

# The Information Content of Management Forecasts: Evidence from Nordic Rights Issues

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## Abstract

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We use a unique data set consisting of the last 20 years of forecasts of future operating performance made by corporate managers in connection with a rights issue on four Nordic stock exchanges. We find that forecasting firms outperform non-forecasting firms in the short run and mid-term. We then show two strong determinants of the forecast accuracy. Firstly, if the stated purpose of the rights issue at hand is a specific investment project, a company is more likely to live up its forecast. Secondly, there is a nonlinear relationship between the forecast accuracy and insider ownership, which is consistent with the trade-off between the incentive alignment and entrenchment effect of insider ownership. However, we find that these variables are uncorrelated with the bias of the forecast. Our interpretation is that the information content of management forecasts depends on the managers' skills to foresee the future and not on intentional deception, which is effectively discouraged through restrictive listing regulations.

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# 1 Introduction

In May 2002 the Danish biopharmaceutical company Bavarian Nordic made a rights issue of 1.185.115 new shares at a price of DKK 70 per share with pre-emption rights for existing shareholders. The prospectus contained the following statement:

In 2002, Bavarian Nordic forecasts revenues of approximately DKK 300 million, excluding commissions, and a profit of approximately DKK 50 million. (Bavarian Nordic, 2002, p. 5)

Numerous international studies have shown that management forecasts of future operating performance<sup>1</sup> of this kind can have a great impact on investor's assessment of firm value.<sup>2</sup> However, due to the rarity of such forecasts in the Nordic region,<sup>3</sup> existing research has been unable to map their information content<sup>4</sup> in this market.<sup>5</sup>

We intend to close this gap. A particularly unexplored and interesting laboratory for this kind of study is rights issues.<sup>6</sup> Equity issues are typically made by newly listed firms with high investment levels (Agnblad et al, 2002) and managers are typically more prone to disclose forecasts when they are about to issue equity (Ruland et al, 1990). The decision by existing shareholders to subscribe the issue, gives us an opportunity to understand how much investors believe managers.<sup>7</sup>

The aim of this thesis is to evaluate the information content of explicit management forecasts disclosed in connection with Nordic rights issues.

We find that forecasting firms outperform non-forecasting firms in the short run and mid-term, which has many possible reasons. We break down the reasons into two categories. Either the managers disclose truthful information or deceptive information. The objective of investor communication should be to align market value with intrinsic value by reducing information asymmetries. However, our findings suggest that there are incentives to be deceptive. We find that forecasting firms have lower issue discounts than

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<sup>1</sup> By management forecasts of future operating performance we mean explicit, i.e. either as a point or range estimate, voluntarily published statements of an earnings figure by the executives of a company.

<sup>2</sup> See for example Patell (1976), Penman (1980), Waymire (1984) and Lev and Penman (1990).

<sup>3</sup> By the Nordic region we refer to Sweden, Denmark, Finland and Norway.

<sup>4</sup> Synonymous expressions to information content that we use are *reliability*, *credibility* or *quality*.

<sup>5</sup> Ström (2005, 2006) has studied a smaller sample on management forecasts in connection with IPO's.

<sup>6</sup> The default flotation methods for secondary offerings in the Nordic countries are through rights issues or private placements (Fritzell and Hansveden, 2006). We have chosen to limit this thesis to rights issues. Compared to private placements, the information disclosed in connection with rights issues is more easily accessible and transparent. (ibid.) In principle, the information disclosed in public equity offerings is also transparent in nature. However, they almost never occur in the Nordic market.

<sup>7</sup> Initial public offerings (IPO's) also denote a decision by shareholders to show their confidence in management. However, by analyzing seasoned equity offerings (SEO's), we have several advantages. First, many hypotheses are not possible to test due to inaccessible pre-issue data, such as measures of underpricing, market timing and abnormal announcement returns, as well as ownership structure, book-to-market figures and the fraction placed in the issue. Second, the financial position at the time of the issue can be either good or bad and the motive for forecasting more probably to "hype" the stock than for IPO's, which makes it easier ex-post to analyze management reliability. Third, IPO's tend to be more biased towards smaller firms, which makes generalizations of the results more difficult.

non-forecasting firms, and significantly higher abnormal returns in the 100 days prior to the announcement than in the 100 days after the announcement. These findings speak in favor of the market timing hypothesis, i.e. that companies ride a wave by raising capital when market conditions are particularly favorable for their stock, and “slant”<sup>8</sup> their forecasts toward this market level. Consistent with previous studies we also find that the disclosed forecasts on average have an optimistic bias compared to the outcome. This implies that managers are either overoptimistic or deceptively disclose unfoundedly positive forecasts, i.e. “cheap talk”.<sup>9</sup> Either way, there are potential short run benefits to issue positively biased forecasts as long as these are not too heavily discounted by the market.<sup>10</sup> However, eventually companies with bad incentives are unmasked and spotting those with good incentives quickly is crucial. Our additional tests show that if the purpose of the rights issue is a specific investment project and if the pivotal owner of the company holds a medium-sized ownership stake, the accuracy of management forecasts is better. However, since these factors are uncorrelated with the bias of the forecast, our interpretation is that the information content of management forecasts in connection with Nordic rights issues does not stem from deliberate deception by the management, but from their ability to manage an increasingly uncertain world. Stock market regulations, therefore, seem to discourage management “cheap talking”, but encourage “slanting”.

