. Even though the results for the mixed growth firms are negative as well, the results are not significant enough to confirm H_1 on a standalone basis.

For both the low and high growth sub-samples, the results with regards to Achievement score are found to be less significant in comparison to the results for the sample including all firms. Since these sub-sample results do not yield conclusive support for H_2, it is left unsaid whether the hypothesis is true or not. However, the results with regards to mixed growth firms turn out to be ambiguous, since they indicate a positive relation between Achievement score and bid-ask spread. Overall, we find that we cannot draw any conclusion regarding H_2, due to insufficient statistical significance.

The estimated coefficients of the changes in target variables differ between the sub-samples. Specifically, Positive revision is significantly positively related to the bid-ask spread for low and high growth firms. The Removed targets variable is negatively significant across all sub-samples. An assessment of each individual target group has been made with regards to our sub-samples, however results do not allow for any conclusive comments to be made.

Table 12. Sub-samples: Bid-ask spread regression[a,b]

	Low growth firms		Mixed growth firms		High growth firms	
	IV	V	IV	V	IV	V
Target score	-0.009***	-0.012**	-0.002	-0.003	-0.005*	-0.010***
t-stat	*-3.76*	*-2.55*	*-1.57*	*-1.59*	*-1.65*	*-3.16*
Achievement score	-0.005	-0.005	0.001	0.001*	-0.002	-0.002
t-stat	*-1.44*	*-1.52*	*1.53*	*1.95*	*-1.40*	*-1.20*
Size	-0.001	-0.001	-0.003***	-0.001	-0.000	-0.001
t-stat	*-0.94*	*-0.91*	*-4.04*	*-1.11*	*-0.19*	*-0.55*
ROA	-0.000	0.001	-0.001	-0.001	-0.013***	-0.013***
t-stat	*-0.02*	*0.27*	*-0.18*	*-0.22*	*-2.72*	*-2.86*
Volatility	-0.012	-0.006	0.286***	0.283***	0.059	0.079**
t-stat	*-0.52*	*-0.24*	*5.94*	*6.00*	*1.53*	*2.11*
Share turnover	-0.003***	-0.003***	-0.004***	-0.004***	-0.004***	-0.003***
t-stat	*-3.85*	*-3.76*	*-9.12*	*-9.21*	*-3.08*	*-3.26*
Share price	0.000	0.000	0.000***	0.000***	0.000	0.000
t-stat	*1.03*	*0.95*	*-9.12*	*2.79*	*0.87*	*1.12*
Positive revision		0.023**		-0.001		0.004**
t-stat		*2.32*		*-1.11*		*2.16*
Negative revision		0.003*		0.000		-0.006**
t-stat		*1.67*		*0.19*		*-2.22*
Added targets		-0.001		-0.001**		0.001
t-stat		*-1.41*		*-2.49*		*1.59*
Removed targets		-0.001**		-0.001***		-0.002*
t-stat		*-2.36*		*-3.25*		*-1.76*
Constant	0.044***	0.045***	0.061***	0.060***	0.045***	0.045***
t-stat	*4.53*	*4.36*	*8.29*	*8.51*	*4.60*	*4.66*
n	169	169	383	383	183	183
F-stat	5.620	-	18.170	13.410	8.670	11.180
R^2	0.282	0.317	0.475	0.491	0.367	0.444

[a] The dependent variable bid-ask spread is the relative bid-ask spreads averaged over a twelve-month period. Target score is the firms' individual disclosure score measured as the percentage of disclosed financial targets in relation to the maximum number of targets. Achievement score measures firms' percentage of disclosed financial targets that were reported as achieved. Size is the log of the market value of equity. ROA, obtained by dividing operating income and total assets, controls for profitability. Volatility measures risk as the standard deviation estimated using daily returns. Share turnover is the SEK value of trading, and share price is the daily closing price averaged over the same period as bid-ask spreads. Positive revision and Negative revision is the sum of percentage upward and downward revisions of financial targets respectively. Added targets and Removed targets measures the sum of added and removed financial targets between reporting periods respectively. For details regarding the variables, see Section *3.4 Disclosure of financial targets and, capital market variables*. The data is obtained from Thomson Reuters Datastream and annual reports. For details regarding the data gathering, see Section *4.2.1 Data gathering*.

[b] Significance levels quoted are for a two-tail test of statistical significance

* Significance at $0.05 < \propto \leq 0.10$

** Significance at $0.01 < \propto \leq 0.05$

*** Significance at $\propto \leq 0.01$

5.4 Cost of equity capital

5.4.1 Full-sample tests

Table 13 reports the results found through the regressions of cost of equity capital as the dependent variable and the previously explained set of independent variables. The table reports coefficient estimates, t-statistics and significance levels from a two-tail test. Furthermore, the table shows six regression models, where the univariate models, I and II, use Target score and Achievement score respectively as independent variables, and III is performed with both. Our multivariate core models, IV and V, control for firm specific characteristics, i.e. size, leverage, profitability and beta, whereas Model V also includes variables controlling for changes in the disclosure of financial targets. Finally, Model VI is similar to Model IV, except for splitting the Target score into each separate target variable.

With regards to the regressions using the full sample, the results, presented in Table 13, show a negative relation between Target score and cost of equity capital, for all models. However, as the results are insignificant, we can neither reject nor confirm H_3. Achieving targets, though, is in Models II and III proven to lower cost of equity capital as indicated by the estimated significant negative coefficient. The inclusion of the other sets of independent variables (IV-VI) increases R^2 and the negative relation between cost of equity capital and target achievement remains, though without significance. Thus, as a result of the poor statistical significance in Models IV-VI, we can neither reject nor confirm H_4 for these models.

The same holds for our four variables controlling for changes in the disclosure practices in Model V, for which Positive and Negative revision indicates a negative relation with cost of equity capital. Whereas this is in line with expectations, none of the variables is statistically significant. Added targets and Removed targets are both opposing expectations and turn out insignificant. For the individual target variables in Model VI, Growth, Margin, Return and Capital structure targets indicate a negative relation. Neither are these variables significantly associated with the cost of equity capital.

The R^2-values increase significantly going from univariate to multivariate regressions, which is to be expected. Nevertheless, a substantial share of the variation in cost of equity capital is left unexplained even when controlling for firm characteristics. We elaborate on the results with regards to our control variables in Section *7.2.1 Model verification*.

Table 13. Cost of equity capital regression[a,b]

	All firms in sample					
	I	II	III	IV	V	VI
Target score	-0.025		-0.018	-0.018	-0.035	
t-stat	*-1.02*		*-0.78*	*-0.76*	*-1.16*	
Achievement score		-0.030***	-0.030***	-0.009	-0.008	-0.009
t-stat		*-3.92*	*-3.83*	*-1.21*	*-0.98*	*-1.18*
Size				-0.055***	-0.055***	-0.055***
t-stat				*-9.89*	*-9.87*	*-9.96*
Leverage				0.044	0.043	0.043
t-stat				1.62	*1.53*	*1.55*
ROA				0.177***	0.173***	0.175***
t-stat				*3.99*	*3.91*	*3.83*
Beta				0.018	0.019	0.015
t-stat				*1.24*	*1.33*	*1.00*
Positive revision					-0.013	
t-stat					*-0.62*	
Negative revision					-0.009	
t-stat					*-0.68*	
Added targets					0.004	
t-stat					*0.96*	
Removed targets					-0.003	
t-stat					*-0.81*	
Growth target						-0.008
t-stat						*-0.77*
Margin target						-0.008
t-stat						*-0.77*
Return target						-0.020
t-stat						*-1.59*
Dividend target						0.007
t-stat						*0.52*
Capital structure target						-0.012
t-stat						*-1.13*
Cash flow target						0.021
t-stat						*1.22*
Other target						0.002
t-stat						*0.81*
Constant	0.120***	0.124***	0.131***	0.519***	0.525***	0.521***
t-stat	*12.87*	*36.04*	*13.77*	*9.92*	*9.89*	*9.84*
n	533	533	533	533	533	533
F-stat	1.040	15.370	7.900	25.910	17.520	13.850
R^2	0.003	0.032	0.034	0.342	0.346	0.361

[a] The dependent variable, cost of equity capital, r_E, is estimated using a RIV approach. Target score is the firms' individual disclosure score measured as the percentage of disclosed financial targets in relation to the maximum number of targets. Achievement score measures firms' percentage of disclosed financial targets that were reported as achieved. Size is the log of the market value of equity. Leverage is the debt-to-assets ratio. ROA, obtained by dividing operating income and total assets, controls for profitability. Beta is the firm specific beta estimated using a rolling twelve-month period. Positive revision and Negative revision is the sum of percentage upward and downward revisions of financial targets respectively. Added targets and Removed targets measures the sum of added and removed financial targets between reporting periods respectively. For definitions of the individual target groups, see Table 2. For details regarding the variables, see Section *4.3 Regression variables*. The data is obtained from Thomson Reuters Datastream and annual reports. For details regarding the data gathering, see Section *4.2.1 Data gathering*.

[b] Significance levels quoted are for a two-tail test of statistical significance

* Significance at $0.05 < \propto \leq 0.10$

** Significance at $0.01 < \propto \leq 0.05$

*** Significance at $\propto \leq 0.01$

5.4.2 Sub-sample tests

In order to control for the differences in information requirements placed on our three sub-samples, we estimate our previously mentioned core regressions and investigate any differences in the results between them. Table 14 provides results based on the samples isolating firms of different growth types. The explanatory power of the regression model decreases for mixed growth firms, and the reported R^2 is higher for the low and high growth firm sub-samples than for the full sample in Model V. Target score remains negative for low and mixed growth firms, however shows poor statistical significance. This implies that the results are too noisy to conclude anything with regards to H_3.

Turning to the sample of mixed growth firms, we find the Achievement score to be both increasingly significant and increasingly negative in comparison to what was previously reported through our core regressions. However, isolating low growth firms yield results far from expectations, indicating a positive relation between the achievement of targets and cost of equity capital, a result that is significant on the 5% level for Model V, whereas the results for Model IV do not show any statistical significance. The results imply that we can confirm H_4 for mixed growth firms, but cannot draw any conclusions regarding the direction of a relationship between target achievement and cost of equity capital for other firm growth types.

Furthermore, the estimated coefficients of the changes in target variables differ significantly between the sub-samples. Specifically, when isolating low growth firms, Positive revision and Removed targets are negatively significant on a 1% level. Whereas we expected the negative relationship between cost of equity capital and Positive revision, the fact that Removed targets negatively influence our dependent variable is more puzzling. All change variables remain insignificant for the other sub-samples. In addition, an assessment of each individual target group has been made with regards to our sub-samples, however results do not allow for any conclusive comments to be made.

Table 14. Sub-samples: Cost of equity capital regression[a,b]

	Low growth firms		Mixed growth firms		High growth firms	
	IV	V	IV	V	IV	V
Target score	-0.030	-0.120***	-0.019	-0.032	0.037	0.071
t-stat	*-1.12*	*-2.74*	*-0.66*	*-1.02*	*1.10*	*0.80*
Achievement score	0.013	0.027**	-0.026***	-0.025***	-0.016	-0.029
t-stat	*0.82*	*2.06*	*-3.16*	*-3.07*	*-0.72*	*-0.65*
Size	-0.051***	-0.058***	-0.041***	-0.040***	-0.052**	-0.050**
t-stat	*-3.44*	*-4.12*	*-5.18*	*-5.06*	*-2.50*	*-2.49*
Leverage	0.069	0.126**	0.001	-0.001	0.089*	0.092**
t-stat	*1.12*	*2.28*	*0.02*	*-0.05*	*1.93*	*2.11*
ROA	0.124	0.150**	0.228***	0.229***	0.041	0.089
t-stat	*1.55*	*2.16*	*3.12*	*3.07*	*0.37*	*0.72*
Beta	0.007	0.005	-0.022	-0.022	0.043	0.030
t-stat	*0.41*	*0.26*	*-1.08*	*-1.06*	*1.29*	*0.62*
Positive revision		-0.872***		-0.004		-0.000
t-stat		*-5.80*		*-0.19*		*-0.11*
Negative revision		-0.017		0.014		0.028
t-stat		*-0.67*		*0.66*		*0.16*
Added targets		0.003		0.004		-0.006
t-stat		*0.35*		*0.87*		*-0.48*
Removed targets		-0.018***		-0.002		0.019
t-stat		*-2.61*		*-0.56*		*1.40*
Constant	0.493***	0.550***	0.452***	0.452***	0.427**	0.414**
t-stat	*3.89*	*4.56*	*6.35*	*6.26*	*2.42*	*2.26*
n	142	142	312	312	79	79
F-stat	3.520	-	9.330	6.100	2.950	-
R^2	0.308	0.450	0.293	0.298	0.304	0.373

[a] The dependent variable, cost of equity capital, r_E, is estimated using a RIV approach. Target score is the firms' individual disclosure score measured as the percentage of disclosed financial targets in relation to the maximum number of targets. Achievement score measures firms' percentage of disclosed financial targets that were reported as achieved. Size is the log of the market value of equity. Leverage is the debt-to-assets ratio. ROA, obtained by dividing operating income and total assets, controls for profitability. Beta is the firm specific beta estimated using a rolling twelve-month period. Positive revision and Negative revision is the sum of percentage upward and downward revisions of financial targets respectively. Added targets and Removed targets measures the sum of added and removed financial targets between reporting periods respectively. For details regarding the variables, see Section *4.3 Regression variables*. The data is obtained from Thomson Reuters Datastream and annual reports. For details regarding the data gathering, see Section *4.2.1 Data gathering*.

[b] Significance levels quoted are for a two-tail test of statistical significance

* Significance at $0.05 < \propto \leq 0.10$

** Significance at $0.01 < \propto \leq 0.05$

*** Significance at $\propto \leq 0.01$

6 Analysis

The purpose of this thesis is to study what implications the disclosure and achievement of financial targets have for bid-ask spread and cost of equity capital, as specified through our research question. In order to do so, hypotheses have been formulated, advocating the application of a quantitative empirical research design. Our regression models yield diverging results, as presented in Tables 11 and 13, which are considered initial evidence that no general conclusion with regards to how the disclosure of financial targets impact capital market variables can be made. Further analyzing the results with regards to how achievement of financial targets affects the capital market variables add another explanatory dimension to our previously presented results. Enhancing granularity highlights the differences in the impact of disclosure of financial targets between different growth type firms.

6.1 The capital market effects of disclosing financial targets

Through our theoretical framework, we have shown that two distinct effects from information sharing have been proven historically. Through increased information sharing to the capital markets, firms can either mitigate information asymmetry, and/or add to the information precision of investors. Both these effects can affect the cost of equity capital of a firm, while the bid-ask spread specifically measures changes in information asymmetry. However, it should be noted that whereas the mitigation of information asymmetry will most often have a reducing effect on the cost of equity capital through decreasing transaction costs, the effects from increased information precision might be more ambiguous. Again this can be explained using the example of two firms, estimated to have identical estimated pay-off distributions with the only difference between them being the quality of information provided. In this setting, adding information precision to the firm with the lower quality information could ultimately increase investor confidence in estimates and/or leads to that investors revise their prior estimated pay-off distribution. If increased information precision adds to the certainty that estimates are true, the effect on the cost of equity should, ceteris paribus, be beneficial for the firm. In other words, increased information precision could lower cost of equity capital given an elimination of estimation risk. However, increased information precision could alter investors' estimates, which will not unequivocally decrease the cost of equity capital. A revision of estimates will implicitly increase or decrease the cost of equity capital depending on how the risk incorporated in the prior estimated pay-off distribution relates to the riskiness of the actual pay-off distribution.

Analyzing the effects on both the bid-ask spread and the cost of equity capital by the disclosure of financial targets allows us to draw conclusions about whether sharing information about future ambitions will affect the cost of equity capital of firms through reduced information asymmetry as implied by the effects on the bid-ask spread, and/or by the effects on information precision[31]. Turning to the pairwise correla-

[31] Information precision would be the remaining information uncertainty driver of cost of equity capital in absence of effects from information asymmetry. We acknowledge that assuming that information asymmetry exists inherently implies an assumption of imperfectly competitive markets, while information precision has been argued to persist

tions it seems that in particular the bid-ask spread is significantly negatively associated with the disclosure of financial targets. This observation allows us to assume that a negative relation between disclosure and information asymmetry exists, which lends initial support for H_1. Whereas disclosure of targets and cost of equity capital do not show any significant association given the correlation, the latter is positively and significantly associated to bid-ask spread. This implies that some of the predicted benefits from increasing the transparency regarding financial targets prevail in our sample. However, the low statistical significance with regards to the correlation between disclosure of financial targets and cost of equity capital motivates extending our analysis through investigating H_1 and H_3 using the results from regression analyses.

With regards to H_1, our regression analysis findings provide evidence of increased stock market liquidity stemming from the disclosure of financial targets. We show that increased levels of disclosed financial targets are associated with lower bid-ask spreads, in particular for our sub-samples including low and high growth firms. The results are not only statistically significant, but also economically relevant as firms, through the disclosure of financial targets, can benefit from the lower transaction costs associated with lower information asymmetry. In addition to the lower bid-ask spreads, we find evidence for the positive relation between increased disclosure of financial targets and higher share turnover[32]. Combined, these results suggest that managers have superior knowledge compared to outside investors about their firms' expected future performance, which confirms the findings of Scholes (1969). This is particularly in line with managers of high growth firms being argued to have monopolistic information about their firms' investment opportunity set (Smith and Watts, 1992). The findings implies that the information asymmetry is decreased through the disclosure of financial targets, alternatively that financial targets serve as a proxy for the level of voluntary disclosure in general, which in turn would bridge the information gap. This relationship is similar to, and confirms the findings of, Leuz and Verrecchia (2000) and Welker (1995) amongst others.

The results from the cost of equity capital regressions indicate that no statistically significant relation exists between disclosure of financial targets and cost of equity capital[33]. Thus, the analysis with regards to the full sample does not allow us to confirm neither reject H_3. We have previously shown that the disclosure of financial targets is associated with lower information asymmetry. The lower transaction costs associated with this should reduce the cost of equity capital. However, the lack of effect on the cost of equity capital would imply the beneficial effect of decreased information asymmetry is somehow offset. This

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also in a perfectly competitive market. On the other hand, information precision could, as explained, counteract the beneficial effects of decreasing information asymmetry

[32] Regression results are not reported, however some confirmation is found through the correlation matrix in Table 10

[33] Given that we do not assume that markets are perfectly competitive, we acknowledge that the effects on the cost of equity capital could stem both from information asymmetry and information precision. Furthermore, the fact that there is seemingly information asymmetry in the market, as indicated by the ability of increased disclosure to affect bid-ask spread, this study lends some evidence to the fact that the market studied is somewhat imperfectly competitive

could for instance be due to the fact that disclosure of financial targets leads to increased information precision, which causes investors to make revisions to their prior estimates, such that the estimated pay-off distribution incorporates more risk. However, even though this explanation would be satisfying from a theoretical point of view, it is not very likely since we show that the changes to the disclosed targets, presumably affecting estimates the most, are few and with little effect on the cost of capital. Furthermore, our results are contradictory to the consensus findings of previous research, which has concluded that there is a significant negative association between the level of voluntary disclosure and the cost of equity capital (Barry and Brown, 1985, 1986; Botosan, 2006; Francis et al., 2008). It is however possible that our diverging results depend on that the information revealed through financial targets does not mitigate estimation risk to the same extent as other types of voluntary disclosures, captured by disclosure indexes. In theory, credibility and relevance of the voluntary disclosures are required characteristics in order for the information to be useful in the investor's decision-making and estimation processes. If the disclosed financial targets do not possess these characteristics, they will not add to investor's information precision even though they are included in the investor information set, and therefore have decreased information asymmetry. Because of managers' incentives to make voluntary disclosures in their own interest, the credibility of such disclosures can be ambiguous. Hence, our results could imply that the disclosed financial targets are not credible, alternatively that they are not relevant, and either way not sufficient to add to information precision. The credibility issue is further elaborated on in Section *6.2 The capital market effects of target achievement*. Even though Bravo Urquiza et al. (2012) find a relationship with regards to the cost of capital and forward-looking information in particular, they show that not all other information features have an impact on cost of capital. This line of argument supports the lack of significance found though our study.

As explained through previous research, there are several other external and internal reasons for why firms would voluntarily disclose information, which could explain the disclosure practice even though no effect on the cost of equity capital can be statistically supported. As a systematic usage of corporate governance has been proven to increase the performance of firms (Kaplan and Norton, 1992; Simons, 1995; Maiga and Jacobs, 2003), managers would likely want to communicate such governance to investors. For instance, financial targets might be linked to management incentives schemes, and therefore be more likely to be included in the final disclosure set. Thus, disclosing financial targets is one way of increasing transparency towards the investor society, implicitly displaying that a system for corporate governance is in place, which would ensure that managers are considering investors' interests and thus support the mitigation of agency issues[34]. Whereas this could explain why firms engage in the disclosure of financial targets, another explanation of the insignificance could follow from the costs associated with voluntary disclosure. Investors assess the firm specific risk and return, and might interpret the increased transparency

[34] On the other hand, the fact that voluntary disclosure increases in relation to management share option programs becoming exercisable implies that managers make voluntary disclosure as long as it is in their own interest (Aboody and Kasznik, 2000; Miller and Piotroski, 2000)

as adding riskiness to the business from the potential threats of competitors' taking advantage of proprietary information (Hayes and Lundholm, 1996; Verrecchia, 2001). This could mitigate the benefits associated with increased voluntary disclosure. However, it is unlikely that financial targets per se would constitute information relevant for competitors, even though certain growth targets and associated strategies could be observed through such disclosure. On the other hand, this could again indicate that voluntary disclosure of financial target serves as a proxy of the overall level of voluntary disclosure and that investors believe that such increased transparency implies increased risk, ceteris paribus, which erodes any benefits from decreased information asymmetry.

We have shown that the disclosure of financial targets lowers the information asymmetry for low and high growth firms in particular. However, the lack of statistical significance of Target score in the cost of equity capital regression provides implications similar to the results for the overall sample, indicating that the beneficial effects from decreased information asymmetry are somehow mitigated. Contrarily, as we isolate low growth firms, positive revisions to financial targets negatively affect the cost of equity capital with significance on the 1% level. Looking specifically at the Positive revision variable, it is somewhat positively associated to bid-ask spread, while it is strongly negatively related to the cost of equity capital. This leads us to the conclusion that positive revisions of financial targets in particular reduce the cost of equity capital through adding to the investors' information precision, rather than decreasing the information asymmetry, for firms with growth stemming from assets-in-place. Additionally, removing targets lowers both bid-ask spread and cost of equity capital for low growth firms. The fact that information asymmetry is seemingly mitigated by removing targets is contradictory to our expectation, as less information intuitively would imply a greater information asymmetry. It is however possible that the removal of information regarding targets coincides with disclosure regarding why targets have been removed, which would add to the information set of investors. Furthermore, removing targets that the firm has or will not be able to achieve could possibly affect information precision positively as it enhances the credibility of other disclosures. Thus, the effects from changes in disclosure of financial targets are prevailing among firms that have relatively low market valuations. It seems that such disclosure changes are qualitative and add to the information precision, either through increasing investor confidence in estimates or through altering those estimates in a beneficial way. Generally, these findings point towards that low growth firms manage to accurately communicate their ambitions to increase shareholder value going forward through their financial targets.

So far, we can conclude that the disclosure of financial targets does reduce information asymmetry, however, not sufficiently to reduce cost of equity capital for the sample in general. On the other hand, the cost of equity capital is reduced for low growth firms, an effect that seems to stem from a combination of the decreased information asymmetry and increased information precision, relating to changes in financial targets.

6.2 The capital market effects of target achievement

In order to add another explanatory dimension to our analysis, we turn to the effects of the achievement of disclosed financial targets on our capital market variables. The results relating to achievement of financial targets and the bid-ask spread indicate a negative relationship between these variables. However, the statistical significance of these results is deteriorated as we turn to multivariate regression analyses, which indicates that achieving targets does not add to the investors' information set. Furthermore, as we add granularity in terms of isolating firms based on their growth type, the statistical significance decreases even more, why we cannot confirm H_2. This is contradictory, as one would expect that the achievement of financial targets would further underpin the information asymmetry mitigation through adding to investors' information set.

Our H_4 states that the achievement of financial targets should lower the cost of equity capital, underlining that the information content of disclosed financial targets is credible. However, no confirmation of this hypothesis can be made with regards to the full sample. The disclosure of financial targets, showing an insignificant relation to the cost of equity capital, could imply that disclosures of this kind are not perceived as credible. Unless achieving financial targets can enhance the credibility of the information content, it might be unlikely for the credibility of this content to be established in other ways. Nevertheless, our sub-sample analyses generate significant results for mixed growth firms. Actually performing in line with, or even better than, disclosed financial targets seem to have a significant implication for the cost of equity capital. Thus, the results confirm H_4 for this specific sub-sample, and imply that the performance in relation to targets is of more importance than the actual disclosure of targets for this firm growth type, in terms of the effects on cost of equity capital. Furthermore, due to the lack of a statistically significant association between achievement and bid-ask spread, we can assume that the beneficial effect on cost of equity capital must stem from other factors than decreased information asymmetry. Explicitly, the cost of equity capital seems to decrease due to the fact that achievement of financial targets adds to investors' information precision through underlining the credibility of the disclosed information.

A specific distinction can be made between the disclosure of financial targets and the achievement of disclosed targets, with regards to when they are made relative to the time period that they concern. The voluntary disclosure of financial targets could be considered an ex ante decision, since the firm discloses this forward-looking information before knowing the outcome and without being able to be entirely sure about the ability to achieve targets in the future. Reporting target achievement on the other hand represents an ex post decision, and is made after observing the outcome. Thus, if the outcome turns out not to be in line with expectation, firms might ultimately disregard reporting actual achievement or obstruct the process of estimating achievement through not clearly defining separate components going into such estimation. As a result of periods of economic turbulence potentially impeding the ability of firms to deliver upon ambitions, even though they have historically proven a solid track record, our estimated coeffi-

cients with regards to achievement might have been affected[35]. Furthermore, as reporting historical target achievement requires financial targets to be known by investors, the investors should be able to assess the achievement of these targets without the firm explicitly stating the achievement. This might explain why there is a stronger relation between the disclosure of financial targets and bid-ask spread, than the disclosure of target achievement.

This analysis implies that, in order to receive the hypothesized benefits of increased disclosure of financial targets on the cost of equity capital, mixed growth firms in particular should consider the ability to achieve those targets. Furthermore, as this sub-sample does not enjoy any particular effects on the bid-ask spread from achieving disclosed financial targets, it seems that it is the information precision, and more specifically information credibility, that is the underlying driver of decreased cost of equity capital rather than decreased information asymmetry per se.

6.3 Summary

Optimal resource allocation is dependent on an efficient market with low information uncertainty, not suffering from agency issues. The former could stem from information asymmetry or lack of information precision. Previous research suggests that greater disclosure reduces information asymmetry as indicated by enhanced stock market liquidity, thereby reducing cost of equity capital through decreased transaction costs. Our results point towards that the stock market liquidity is enhanced by the disclosure of financial targets, which implies that they help mitigating the information asymmetry. However, there is no effect to the cost of equity capital in general. Since the beneficial effects of decreased information asymmetry could be counteracted by a number of forces, including revised prior estimates or proprietary costs, we cannot draw any general conclusions regarding information precision. In either case, it seems that low growth firms benefit the most from positively revising the disclosed financial targets. This is in line with information uncertainty being known to be high for firms experiencing periods of distress. Nevertheless, the effects of the achievement of disclosed financial targets do not seem to include a reduced cost of equity capital for these firms. The mixed growth firms on the other hand, seem to be less affected by adding information about financial targets. For these firms, the results presented indicate that the extent to which each firm's cost of capital will be affected primarily depends on the ability to achieve the financial targets, thus enhance the credibility of pre-stated ambitions. Furthermore, since the implications for bid-ask spread for mixed growth firms are ambiguous, this would indicate that the information precision is enhanced by firms reporting that they have achieved previously disclosed targets, while information asymmetry is left relatively unaffected. This suggests that just engaging in disclosure of financial targets, without considering the ability to achieve the targets, may impede the economic effect of such disclosures for mixed growth firms. Collectively, this evidence answers our research question. That is, the disclosure of financial targets narrows the bid-ask spread, but do not generally affect the cost of equity capital, nor does

[35] As argued, we included ROA in our multivariate analyses in order to ensure that Achievement score is not simply a measure of profitability, but rather measures credibility

the achievement of financial targets have any overall effect on the investigated capital market variables.

Even though disclosure of financial targets seemingly mitigates some resource misallocation in the capital markets when decreasing the information asymmetry, such disclosure may constitute a proxy for a firm's disclosure policy in general. This implies that it may not be the level of disclosed financial targets per se that drives our results, but rather a firm's general disclosure policy. The significance of our results, as well as the overall explanatory power of the regression, increases as we split the sample based on firm growth type. This is to be expected, and confirms that especially firms undergoing low or high growth phases can benefit from meeting the demands of the investor society regarding increased information sharing. Even though our regression models are valid[36], the fairly low R^2-values imply that some variance in our dependent variables is left unexplained.

[36] See section *7.2.1 Model verification*

7 Validity of results

7.1 Data and data collection

As stated, the sample only includes firms that have been listed throughout our defined period, implying the possibility of survivorship bias. The surviving firms might be more stable than the average listed firm, potentially biasing our results. Table 15 indicates the amount of new listings and delistings conducted at the Nasdaq OMX Stockholm exchange throughout the period studied. As indicated by the table, the net of changes in the amount of firms listed on the Nasdaq OMX Stockholm exchange throughout the period is negative 19. However, the large amount of delistings is a known indicator of survivorship bias. Nevertheless, different reasons forego both new listings and delistings, why we cannot draw any conclusions regarding whether or not such changes to the list will affect our results.

Year	New listings	Delistings
2012	6	7
2011	11	10
2010	14	14
2009	7	15
2008	11	24
2007	15	13
Sum	64	83

Table 15. Changes to the number of listed firms on the Nasdaq OMX Stockholm exchange, 2007-2012[37]

For samples such as that used in our study, there is a potential specification bias, stemming from omission of one or several important predictor variables, which leads to misleading implications with regards to the relation between the variables used. We have mitigated the problem of specification bias through the introduction of well-known control variables, as described in Section *4.3.4 Control variables*.

Our sample consists of large-, mid-, and small-cap firms listed on the Nasdaq OMX Stockholm exchange, why we do not expect our sample to be subject to selection bias with regards to size. Another aspect of the selection bias is the geographic limitation, in our case only considering Swedish firms. Whereas this potential bias is in line with the purpose of this thesis being to study Swedish firms, this aspect should be taken into consideration if using the results for comparison purposes.

For the exclusion of outliers, we use a statistical process considering the mean values and standard deviations, why the cross-sectional aspect of the panel data is neglected. As a consequence, the total number of observations for each individual variable can vary between firms and years, which may be visible throughout the regression analyses. However, this should have little effect on the inferences from the results, as the number of eliminated observations is fairly small for most variables, and the total sample, still, consists of a desirable number of observations.

[37] Figures exclude changes from secondary to primary listings, as reported by Nasdaq OMX Stockholm

7.1.1 Financial targets

There are several features to our independent variables that make them suitable for this type of statistical analysis. Financial targets can be precisely measured since they are typically either point estimates or quantified ranges. Moreover, the timing of the disclosure of financial targets is typically known. As a result, it is possible to assess whether the financial targets precede or lag particular changes in variables of interest, using periodic data.

Furthermore, even though we apply a robust and thorough process when we collect the data regarding financial targets, and finally construct our Target score variable, it is important to assess the validity of the final measure. Following Botosan (1997), we use two tests; the correlation between our disclosure variable and firm characteristics, and the correlation between the components of the Target score itself. First, as previous research suggests, Target score is significant and positively correlated with almost all firm characteristics, though firm size and leverage are referred to being of most importance (Botosan, 1997), which supports the validity. Secondly, as can be noted from Table 18 in Section *7.2.2 Multicollinearity and heteroscedasticity*, the components, i.e. the individual targets, are overall positively correlated with one another, which again implies that the validity of the Target score variable is supported.

However, a potential limitation to studying financial targets is the endogeneity of financial targets as an explanatory variable. For example, firms that engage in the disclosure of financial targets might also be likely to disclose other voluntary information potentially mitigating information asymmetry. Thus, it might be difficult to assess whether the disclosure of financial targets or voluntary disclosure in general generates the capital market effects. Furthermore, given that some kind of cost-benefit analysis supports the disclosure of financial targets, it might be firms that show superior performance that can bear the cost of engaging in voluntary disclosure. As shown throughout previous research, firms with the highest disclosure ratings tend to also show the highest simultaneous earnings performance (Lang and Lundholm, 1993). Though we try to control for such implications through the inclusion of performance related control variables in our model.

7.1.2 Bid-ask spread

The bid-ask spread measure is exposed to a relatively small amount of uncertainty, given that it has been computed based on observed market data points using a standard formula. Any uncertainty in the measure would therefore stem from the quality of Datastream data, which could potentially affect the accuracy of the bid-ask measure. Nevertheless, we have no reason to believe that the data is of bad quality since it is retrieved from a database commonly used by both academics and professionals.

Using the bid-ask spread as a measure of information asymmetry is widely accepted throughout previous research. However, there is evidence indicating that the bid-ask spread consists of different main components, whereof the adverse selection component is one. In particular, it is the adverse selection component that increases with the degree of information asymmetry. There are a number of papers that have

presented statistical models to decompose the bid-ask spread in order to separate out the adverse selection component (Clarke and Shastri, 2000). Nevertheless, there are seemingly drawbacks to the methods as they produce largely varying estimates of the adverse selection component, with the component ranging from constituting 10% to 40% of the spread measure (Clarke and Shastri, 2000). In order to maintain the comparability of our thesis, we see it most suitable to use the complete bid-ask spread measure as a proxy for information asymmetry.

In this thesis, whether or not markets are perfectly or imperfectly competitive is an endogenous feature (in line with Lambert et al. 2011), which influences the effect of information asymmetry. In order to ensure the validity of the spread measure as an information asymmetry proxy, we look for similar results using other measures of information asymmetry. For instance, similar results, supporting the negative relation between disclosure levels and bid-ask spreads, are found when share turnover is used as a proxy for information asymmetry instead of bid-ask spread[38].

7.1.3 Cost of equity capital

First of all, we have estimated the cost of equity capital using several techniques[39] in order to find a measure with as reasonable statistics as possible. For instance, the CAPM defines a firm's expected cost of equity capital, or expected return, as the sum of the expected risk-free rate and the product of market beta and the expected market risk premium. This implies that CAPM assumes that the cross-sectional variation in beta, alone, drives the variation in cost of equity capital. Since we study the effects of disclosure of financial targets on cost of equity capital, we implicitly expect that the cross-sectional variation in disclosure explain variation in the cost of equity capital. As a result, the CAPM method would not be valid, since it does not allow for the cross-sectional variation in levels of disclosure of financial targets. In addition, the CAPM has been questioned due to its approximation of expected returns using realized returns instead of forward-looking, expected, measures which underlying theories on asset pricing desiderate (Daske et al., 2006).

In order to estimate cost of equity capital, forecast data was collected from forecasts being made in close connection after the release of annual reports and the earnings forecasting period was chosen as one and two years in the future. In contrast to the studies by Setterberg (2011) and Gebhardt et al. (2001) mentioned previously, we chose to use one and two year forecasts of earnings per share. This selection was made in order to ensure adequate quality of forecasting data, released in close connection to annual reports. Compared to the firms examined by Gebhardt et al. (2001), the Swedish firms examined in this thesis are not as frequently followed and forecasted by analysts, and availability of forecasts for longer time horizons is limited. With regards to the permanent measurement bias, we have followed Setterberg

[38] This is in line with the findings of e.g. Petersen and Plenborg (2006), however, we do not report the results of this analysis

[39] Models used include CAPM, the Easton PEG model (2004), the RIV approach suggested by Gebhardt et al. (2001), and a modified version of the fundamental RIV model suggested by Setterberg (2011)

(2011) in using the measurement bias estimated by Runsten (1998). The values were estimated for a Swedish sample during 1966 to 1993. Even though there is a large difference in Runsten's (1998) estimation period and the time period that we study, there is little reason to believe that the permanent measurement bias estimates would not be valid. For example, Bergman and Tegnér (2008) provide some support for the estimates being stable over time, which is expected given the underlying components of the measure, for instance asset composition, depreciation time and economic life.

The mean cost of equity capital, 11.0%, found using the RIV method is lower than that found in several previous international studies[40]. On the other hand, Setterberg's (2011) study on Swedish data from 1994 to 2008 indicates that the mean cost of equity capital as estimated by the RIV method is 10.5% while the median is 9.4%. The PEG-estimation generates similar results for Setterberg's (2011) sample, with a mean of 10.9% and a median of 10.3%. However, studies have shown that the cost of equity capital in the Swedish market has experienced large fluctuations over time (Sigonius and Meltzer, 2010; Bernhardsson and Engstrand, 2013). This implies that validity tests needs to be performed on our cost of equity capital proxy.

A correctly estimated measure of cost of equity capital should increase in risk, as measured by market beta, and should also display a "size effect"[41] (Botosan, 1997; Botosan and Plumlee 2002; Hail, 2002). To ensure the validity of our cost of equity capital estimation, we regress the variable against market beta and market value of equity, where beta is estimated using daily returns and the Nasdaq OMX Stockholm all share index over a rolling twelve-month period. The result from the multivariate regression is presented in Table 16. As can be seen, cost of equity capital is increasing in beta, and decreasing in size. These results are in line with expectations and provide support for that our estimations are valid.

However, the reported R^2-values in Table 16 hint that, when only considering market beta and the size effect, a substantial variation in cost of equity capital is unexplained. This could be due to noise in the estimates of cost of equity capital or the risk measures, i.e. beta and market value of equity, or simply due to the absence of explanatory factors such as information asymmetry and information precision.

[40] For instance, Botosan (1997) find an average cost of equity capital of 20.1% studying the US market

[41] The size effect implies a negative relationship between the cost of equity capital and the size as represented by market value (Botosan, 1997)

Beta	0.035***
t-stat	*4.83*
Market value	-0.008***
t-stat	*-5.50*
Constant	0.144***
t-stat	*15.72*
n	605
F-stat	17.260
Adj. R^2	0.051

Table 16. Validity test of the estimated cost of equity capital[a, b]

[a] The dependent variable, cost of equity capital, r_E, is estimated using a RIV approach. Beta is the firm specific beta estimated using a rolling twelve-month period. Size is the log of the market value of equity. For details regarding the variables, see Section *4.3 Regression variables*. The data is obtained from Thomson Reuters Datastream. For details regarding the data gathering, see Section *4.2.1 Data gathering*.

[b] Significance levels quoted are for a two-tail test of statistical significance

* Significance at $0.05 < \propto \leq 0.10$

** Significance at $0.01 < \propto \leq 0.05$

*** Significance at $\propto \leq 0.01$

7.2 Methodology

Linear regression tests are based on several basic statistical assumptions, which implies that a couple of factors need to be considered in determining the validity of the regression models. Besides the actual models, these are, in particular, multicollinearity and heteroscedasticity.

7.2.1 Model verification

As described in Section *4.4 Regression models*, the core models, IV and V, are those when we introduce firm specific control variables concerning firm characteristics. These variables are known and should obtain the expected relation to our two dependent variables, if the model specification is correct. Expected and actual results are reported in Table 17.

Regarding bid-ask spread, we control for size, profitability, volatility, share turnover, and share price. The size variable is significant across the models and in line with our expectations based on previous research (Botosan, 1997; Gebhardt et al., 2001; Botosan, 2006; Francis et al., 2008). Furthermore, Leuz and Verrecchia, (2000) and Francis et al. (2008) suggest that firms may increase disclosure when they are performing well, why we control for profitability through ROA. The variable turns out to have a significant and negative association with bid-ask spreads. By including ROA in our regression analysis, we can distinguish the net effect from performing in line with, or above, stated targets, and thus use this as a measure of credibility. The correlation matrix in Table 10 reports that the significant correlation between ROA and Achievement score is approximately 0.25, and from Tables 11 and 13 we see that neither of the variables are omitted. These results suggest that there is no exact linear relationship between the two explanatory variables, allowing us to conclude that Achievement score should test for other firm characteristics than profitability, and in particular, constitute an assessment of information credibility. Low volatility implies low risk of value changes in the investors' inventory of stock, which narrows the bid-ask spread (Glosten

and Milgrom, 1985). Thus, we expect a positive relationship between spreads and return volatility, which is in line with the reported results. Furthermore, as expected, relative spreads have been documented to be strongly negatively associated with share turnover (Welker, 1995). Apart from share price, all coefficients for the control variables show expected signs, with satisfying significance levels. Due to share price being the only control variable not in line with expectations, and considering the low magnitude of its coefficient, we find our model for bid-ask spread to be correctly specified. Looking at the sub-sample tests, a similar model verification can be made. For the bid-ask spread regression, all coefficients of the control variables for firm characteristics continue to behave as expected across all sub-samples, except for volatility. Based on this, we can conclude that the models are seemingly correctly estimated. Furthermore, share turnover is significantly negative on the 1% level. For volatility and size, the results differ across the sub-samples, and show significance especially with regards to the mixed growth firms. However, the model seem to be less efficient in explaining the sample when isolating low growth firms as the significance levels are deteriorated and volatility indicates a negative, though insignificant, relation to bid-ask spreads.

Turning to cost of equity capital, we control for size, profitability, leverage and beta. Size and ROA are significant across the models and in line with our expectations based on previous research (Botosan, 1997; Gebhardt et al., 2001; Botosan, 2006; Francis et al., 2008). Controlling for ROA ensures that Achievement score is not a measure of profitability, rather the measure could underline information credibility. Furthermore, the results indicate the expected positive relationship between cost of equity capital and leverage, and between cost of equity capital and beta, though neither of the two is statistically significant. Still, considering the fact that we find expected relationships between cost of equity capital and the control variables with satisfying statistical significance for size and ROA, the model specification is considered valid. The sub-sample models are also seemingly correctly estimated, given the association between the dependent variable and the control variables. However, for mixed growth firms, the resulting coefficient of beta is negative yet insignificant.

	Bid-ask spread		Cost of equity capital	
Independent variable	Expected	Estimated coefficient (IV)	Expected	Estimated coefficient (IV)
Target score	–	-0.003*	–	-0.018
Achievement score	–	-0.001	–	-0.009
Size	–	-0.001***	–	-0.055***
ROA	+/–	-0.007**	+/–	0.177***
Volatility	+	0.048*		
Leverage			+	0.044
Beta			+	0.018
Share turnover	–	-0.003***		
Share price	–	0.000		

Table 17. Summary of expected and estimated regression models[a,b]

[a] The first dependent variable, bid-ask spread is the relative bid-ask spreads averaged over a twelve-month period. The second dependent variable, cost of equity capital, r_E, is estimated using a RIV approach. Target score is the firms' individual disclosure score measured as the percentage of disclosed financial targets in relation to the maximum number of targets. Achievement score measures firms' percentage of disclosed financial targets that were reported as achieved. Size is the log of the market value of equity. ROA, obtained by dividing operating income and total assets, controls for profitability. Volatility measures risk as the standard deviation estimated using daily returns. Leverage is the debt-to-assets ratio. Beta is the firm specific beta estimated using a rolling twelve-month period. Share turnover is the SEK value of trading, and share price is the daily closing price averaged over the same period as bid-ask spreads. For details regarding the variables, see Section *3.4 Disclosure of financial targets and, capital market variables*. The data is obtained from Thomson Reuters Datastream and annual reports. For details regarding the data gathering, see Section *4.2.1 Data gathering*.

[b] Significance levels quoted are for a two-tail test of statistical significance

* Significance at $0.05 < \propto \leq 0.10$

** Significance at $0.01 < \propto \leq 0.05$

*** Significance at $\propto \leq 0.01$

Even though we verify our model specification, we find that the significance levels with regards to target variables vary, especially between Models IV and V in the sub-sample tests, which could indicate that the underlying data is noisy.

Furthermore, we control for fixed effects as suitable for cross-sectional panel data. The choice of using a fixed effects model is further enhanced by a Hausman-test (Hausman, 1978). For the cost of equity capital regressions, the fixed effects model is accepted on a 1% level, and, for the bid-ask spread regressions, the fixed effects model is accepted on a 10% level. Therefore, following the test and applying a fixed effects model allows us to obtain consistent results.

7.2.2 Multicollinearity and heteroscedasticity

Multicollinearity is defined as the issue of high correlation between two or more independent, explanatory, variables in the same regression. To control for multicollinearity, the correlation between independent variables has been examined with the conclusion that our sample does not experience severe problems with multicollinearity, see Table 10. Except for the obviously high correlation between size and share turnover, almost all correlation coefficients are below 0.50, which indicates that multicollinearity should not be a critical problem even though including several of these variables in the same model.

Table 18 reports correlation coefficients between the disclosed individual financial targets and shows,

above all, that firms disclosing growth targets are likely to disclose targets regarding operating profitability, i.e. margins. Even though the coefficient is merely above 0.50, we do not expect that multicollinearity is an issue in this setting. Most of the other correlation coefficients are positive, but with a slightly lower magnitude than that of growth and margin, i.e. below 0.50. A vast majority of the correlation coefficients are highly significant.

Target disclosure variables	Growth	Margin	Return	Dividend	Capital structure	Cash flow	Other
Growth	**1.000**	0.537***	0.227***	0.017	0.167***	0.149***	0.043
Margin	0.537***	**1.000**	0.096***	0.215***	0.300***	0.032	0.110***
Return	0.227***	0.096***	**1.000**	0.121***	0.311***	0.125***	0.242***
Dividend	0.017	0.215***	0.121***	**1.000**	0.264***	-0.001	0.194***
Capital structure	0.167***	0.300***	0.311***	0.264***	**1.000**	-0.023	0.229***
Cash flow	0.149***	0.032	0.125***	-0.001	-0.023	**1.000**	0.198***
Other	0.043	0.110***	0.242***	0.194***	0.229***	0.198***	**1.000**

Table 18. Correlation coefficients: Targets[a,b]

Note that Pearson correlation coefficients illustrated below the diagonal, Spearman correlation coefficients illustrated above the diagonal.

[a] For definitions of the individual target groups, see Table 2.

[b] Significance levels quoted are for a two-tail test of statistical significance

* Significance at $0.05 < \propto \leq 0.10$

** Significance at $0.01 < \propto \leq 0.05$

*** Significance at $\propto \leq 0.01$

Heteroscedasticity is the existence of sub-populations that have different variability from others in a sample, which in turn causes the standard errors of coefficients to be biased. Nevertheless, using heteroscedastic data will provide an unbiased estimate for the relationship between the dependent and independent variables, but uncertainty in standard errors obstruct the data analysis. To reduce the bias stemming from heteroscedasticity, we have made robust regressions.

8 Conclusions

Corporate disclosure is a means for communication of managers' private information to outside stakeholders. It is argued to be important for the mitigation of potential information uncertainty and agency issues in the capital market. Since research regarding the voluntary disclosure of financial targets and the market effects of such information is scarce, this thesis aims to create an understanding of why firms communicate their ambitions through investigating what implications the disclosure of financial targets has on capital market variables. Specifically, we use a quantitative approach to study what implications the disclosure and achievement of financial targets have for bid-ask spread and cost of equity capital.

Through previous research, we have seen that information uncertainty can affect the cost of equity capital either through information asymmetry and/or information precision. Information asymmetry is explicitly assessed through the bid-ask spread, whereas any incremental effect to the cost of equity capital from information sharing presumably stems from increased information precision. First of all, our results confirm the existence of a relationship between the disclosure, and achievement, of financial targets and capital market variables, though with variations across sub-samples. A negative relationship between financial targets and bid-ask spreads has been confirmed for the overall sample, indicating that the disclosure of financial targets decreases information asymmetry. This relationship exists throughout the sample but is particularly prevalent for low and high growth firms. These findings are economically relevant, as they indicate that firms going through phases of low or high growth can lower perceived information asymmetry through increasing the disclosure of financial targets.

The fact that the overall results do not establish any relationship between the cost of equity capital and the disclosure of financial targets indicates that there are other factors mitigating the beneficial effects of decreased information asymmetry. Either, these factors could relate to information in the sense that disclosed financial targets urge investors to revise their prior estimates in a way that disfavors the cost of equity capital, from the firms' point of view. However, this explanation is not very likely, since such an information precision effect should indicate a significant relationship between the cost of equity capital and our variables measuring the changes made to financial targets. Thus, explicit conclusions of what factors counteract the effect of mitigating information asymmetry cannot be drawn on the basis of our thesis. However, previous research points towards that other costs, such as proprietary costs and the monetary costs of providing disclosures, should be included in the cost-benefit assessment made prior to any decision of disclosing voluntary information. If investors observe these costs, they may perceive an increase in firm specific risk.

Nevertheless, the cost of equity capital is significantly affected by positive revisions to disclosed targets for low growth firms, why it seems that the effect from information uncertainty mitigation prevails for this firm type. Additionally, the analysis with regards to target achievement implies that mixed growth firms receive the hypothesized benefits of the achievement of disclosed targets, rather than from in-

creased disclosure of financial targets as such. Furthermore, as this sub-sample does not enjoy any particular effects on bid-ask spread from achieving disclosed financial targets, it seems that it is the information precision that is the underlying driver of decreased cost of equity capital rather than decreased information asymmetry per se. This suggests that just engaging in disclosure of financial targets, without considering the ability to deliver upon the ambitions communicated through such targets, may impede the economic effect of such disclosures for mixed growth firms. For the rest of the sample, effects with statistical significance from achieving targets are lacking.

This thesis contributes to the existing research in three main ways. First of all, results indicate that the disclosure of financial targets do mitigate information asymmetry prevailing in capital markets. Secondly, the lack of significant effects on the cost of equity capital contrasts previous research and opens up for further studies in this field. Thirdly, the results underline that the effects of the disclosure of financial targets, and reported achievement, differ between different firm growth types.

8.1 Limitations and suggestions for future research

We consider it important for the findings presented throughout this thesis to be viewed in the light of its limitations, which are accounted for in this section. We further elaborate on additional implications of our thesis, which, together with the limitations, serve as interesting venues for future research.

In order to conduct a study explicitly investigating the capital market effects of disclosing financial targets, we have disregarded the inclusion of any overall proxy for the level of voluntary disclosures. Such a proxy would inherently include any disclosure of financial targets, and would therefore lead to controlling for the hypothesized relation twice. As previously mentioned, this implies that financial targets could serve as a proxy for the overall disclosure policies of firms. Thus, it may not be the disclosed financial targets per se that drives our results, but rather a firm's general disclosure policy. In order to test for this, an extension of this thesis would be either to control for the disclosure policy of firms through the creation of a proxy excluding financial targets, or to investigate determinants of the firm specific disclosure decision. Furthermore, while we discuss both other determinants of the disclosure decision, as well as the relevance of costs associated with the disclosure of more information, we do not consider these factors explicitly in our empirical analysis. These are other interesting areas for future research.

For the sake of our thesis, we have not made any assumption regarding whether or not the market is perfectly or imperfectly competitive, which would affect the implication of information asymmetry. Our findings suggest that markets are imperfectly competitive since additional information affects bid-ask spreads (Lambert et al., 2007). However, this market setting might not, and is neither assumed to, hold for each and every firm in the sample. Thus, separating firms in order to incorporate the level of firm specific market imperfection might alter the results of our thesis. We believe that future research, even of the empirical kind, would benefit from considering the specific information environment surrounding the sample investigated.

Finally, our results are obtained using a sample of 166 firms listed on the Nasdaq OMX Stockholm exchange during the full period from 2007 to 2012. Thus, the generalizability of the results may not hold outside of these specific circumstances, that is, over other time periods, or across geographies. On the other hand, one could argue that our results with regards to the bid-ask spread measure add to the evidence that the negative relation between levels of disclosure and bid-ask spreads hold across geographies (Leuz and Verrecchia, 2000; Petersen and Plenborg, 2006). Rather than using growth characteristics as the distinguishing factor, there are several other possibilities of investigating a sample such as ours in a more detailed manner. For instance, it could be of interest to conduct similar analysis differentiating between industries or to make a comparable analysis between time periods rather than a cross-sectional analysis across time periods. It would also be of interest to investigate a sample including newly listed and delisted firms, in order to ensure the absence of survivorship bias and enable the isolation of these different firms.

References

Aboody, D., Kasznik, R., 2000, 'CEO stock option awards and the timing of corporate voluntary disclosures', *Journal of Accounting and Economics*, Vol. 29, pp. 73-100

Akerlof, G., 1970, 'The market for "lemons": Quality uncertainty and the market mechanism', *Quarterly Journal of Economics*, Vol. 90, pp. 629-650

Archambault, J.J., Archambault, M., 2003, 'A multinational test of determinants of corporate disclosure', *International Journal of Accounting*, Vol. 38, pp. 173-194

Armstrong, C. S., Core, J. E., Taylor, D. J., Verrecchia, R. E., 2011, 'When does information asymmetry affect the cost of capital?', *Journal of Accounting Research*, Vol. 49, pp. 1-40

Baginski, S. P., Conrad, E. J., Hassell, J. M., 1993, 'The effects of management forecast precision on equity pricing and on the assessment of earnings uncertainty', *The Accounting Review*, Vol. 68, pp. 913-927

Baginski, S. P., Rakow Jr., K., 2012, 'Management earnings forecast disclosure policy and the cost of equity capital', *Review of Accounting Studies*, Vol. 17, pp. 279-321

Ball, R., Brown, P., 1968, 'An empirical evaluation of accounting income numbers', *Journal of Accounting Research*, Vol. 6, pp. 159-178

Barron, O. E., Karpoff, J. M., 2004, 'Information precision, transaction costs, and trading volume', *Journal of Banking & Finance*, Vol. 28, pp. 1207-1223

Barry, C. B., Brown, S. J., 1985, 'Differential information and security market equilibrium', *Journal of Financial and Quantitative Analysis*, Vol. 20, pp. 407-422

Barry, C. B., Brown, S. J., 1986, 'Limited information as a source of risk', *The Journal of Portfolio Management*, Vol. 12, pp. 66-72

Barth, M. E., Hutton, A. P., 2000, 'Information intermediaries and the pricing of accruals', Working paper, Stanford University, Stanford, CA

Bartov, E., Givoly, D., Hayn, C., 2002, 'The rewards to meeting or beating earnings expectations', *Journal of Accounting and Economics*, Vol. 33, Issue 2, pp. 173-204

Bergman, F., Tegnér, M., 2008, 'Det permanenta mätfelet – En studie i förändringen av det permanenta mätfelet', Master Thesis in Accounting, Stockholm School of Economics

Bernhardsson, J., Engstrand, J., 2013, 'Det implicita avkastningskravet på Stockholmsbörsen: En jämförande empirisk studie med avseende på antalet börsintroduktioner för 1999 och 2012', Bachelor Thesis in Accounting, Stockholm School of Economics

Beyer, A., Dye, R. A., 2012, 'Reputation management and the disclosure of earnings forecasts', *Review of Accounting Studies*, Vol. 17, pp. 877-912

Boesso, G., Kumar, K., 2007, 'Drivers of corporate voluntary disclosure – a framework and empirical evidence from Italy and the United States', *Accounting, Auditing & Accountability Journal*, Vol. 22, pp. 269-296

Botosan, C. A., 1997, 'Disclosure level and the cost of equity capital', *The Accounting Review*, Vol. 72, pp. 323-349

Botosan, C. A., 2006, 'Disclosure and the cost of capital: What do we know?', *Accounting and Business Research*, Vol. 36, pp. 31-40

Botosan, C. A., Plumlee, M. A., 2002, 'A re-examination of disclosure level and expected cost of equity capital', *Journal of Accounting Research*, Vol. 40, pp. 21-41

Botosan, C. A., Plumlee, M. A., 2005, 'Assessing alternative proxies for the expected risk premium', *Accounting Review*, Vol. 80, pp. 21-53

Bravo Urquiza, F., Abad Navarro, M. C., Trombetta, M., 2012, 'Disclosure strategies and cost of capital', *Managerial and Decision Economics*, Vol. 33, pp. 501-509

Chan, Y. S., 1983, 'On the positive role of financial intermediation in allocation of venture capital in a market with imperfect information', *The Journal of Finance*, Vol. 38, pp. 1543-1568

Cholakis, P. L., 1999, 'Company disclosure of earnings projections: Should individual investors be allowed into the ball park?', *Santa Clara Law Review*, Vol. 39, pp. 819-865

Clarke, J., Shastri, K., 2000, 'On information asymmetry metrics', Working paper, Georgia Institute of Technology, University of Pittsburgh

Clarkson, P., Guedes, J. and Thompson, R., 1996, 'On the diversification, observability, and measurement of estimation risk', *Journal of Financial and Quantitative Analysis*, Vol. 31, pp. 69-84

Cooney, J., Kalay, A., 1993, 'Positive information from equity issue announcements', *Journal of Financial Economics*, Vol. 33, pp. 149-172

Daske, H., Gebhardt, G., Klein, S., 2006, 'Estimating the expected cost of equity capital using analysts' consensus forecasts', *Schmalenbach Business Review*, Vol. 1, pp. 2-36

Diamond, D. W., Verrecchia, R. E., 1991, 'Disclosure, liquidity and the cost of capital', *The Journal of Finance*, Vol. 46, pp. 1325-1359

Dopuch, N., Seethamraju, C., Xu, W., 2008, 'An empirical assessment of the premium associated with meeting or beating both time-series earnings expectations and analysts' forecasts', *Review of Quantitative Finance and Accounting*, Vol. 31, pp. 147-166

Easley, D., O'Hara, M., 2004, 'Information and the Cost of Capital', *Journal of Finance*, Vol. 59, pp. 1553-1583

Easton, P. D., 2004, 'PE Ratios, PEG Ratios, and estimating the implied expected rate of return on equity capital', *Accounting Review*, Vol. 79, pp. 73-95

Eng, L. L., Teo, H.K., 2000, 'The relationship between annual report disclosures, analysts' earnings forecasts and analyst following – evidence from Singapore', *Pacific Accounting Review*, Vol. 11, pp. 219-239

Elijido-Ten, E. O., 2013, 'Determinants of strategic performance measurement system disclosures in Australia's Top 100 publicly listed firms', *Journal of General Management*, Vol. 38, pp. 57-73

Fama, E. F., 1970, 'Efficient capital markets: A review of theory and empirical work', *The Journal of Finance*, Vol. 25, pp. 383-395

Fama, E. F., 1991, 'Efficient capital markets: II', *The Journal of Finance*, Vol. 46, pp. 1575-1617

Fama, E. F., French, K. R., 1992, 'The cross-section of expected stock returns', *Journal of Finance*, Vol. 47, pp. 427-465

Fama, E. F., French, K. R., 1996, 'Multifactor explanations of asset pricing anomalies', *Journal of Finance*, Vol. 51, pp. 55-84

Fama, E. F., French, K. R., 1998, 'Value versus Growth: The international evidence', *Journal of Finance*, Vol. 53, pp. 1975-1999

Fama, E. F., French, K. R., 2002, 'Testing trade-off and pecking order predictions about dividends and debt', *Review of Financial Studies*, Vol. 15, pp. 1-33

Francis, J., Nanda, D., Olsson, P., 2008, 'Voluntary disclosure, earnings quality, and cost of capital', *Journal of Accounting Research*, Vol. 46, pp. 53-99

Gebhardt, W. R., Lee, C. M. C., Swaminathan, B., 2001, 'Toward an implied cost of capital', *Journal of Accounting Research*, Vol. 39, pp. 135-176

Glosten, L., Milgrom, P., 1985, 'Bid, ask and transaction prices in a specialist market with heterogeneously informed traders', *Journal of Financial Economics*, Vol. 14, pp. 71-100

Hausman, J. A., 1978, 'Specification tests in econometrics', *Econometrica*, Vol. 46, pp. 1251-1271

Hayes, R., Lundholm, R., 1996, 'Segment reporting to the capital market in the presence of a competitor', *Journal of Accounting Research*, Vol. 34, pp. 261-280

Healy, P., Hutton, A., Palepu, K., 1999, 'Stock performance and intermediation changes surrounding sustained increases in disclosure', *Contemporary Accounting Research*, Vol. 16, pp. 485-520

Healy, P., Palepu, K., 2001, 'Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature', *Journal of Accounting and Economics*, Vol. 31, pp. 405-440

Heitzman, S., Wasley, C., Zimmerman, J., 2010, 'The joint effects of materiality thresholds and voluntary disclosure incentives of firms' disclosure decisions', *Journal of Accounting and Economics*, Vol. 49, pp. 109-132

Hellström, K., 2006, 'The value relevance of financial accounting information in a transition economy: The case of the Czech Republic', *European Accounting Review*, Vol. 15, pp. 325-349

Holthausen, R. W., Watts, R. L., 2001, 'The relevance of the value-relevance literature for financial accounting standard setting', *Journal of Accounting and Economics*, Vol. 31, pp. 3-75

Hughes, J., Liu, J. Liu, J., 2007, 'Information asymmetry, diversification, and cost of capital', *Accounting Review*, Vol. 82, pp. 705-729

Hughes, J. S., Pae, S., 2004, 'Voluntary disclosure of precision information', *Journal of Accounting and Economics*, Vol. 37, pp. 261-289

Jensen, M. C., Meckling, W., 1976, 'Theory of the firm: Managerial behavior, agency costs and ownership structure', *Journal of Financial Economics*, Vol. 3, pp. 305-360

Kaplan, R. S., Norton, D. P., 1992, 'The balanced scorecard: Measures that drive performance', *Harvard Business Review*, Vol. 70, pp. 71-79

Karim, K. E., Pinsker, R., Robin, A., 2013, 'Firm size and the voluntary disclosure of nonfinancial infor-

mation by private versus public firm managers', *Managerial Auditing Journal*, Vol. 28, pp. 866-892

Kasznik, R., McNichols, M. E., 2002, 'Does meeting earnings expectations matter? Evidence from analyst forecast revisions and share prices', *Journal of Accounting Research*, Vol. 40, pp. 727-759

Kim, O., Verrecchia, R. E., 1994, 'Market liquidity and volume around earnings announcements', *Journal of Accounting and Economics*, Vol. 17, pp. 41-67

Kothari, S. P., 2001, 'Capital markets research in accounting', *Journal of Accounting and Economics*, Vol. 31, pp. 105-231

Kreps, D., 1990, 'A course in microeconomic theory', Princeton University Press, Princeton, NJ

Kyle, A., 1989, 'Informed speculation with imperfect competition', *Review of Economic Studies*, Vol. 56, pp. 317-356

Lambert, R. A., Leuz, C., Verrecchia, R. E., 2007, 'Accounting information, disclosure, and the cost of capital', *Journal of Accounting Research*, Vol. 45, pp. 385-420

Lambert, R. A., Leuz, C., Verrecchia, R. E., 2011, 'Information asymmetry, information precision, and the cost of capital', *Review of Finance*, Vol. 16, pp. 1-29

Lambert, R. A., Verrecchia, R. E., 2010, 'Cost of capital in imperfect competition settings', Working paper, University of Pennsylvania

Lang, M., Lundholm, R., 1993, 'Cross-sectional determinants of analyst ratings of corporate disclosures', *Journal of Accounting Research*, Vol. 31, pp. 246-271

Lang, M., Lundholm, R., 1996, 'Corporate disclosure policy and analyst behavior', *Accounting Review*, Vol. 71, pp. 467-492

Lakonishok, J., Shleifer, A., Vishny, R. W., 1994, 'Contrarian investment, extrapolation and risk', *The Journal of Finance*, Vol. 49, pp. 1541-1578

Leuz, C., Verrecchia, R. E., 2000, 'The economic consequences of increased disclosure', *Journal of Accounting Research*, Vol. 38, pp. 91-124

Maiga, A. S., Jacobs, F. A., 2003, 'The effects of benchmarking and incentives on organizational performance', *Advances in Management Accounting*, Vol. 11, pp. 85-107

Miller, G., 2002, 'Earnings performance and discretionary disclosure', *Journal of Accounting Research*, Vol. 40, pp. 173-204

Miller, B. W., Bahnson, P. R., 2004, 'Financial reporting costs: It's time for better vision', *Accounting Today*, Vol. 18, pp. 14-16

Miller, G., Piotroski, J., 2000, 'The role of disclosure for high book-to-market firms', Unpublished working paper, Harvard University

Myers, S., Majluf, N., 1984, 'Corporate financing and investment decisions when firms have information than investors do not have', *Journal of Financial Economics*, Vol. 13, pp. 187-221

Petersen, C., Plenborg, T., 2006, 'Voluntary disclosure and information asymmetry in Denmark', *Journal of International Accounting, Auditing and Taxation*, Vol. 15, pp. 127-149

Prince, J. B., Dwivedi, N., 2013, 'A third dimension to understanding voluntary disclosures', *Journal of Business Strategy*, Vol. 34, pp. 48-54

Ruland, W., Tung, S., George, N. E., 1990, 'Factors associated with the disclosure of managers' forecasts', *The Accounting Review*, Vol. 65, pp. 710-721

Runsten, M., 1998, 'The association between accounting information and stock prices. Model development and empirical tests based on Swedish data', Dissertation for PhD, Stockholm School of Economics, EFI

Scholes, M., 1969, 'A test of the competitive hypothesis: The market for new issues and secondary offerings', PhD Thesis, Graduate School of Business, University of Chicago

Sengupta, P., 1998, 'Corporate disclosure quality and the cost of debt', *The Accounting Review*, Vol. 73, pp. 459-474

Setterberg, H., 2011, 'The pricing of earnings. Essays on the post-earnings announcement drift and earnings quality risk', PhD Thesis, Stockholm School of Economics

Sharpe, W. F., 1964, 'Capital asset prices: A theory of market equilibrium under conditions of risk', *The Journal of Finance*, Vol. 19, pp. 425-442

Sigonius, T., Meltzer, Å., 2010, 'Öppenhet och kostad för eget kapital – En studie på den Svenska marknaden', Bachelor Thesis in Accounting, Stockholm School of Economics

Simons, R., 1995, 'Levers of control: How managers use innovative control systems to drive strategic renewal', Harvard Business School Press

Skogsvik, K., Gray, S., 2004, 'Voluntary disclosures of quoted pharmaceutical companies in Sweden and the U.K.: The development over period 1984-98', *European Accounting Review*, Vol. 13, pp. 787-805

Smith, C. W., Watts, R. L., 1992, 'The investment opportunity set and corporate financing, dividend, and compensation policies', *Journal of Financial Economics*, Vol. 32, pp. 263-292

Truman, B., 1986, 'Why do managers voluntarily release earnings forecasts?', *Journal of Accounting and Economics*, Vol. 8, pp. 53-72

Verrecchia, R. E., 1983, 'Discretionary disclosure', *Journal of Accounting and Economics*, Vol. 5, pp. 179-194

Verrecchia, R. E., 1990, 'Information quality and discretionary disclosure', *Journal of Accounting and Economics*, Vol. 12, pp. 365-380

Verrecchia, R. E., 2001, 'Essays on disclosure', *Journal of Accounting and Economics*, Vol. 32, pp. 97-180

Welker, M., 1995, 'Disclosure policy, information asymmetry, and liquidity in equity markets', *Contemporary Accounting Research*, Vol. 11, 801-827

Wu, X., Au Yeung, C. K., 2012, 'Firm growth type and capital structure persistence', *Journal of Banking and Finance*, Vol. 36, pp. 3427-3443

Appendix

1 Mapping of target disclosure

1.1 Distribution in each target group

Table A.1 shows the relative distribution of our sample of disclosed financial targets in annual reports. Each percentage indicates the number of firms disclosing targets as a share of total firms, per target group and year. Financial targets are included if they meet the criteria defined in Section *4.3.1 Disclosure of financial targets*. The total number of possible target observations per year corresponds to the total number of firms in the sample, 166.

Total targets (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Growth	38%	36%	37%	37%	36%	33%	36%
Margin	45%	46%	45%	45%	46%	46%	45%
Return	27%	27%	25%	24%	25%	25%	25%
Dividend	51%	52%	51%	51%	53%	53%	52%
Capital structure	48%	49%	46%	46%	49%	47%	47%
Cash flow	5%	5%	5%	4%	5%	4%	5%
Other	18%	17%	19%	18%	17%	17%	18%
Total	33%	33%	32%	32%	33%	32%	33%

Table A.1 – Target disclosure sample by year

1.2 Distribution of total targets per industry and firm size

Table A.2 shows the relative distribution of our sample of disclosed financial targets. Each percentage indicates the number of firms disclosing targets as a share of total firms, per industry or size segment and year.

Total targets (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Automobiles & Parts	39%	39%	39%	25%	43%	43%	38%
Basic Resources	39%	37%	34%	39%	40%	39%	38%
Construction & Materials	44%	43%	43%	39%	40%	36%	41%
Food & Beverage	14%	14%	14%	14%	14%	14%	14%
Health Care	28%	27%	29%	29%	30%	32%	29%
Industrial Goods & Services	34%	34%	34%	33%	34%	33%	34%
Media	33%	33%	24%	10%	14%	14%	21%
Oil & Gas	0%	0%	0%	0%	0%	0%	0%
Personal & Household Good	34%	39%	43%	43%	42%	40%	40%
Real Estate	37%	38%	38%	38%	38%	35%	37%
Retail	43%	43%	38%	41%	43%	40%	41%
Technology	24%	23%	23%	23%	24%	24%	24%
Telecommunications	10%	5%	5%	10%	10%	10%	8%
Travel & Leisure	46%	46%	37%	37%	37%	37%	40%
Total	33%	33%	32%	32%	33%	32%	33%

Total targets (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Large	25%	25%	25%	25%	25%	24%	25%
Mid	37%	38%	38%	36%	36%	34%	36%
Small	42%	40%	38%	39%	41%	42%	40%
Total	33%	33%	32%	32%	33%	32%	33%

Table A.2 – Target disclosure sample by industry or size and year

1.3 Distribution per target group

Tables A.3 to A.9 show the relative distribution of our sample of disclosed financial targets for each target group. Each percentage indicates the number of firms disclosing targets as a share of total firms, per industry or size segment and year.

Growth (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Automobiles & Parts	75%	75%	75%	25%	75%	75%	67%
Basic Resources	20%	20%	20%	20%	20%	10%	18%
Construction & Materials	27%	27%	27%	27%	27%	18%	26%
Food & Beverage	0%	0%	0%	0%	0%	0%	0%
Health Care	45%	35%	45%	50%	50%	45%	45%
Industrial Goods & Services	51%	51%	51%	51%	47%	45%	49%
Media	67%	67%	33%	0%	0%	0%	28%
Oil & Gas	0%	0%	0%	0%	0%	0%	0%
Personal & Household Good	36%	45%	55%	55%	55%	45%	48%
Real Estate	0%	0%	0%	0%	0%	0%	0%
Retail	33%	33%	22%	44%	44%	33%	35%
Technology	50%	42%	42%	46%	38%	38%	42%
Telecommunications	0%	0%	0%	0%	0%	0%	0%
Travel & Leisure	0%	0%	0%	0%	0%	0%	0%
Total	38%	36%	37%	37%	36%	33%	36%

Growth (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Large	25%	26%	28%	29%	26%	24%	26%
Mid	34%	34%	34%	32%	32%	25%	32%
Small	60%	52%	52%	54%	54%	52%	54%
Total	38%	36%	37%	37%	36%	33%	36%

Table A.3 – Growth targets

Margin (% of total observations)							
	2007	2008	2009	2010	2011	2012	Average
Automobiles & Parts	75%	75%	75%	50%	75%	75%	71%
Basic Resources	30%	30%	30%	40%	40%	40%	35%
Construction & Materials	55%	55%	55%	55%	55%	45%	53%
Food & Beverage	0%	0%	0%	0%	0%	0%	0%
Health Care	30%	35%	35%	40%	40%	45%	38%
Industrial Goods & Services	45%	47%	47%	47%	47%	45%	46%
Media	33%	33%	33%	0%	0%	0%	17%
Oil & Gas	0%	0%	0%	0%	0%	0%	0%
Personal & Household Good	64%	82%	82%	82%	82%	82%	79%
Real Estate	7%	7%	7%	7%	7%	7%	7%
Retail	67%	67%	56%	56%	67%	67%	63%
Technology	58%	54%	54%	54%	54%	58%	56%
Telecommunications	33%	0%	0%	0%	0%	0%	6%
Travel & Leisure	80%	80%	60%	60%	60%	60%	67%
Total	45%	46%	45%	45%	46%	46%	45%

Margin (% of total observations)							
	2007	2008	2009	2010	2011	2012	Average
Large	24%	28%	28%	28%	26%	26%	27%
Mid	48%	50%	50%	48%	48%	45%	48%
Small	72%	68%	64%	66%	72%	74%	69%
Total	45%	46%	45%	45%	46%	46%	45%

Table A.4 – Margin targets

Return (% of total observations)							
	2007	2008	2009	2010	2011	2012	Average
Automobiles & Parts	25%	25%	25%	25%	25%	25%	25%
Basic Resources	60%	50%	50%	60%	60%	60%	57%
Construction & Materials	64%	55%	55%	45%	45%	45%	52%
Food & Beverage	0%	0%	0%	0%	0%	0%	0%
Health Care	20%	20%	20%	15%	15%	20%	18%
Industrial Goods & Services	37%	37%	35%	33%	35%	35%	35%
Media	33%	33%	0%	0%	0%	0%	11%
Oil & Gas	0%	0%	0%	0%	0%	0%	0%
Personal & Household Good	9%	18%	27%	27%	27%	27%	23%
Real Estate	14%	14%	14%	14%	14%	14%	14%
Retail	11%	11%	11%	11%	11%	11%	11%
Technology	8%	8%	4%	4%	4%	4%	6%
Telecommunications	0%	0%	0%	33%	33%	33%	17%
Travel & Leisure	40%	40%	20%	20%	20%	20%	27%
Total	27%	27%	25%	24%	25%	25%	25%

Return (% of total observations)							
	2007	2008	2009	2010	2011	2012	Average
Large	24%	22%	21%	21%	22%	24%	22%
Mid	32%	32%	30%	30%	27%	25%	29%
Small	28%	28%	26%	24%	26%	28%	27%
Total	27%	27%	25%	24%	25%	25%	25%

Table A.5 – Return targets

Dividend (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Automobiles & Parts	50%	50%	50%	50%	75%	75%	58%
Basic Resources	70%	70%	50%	50%	50%	50%	57%
Construction & Materials	91%	91%	91%	91%	91%	82%	89%
Food & Beverage	100%	100%	100%	100%	100%	100%	100%
Health Care	35%	40%	40%	35%	30%	35%	36%
Industrial Goods & Services	33%	33%	33%	37%	39%	41%	36%
Media	67%	67%	67%	33%	67%	67%	61%
Oil & Gas	0%	0%	0%	0%	0%	0%	0%
Personal & Household Good	64%	64%	64%	64%	64%	64%	64%
Real Estate	79%	79%	79%	79%	79%	71%	77%
Retail	100%	100%	100%	100%	100%	100%	100%
Technology	25%	29%	29%	29%	38%	38%	31%
Telecommunications	33%	33%	33%	33%	33%	33%	33%
Travel & Leisure	100%	100%	100%	100%	100%	100%	100%
Total	51%	52%	51%	51%	53%	53%	52%

Dividend (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Large	40%	40%	39%	39%	40%	39%	40%
Mid	64%	66%	66%	64%	64%	66%	65%
Small	54%	56%	54%	56%	62%	62%	57%
Total	51%	52%	51%	51%	53%	53%	52%

Table A.6 – Dividend targets

Capital structure (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Automobiles & Parts	25%	25%	25%	25%	50%	50%	33%
Basic Resources	70%	70%	70%	80%	90%	90%	78%
Construction & Materials	55%	55%	55%	45%	55%	55%	53%
Food & Beverage	0%	0%	0%	0%	0%	0%	0%
Health Care	35%	35%	30%	30%	35%	35%	33%
Industrial Goods & Services	51%	53%	51%	49%	49%	47%	50%
Media	33%	33%	33%	33%	33%	33%	33%
Oil & Gas	0%	0%	0%	0%	0%	0%	0%
Personal & Household Good	55%	55%	55%	55%	55%	55%	55%
Real Estate	86%	93%	93%	93%	93%	93%	92%
Retail	67%	67%	56%	56%	56%	44%	57%
Technology	21%	21%	21%	21%	25%	21%	22%
Telecommunications	0%	0%	0%	0%	0%	0%	0%
Travel & Leisure	60%	60%	40%	40%	40%	40%	47%
Total	48%	49%	46%	46%	49%	47%	47%

Capital structure (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Large	40%	40%	39%	38%	39%	36%	39%
Mid	50%	52%	52%	50%	57%	57%	53%
Small	56%	58%	52%	54%	56%	54%	55%
Total	48%	49%	46%	46%	49%	47%	47%

Table A.7 – Capital structure targets

Cash flow (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Automobiles & Parts	0%	0%	0%	0%	0%	0%	0%
Basic Resources	0%	0%	0%	0%	0%	0%	0%
Construction & Materials	9%	9%	9%	0%	0%	0%	5%
Food & Beverage	0%	0%	0%	0%	0%	0%	0%
Health Care	15%	15%	15%	15%	20%	15%	16%
Industrial Goods & Services	6%	6%	6%	4%	8%	6%	6%
Media	0%	0%	0%	0%	0%	0%	0%
Oil & Gas	0%	0%	0%	0%	0%	0%	0%
Personal & Household Good	0%	0%	0%	0%	0%	0%	0%
Real Estate	0%	0%	0%	0%	0%	0%	0%
Retail	0%	0%	0%	0%	0%	0%	0%
Technology	4%	4%	4%	4%	4%	4%	4%
Telecommunications	0%	0%	0%	0%	0%	0%	0%
Travel & Leisure	0%	0%	0%	0%	0%	0%	0%
Total	5%	5%	5%	4%	5%	4%	5%

Cash flow (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Large	7%	7%	7%	6%	7%	7%	7%
Mid	0%	0%	2%	0%	2%	0%	1%
Small	6%	6%	4%	4%	6%	4%	5%
Total	5%	5%	5%	4%	5%	4%	5%

Table A.8 – Cash flow targets

Other (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Automobiles & Parts	25%	25%	25%	0%	0%	0%	13%
Basic Resources	20%	20%	20%	20%	20%	20%	20%
Construction & Materials	9%	9%	9%	9%	9%	9%	9%
Food & Beverage	0%	0%	0%	0%	0%	0%	0%
Health Care	15%	10%	15%	20%	20%	30%	18%
Industrial Goods & Services	14%	14%	16%	12%	12%	12%	14%
Media	0%	0%	0%	0%	0%	0%	0%
Oil & Gas	0%	0%	0%	0%	0%	0%	0%
Personal & Household Good	9%	9%	18%	18%	9%	9%	12%
Real Estate	71%	71%	71%	71%	71%	57%	69%
Retail	22%	22%	22%	22%	22%	22%	22%
Technology	4%	4%	4%	4%	4%	4%	4%
Telecommunications	0%	0%	0%	0%	0%	0%	0%
Travel & Leisure	40%	40%	40%	40%	40%	40%	40%
Total	18%	17%	19%	18%	17%	17%	18%

Other (% of total observations)

	2007	2008	2009	2010	2011	2012	Average
Large	13%	13%	15%	15%	15%	14%	14%
Mid	30%	30%	32%	27%	25%	23%	28%
Small	16%	14%	14%	14%	14%	18%	15%
Total	18%	17%	19%	18%	17%	17%	18%

Table A.9 – Other targets

2 Firms in sample

Name	Ticker	Industry	Segment
AarhusKarlshamn	AAK	Food & Beverage	L
ABB	ABB	Industrial Goods & Services	L
Acando	ACAN B	Technology	S
ActiveBiotech	ACTI	Health Care	M
AddnodeGroup	ANOD B	Technology	S
Addtech	ADDT B	Industrial Goods & Services	M
AlfaLaval	ALFA	Industrial Goods & Services	L
Allenex	ALNX	Health Care	S
AnotoGroup	ANOT	Technology	S
Aspiro	ASP	Technology	S
ASSAABLOY	ASSA B	Construction & Materials	L
AstraZeneca	AZN	Health Care	L
AtlasCopco	ATCO A	Industrial Goods & Services	L
AtriumLjungberg	LJGR B	Real Estate	L
Axfood	AXFO	Retail	L
Axis	AXIS	Technology	L
B&BTools	BBTO B	Industrial Goods & Services	M
BEGroup	BEGR	Basic Resources	S
Beijer	BEIJ B	Industrial Goods & Services	M
BeijerAlma	BEIA B	Industrial Goods & Services	M
BeijerElectronics	BELE	Industrial Goods & Services	S
BergsTimber	BRG B	Basic Resources	S
Betsson	BETS B	Travel & Leisure	M
Bilia	BILI A	Retail	M
BillerudKorsnas	BILL	Basic Resources	L
BioGaia	BIOG B	Health Care	M
BioInventInternational	BINV	Health Care	S
Biotage	BIOT	Health Care	S
Boliden	BOL	Basic Resources	L
Bong	BONG	Industrial Goods & Services	S
BTSGroup	BTS B	Industrial Goods & Services	S
Castellum	CAST	Real Estate	L
Catena	CATE	Real Estate	M
Cision	CSN	Industrial Goods & Services	S
ClasOhlson	CLAS B	Retail	M
ConcordiaMaritime	CCOR B	Industrial Goods & Services	S
Connecta	CNTA	Technology	S
Consilium	CONS B	Industrial Goods & Services	S
CTTSystems	CTT	Industrial Goods & Services	S
CybercomGroup	CYBE	Technology	S
DiosFastigheter	DIOS	Real Estate	M
DORO	DORO	Technology	S
Duroc	DURC B	Industrial Goods & Services	S
Elanders	ELAN B	Industrial Goods & Services	S
Electrolux	ELUX A	Personal & Household Goods	L
Elekta	EKTA B	Health Care	L
Elos	ELOS B	Health Care	S
Eniro	ENRO	Media	M
Ericsson	ERIC A	Technology	L
Fabege	FABG	Real Estate	L
Fagerhult	FAG	Construction & Materials	M
FastPartner	FPAR	Real Estate	M
FastighetsABBalder	BALD B	Real Estate	M
FeelgoodSvenska	FEEL	Health Care	S
FenixOutdoor	FIX B	Personal & Household Goods	M
FingerprintCards	FING B	Industrial Goods & Services	M

Name	Ticker	Industry	Segment
Getinge	GETI B	Health Care	L
Geveko	GVKO B	Construction & Materials	S
Gunnebo	GUNN	Industrial Goods & Services	M
Haldex	HLDX	Automobiles & Parts	M
HEBA	HEBA B	Real Estate	M
Hemtex	HEMX	Retail	S
Hennes&Mauritz	HM B	Retail	L
Hexagon	HEXA B	Industrial Goods & Services	L
HiQInternational	HIQ	Technology	M
Holmen	HOLM A	Basic Resources	L
Hufvudstaden	HUFV A	Real Estate	L
Husqvarna	HUSQ A	Personal & Household Goods	L
IARSystemsGroup	IAR B	Technology	S
ICAGruppen	ICA	Retail	L
Industrial&FinancialSystems	IFS A	Technology	M
Indutrade	INDT	Industrial Goods & Services	M
Intellecta	ICTA B	Industrial Goods & Services	S
JM	JM	Real Estate	L
KABE	KABE B	Personal & Household Goods	S
KappAhl	KAHL	Retail	M
KaroBio	KARO	Health Care	S
Klovern	KLOV	Real Estate	M
KnowIT	KNOW	Technology	S
Kungsleden	KLED	Real Estate	M
LagercrantzGroup	LAGR B	Industrial Goods & Services	M
LammhultsDesignGroup	LAMM B	Personal & Household Goods	S
LindabInternational	LIAB	Construction & Materials	M
LundinMiningCorporationSDB	LUMI SDB	Basic Resources	L
LundinPetroleum	LUPE	Oil & Gas	L
MalmbergsElektriska	MEAB B	Industrial Goods & Services	S
Meda	MEDA A	Health Care	L
Medivir	MVIR B	Health Care	M
Mekonomen	MEKO	Automobiles & Parts	M
MicronicMydata	MICR	Industrial Goods & Services	S
Midsona	MSON A	Personal & Household Goods	S
MillicomInt.CellularSDB	MIC SDB	Telecommunications	L
ModernTimesGroup	MTG A	Media	L
MSCKonsult	MSC B	Technology	S
MultiQInternational	MULQ	Technology	S
NCC	NCC A	Construction & Materials	L
NetInsight	NETI B	Technology	S
NewWave	NEWA B	Personal & Household Goods	M
NIBEIndustrier	NIBE B	Construction & Materials	L
Nobia	NOBI	Personal & Household Goods	M
Nolato	NOLA B	Industrial Goods & Services	M
NOTE	NOTE	Industrial Goods & Services	S
Novotek	NTEK B	Technology	S
OEMInternational	OEM B	Industrial Goods & Services	M
Opcon	OPCO	Automobiles & Parts	S
Orexo	ORX	Health Care	M
Oriflame	ORI SDB	Personal & Household Goods	L
Ortivus	ORTI A	Health Care	S
PAResources	PAR	Oil & Gas	S
PartnerTech	PART	Industrial Goods & Services	S
Peab	PEAB B	Construction & Materials	L

Name	Ticker	Industry	Segment
Phonera	PHON	Technology	S
Poolia	POOL B	Industrial Goods & Services	S
PreciseBiometrics	PREC	Industrial Goods & Services	S
Prevas	PREV B	Technology	S
Pricer	PRIC B	Industrial Goods & Services	S
ProActITGroup	PACT	Technology	S
Probi	PROB	Health Care	S
Proffice	PROE B	Industrial Goods & Services	M
Profilgruppen	PROF B	Basic Resources	S
RaySearchLabs	RAY B	Health Care	S
ReadSoft	RSOF B	Technology	S
RederiABTransatlantic	RABT B	Industrial Goods & Services	S
Rejlers	REJL B	Industrial Goods & Services	S
RezidorHotelGroup	REZT	Travel & Leisure	M
RNBRetailandBrands	RNBS	Retail	S
Rottneros	RROS	Basic Resources	S
RorvikTimber	RTIM B	Construction & Materials	S
SAAB	SAAB B	Industrial Goods & Services	L
Sandvik	SAND	Industrial Goods & Services	L
SAS	SAS	Travel & Leisure	M
SCA	SCA A	Personal & Household Goods	L
SCANIA	SCV A	Industrial Goods & Services	L
SECTRA	SECT B	Health Care	M
Securitas	SECU B	Industrial Goods & Services	L
Semcon	SEMC	Industrial Goods & Services	S
SensysTraffic	SENS	Industrial Goods & Services	S
SinterCast	SINT	Industrial Goods & Services	S
Skanska	SKA B	Construction & Materials	L
SKF	SKF A	Industrial Goods & Services	L
SkiStar	SKIS B	Travel & Leisure	M
Softronic	SOF B	Technology	S
SSAB	SSAB A	Basic Resources	L
StockwikForvaltning	STWK	Technology	S
StoraEnso	STE A	Basic Resources	L
Studsvik	SVIK	Industrial Goods & Services	S
SWECO	SWEC A	Construction & Materials	M
Svedbergs	SVED B	Construction & Materials	S
SwedishMatch	SWMA	Personal & Household Goods	L
SwedishOrphanBiovitrum	SOBI	Health Care	L
Tele2	TEL2 A	Telecommunications	L
TeliaSonera	TLSN	Telecommunications	L
TietoOyj	TIEN	Technology	L
TradeDoubler	TRAD	Media	S
TranscomWorldWide	TWW SDB A	Industrial Goods & Services	S
Trelleborg	TREL B	Industrial Goods & Services	L
UnibetGroup	UNIB SDB	Travel & Leisure	M
Uniflex	UFLX B	Industrial Goods & Services	S
Wallenstam	WALL B	Real Estate	L
VBGGroup	VBG B	Automobiles & Parts	S
VenueRetailGroup	VRG B	Retail	S
WihlborgsFastigheter	WIHL	Real Estate	M
Vitrolife	VITR	Health Care	S
Volvo	VOLV A	Industrial Goods & Services	L
XANOIndustri	XANO B	Industrial Goods & Services	S
AF	AF B	Industrial Goods & Services	M

3 Control variables

We include a number of control variables in our regression models. The control variables are summarized below, reporting the expected sign of the variable in the regressions.

Variable	**Expected sign in regression/Formula/Previous research**
$Size_{i,T}$	$-$
	$Size_{i,T} = \log(MV_{i,t})$
	For both regressions, the size variable considered is the logarithm of market value, which is measured at the beginning of each period T. Several ways of measuring size have been considered by previous research. For instance, the following measures have been particularly prevalent: • Market value (most commonly the log of market value) • Total assets • Operating revenues As suggested by previous research, size might affect firms' risk (Botosan, 1997; Gebhardt et al., 2001; Botosan, 2006; Francis et al., 2008). The reasoning is that large firms are expected to be more solvent than small firms. Since risk might be explained by the size variable, and risk is the underlying determinant of a firms' cost of capital, we control for this variable in the regressions. Furthermore, size is included in the bid-ask spread regressions since previous research documents a significant association between size, especially in the form of market value, and proxies for information asymmetry. Findings in previous research suggest that firm size is negatively associated with bid–ask spreads (Leuz and Verrecchia, 2000), and that disclosure levels are positively correlated with firm size (Lang and Lundholm, 1993).
$Leverage_{i,T}$ Only used in cost of equity capital re-gression	$+$
	$Leverage_{i,T} = \left(\frac{Debt}{Assets}\right)_{i,X}$
	We use the debt-to-assets ratio as our proxy for leverage. The leverage variable relates to accounting information and is measured at the end of each period X (as being the closes corresponding measure to that at time t). Throughout previous research, leverage has been measured as: • Equity-to-assets ratio (E/A) • Debt-to-equity ratio (D/E) • Debt-to-assets ratio (D/A) A higher level of leverage implies a higher proportion of external funds and might therefore be related to a greater level of financial risk for shareholders (Botosan,

	2006). The trend in previous research is seemingly that it is becoming increasingly common to include leverage as a control variable when looking at the cost of equity capital (Gebhardt et al., 2001; Francis et al., 2008. The proposal with regards to leverage and the cost of equity capital is thus that variables should be positively related, given that we use the debt-to-assets ratio as our proxy.
$ROA_{i,T}$	$+/-$
	$ROA_{i,T} = \frac{Operating\ income_{i,X}}{Total\ assets_{i,X-1}}$
	In order to control for the profitability of firms, we include a measure of return in our regressions. We control for firm profitability using ROA (Leuz and Verrecchia, 2000; Francis et al. 2008), the firm return on capital, defined as operating income scaled by total assets. The operating income is measured over year X and the total assets are measured in the beginning of the year. A similar approach is commonly observed throughout previous research, with different ways of measuring profitability, for instance as: • Return on Assets, ROA • Return on invested capital, ROIC The reason for the inclusion of this variable is that firms may increase disclosure when they are performing well, as proposed by previous research (Lang and Lundholm, 1993; Miller, 1999; Francis et al. 2008). Hence, the association between capital market variables and disclosure may be driven by firm profitability. Furthermore, we control for profitability in order to assess the explanatory contribution of our achievement variable knowing that the relationship is not driven by firm profitability, but of target achievement as such.
$Beta_{i,T}$ Only used in cost of equity capital regression	$+$
	$r_{i,T} - r_{f,T} = \alpha_i + \beta_{i,T}(r_{m,T} - r_{f,T})$
	In order to control for systematic risk, we use a measure of market beta. Through a base line market model, which is commonly used in previous research, we estimate beta using a rolling regression over twelve months, with historical market returns and risk free rates. The market return is computed using the Nasdaq OMX Stockholm all share index, and the risk free rate is assumed to equal the rate of the three-month Treasury bill issued by the Swedish National Debt Office. Including beta in the analysis is a means of capturing market risk. As implied by the classical CAPM-formula, a higher beta normally implies a higher cost of capital.

$Volatility_{i,T}$ Only used in bid-ask spread regression	$+$
	$Volatility_{i,T} = \sigma_{i,T} = \sqrt{\frac{1}{N-1} * \sum_{n=1}^{N} (return_{i,n} - \overline{return_n})^2}$
	The volatility measure is included in the bid-ask regression in order to assess the price risk that an investor faces on his/her current holding of a firm's shares. The implied historical volatility is computed using the daily returns. The deviations from the mean are summarized over a reporting period so that we arrive at a volatility measure corresponding to the measurement of our dependent variables. Low volatility implies low risk of value changes in the investors' inventory of stock, which narrows the bid-ask spread. Glosten and Milgrom (1985) suggest that when market participants fear the possibility of adverse selection, which in turn increases the magnitude of price oscillation, the spreads will be adjusted accordingly.
$Share\ turnover_{i,T}$ Only used in bid-ask spread regression	$-$
	$Share\ turnover_{i,T} = \frac{\sum_{n=1}^{N} Trading\ volume\ (SEK)_{i,n}}{N}$
	Share turnover is measured as the average daily SEK value of trading volume, as per Welker (1995). Share turnover serves as an alternative measure of stock liquidity. Other measures have been observed in previous research, for instance Leuz and Verrecchia (2000) use the value of shares traded scaled by the firm's market value of equity. However, in this setting the measure is intended to provide an inverse proxy for the investors holding period. This is assuming that the investor is rather interested in the monetary value of inventory held than the number of shares held.
$Share\ price_{i,T}$ Only used in bid-ask spread regression	$-$
	$Share\ price_{i,T} = \frac{\sum_{n=1}^{N} Closing\ price_{i,n}}{N}$
	The share price is the daily closing price measured as an average over the same twelve-month period as the bid-ask measure. As noted by Welker (1995), the share price variable needs to be included when assessing information asymmetry in order to: 1. Capture the fixed costs of the market-making activity 2. Control for price serving as an inverse proxy for inventory holding risk

4 An alternative measure of cost of equity capital

According to previous research, another way of estimating of the firm specific cost of equity capital is to use the PEG-ratio based equation suggested by Easton (2004)[42]:

$$r_E = \sqrt{\frac{E(eps_{i,2}) - E(eps_{i,1})}{P_{i,0}}}$$

Where:

$P_{i,0} =$ the share price at the time of measurement t=0,
$E(eps_{i,t}) =$ expected earnings per share for one and two years into the future assessed on a monthly basis, and
$r_E =$ the cost of equity capital.

However, one limitation with this formula is that it cannot be used when the estimated earnings per share for a year is lower than the estimated earnings per share for the previous year. We consider this measure for our analysis, however find that the technique results in a large amount of missing values due to de-creasing estimates, why we prioritize the RIV method.

[42] This is promoted by, amongst others, Botosan and Plumlee (2005)