This study contributes to previous research in four key aspects. Firstly, we perform the most comprehensive study on explicit forecasts in the Nordic region. Secondly, this is the most comprehensive study on explicit forecasts in connection with seasoned equity offerings. Thirdly, we introduce two new useful variables, purpose and ownership. In some markets, companies disclose long-term forecasts of future cash flows that can be used to make an implied valuation of the company that can be compared to the market value to see how much investors discount managers words (Bernile, 2004). However, in markets without such forecasts, our two variables can help researchers in distinguishing whether the incentives to “cheap talk” are put to action or not. Fourthly, we fine tune standard forecast quality measures to take into account their horizon, i.e. how far into the future they reach.

The paper proceeds in five sections. Section 2 outlines empirical findings relevant for our study and the Nordic rights issue market. Section 3 provides the theoretical framework and methodology. Section 4 describes the data collection procedure and descriptive statistics. Section 5 presents and analyzes the results. Section 6 concludes and gives suggestions for further research.

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<sup>8</sup> By “slanting” we refer to the propensity by management to bias their statements towards commonly held positive beliefs about their business (cf. Shleifer and Mullainathan, 2005).

<sup>9</sup> By “cheap talking” we refer to the short run propensity by management to deliberately communicating an unfoundedly positive picture of their business (cf. Bernile, 2004).

<sup>10</sup> Previous studies show that investors and professional analysts use the information provided in forecasts, but that they sometimes discount these forecasts (see for example Bernile, 2004, and Cotter, Tuna and Wysocki, 2006).

## 2 Literature and Background

This section briefly reviews international studies on management forecast quality, existing studies on rights issue valuation and an overview of the Nordic SEO market and associated forecasts.

### 2.1 Management Forecast Quality

In his recent study, Bernile (2004) shows that manager forecasts of merger related gains<sup>11</sup> bear only limited credibility to investors; they only capitalize one third of the forecasted synergies at the announcement of the merger. Previous studies on the quality of management forecasts in connection with SEO's are rare.<sup>12</sup> However, it seems that managers are more prone to release forecasts when they have less volatile historical earnings (Waymire, 1985) and good news to report (Ruland et al, 1990). According to Frankel et al (1995) managers are not more optimistic than analysts and "cheap talking" does not exist due to efficient legislation. In their study on the Spanish market, Pastor-Llorca and Gómez-Sala (2004) find that analysts are on average overoptimistic and have a positive bias in their forecasts when making a rights issue, which seems to affect investors. Chemmanur and Jiao (2005) find that the amount of information in qualitative forecasts<sup>13</sup> is related to better SEO announcement returns.<sup>14</sup>

A closely related field is earnings management through the use of accruals. Cotter et al (2006) finds that analysts adjust their forecasts after management forecasts, which gives managers an incentive to guide analysts towards achievable earnings targets. Several studies (e.g. Kasznik, 1999, Shivakumar, 2000, and Spohr, 2005) observe that firms use accruals in order to meet or beat forecasts,<sup>15</sup> but not necessarily with the intention to mislead investors, but as a so called rational response to an anticipated negative market reaction at offering announcement.

### 2.2 Rights Issue Valuation

The issuance of new equity is associated with a sudden increase in supply. According to the Price Pressure Hypothesis, presented by Scholes (1972), this should be met by a negative price effect in connection with the issue. Historically, SEO's have suffered from small, but negative announcement returns and long run underperformance (Loughran and Ritter, 1995).

Loughran and Ritter (1995) find a -3% announcement effect for US rights issues.<sup>16</sup> A similar effect (-3.2%) is found in the UK (Armitage and Snell, 2001). Previous studies on

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<sup>11</sup> Forecasts of merger related gains refer to forecasts that managers disclose shortly after the merger announcement about the additional cash flows that it is expected to produce through synergy effects. Such forecasts have become quite common in the US, but are rare elsewhere, especially in the Nordic region.

<sup>12</sup> Compared to forecasts of merger related gains, the forecasts that are disclosed in connection with SEO's are typically ordinary earnings forecasts to the end on the financial year.

<sup>13</sup> Contrary to quantitative forecasts, qualitative forecasts refer to forecasts without specific numbers.

<sup>14</sup> Baginski and Hassell (1997) show that the precision (range) of a forecast is related to the amount of analyst following and size of the firm, which seems robust after controlling for firm-specific factors.

<sup>15</sup> Koh et al (2006) finds that the use of accruals has decreased post-Enron.

<sup>16</sup> Eckbo et al (2006) argues that the negative announcement return might be a somewhat US-specific phenomenon.

rights issues in Sweden have observed announcement effects of -0.4% (Molin, 1996), +0.37% (Cronqvist and Nilsson, 2005) and -2% (Fritzell and Hansveden, 2006). Lang and Lundholm (2000) suggest that firms that manage to signal good issue incentives in a credible way get positive announcement effects.

The long run underperformance after an SEO is partly explained by decreased leverage (Eckbo et al, 2000) and stock dilution (Gombola and Ho, 2005). Loughran and Ritter (1997) explain it with market timing, i.e. that companies issue equity to exploit good market conditions. This effect is confirmed by Rajan and Servaes (1997) and Foerster and Karolyi (2000) who find that equity issuers outperform the market prior to the issue and underperform after. The investment level of individual firms seems to be connected with the market valuation of the company's share. Leng (2007) as well as Polk and Sapienza (2006) find that firms with overpriced shares overinvest to a larger extent than other firms. Baker et al (2003) find that equity dependent firms wait with their investments until the market valuation of their share is good as this will lower their cost of capital. However, they conclude that this does not necessarily mean that the investments of these firms are less efficient as equity dependency forces them to avoid overinvestment under less favourable market conditions. Many recent studies have also shown that pre-issue investor overoptimism, followed by subsequent disappointment, are important explanatory factors behind the poor post-issue performance (see for example Dechow, Hutton and Sloan, 2000, Eckbo et al, 2000, Denis and Sarin, 2001, and Pastor-Llorca and Gomez-Sala, 2004).

## 2.3 The Nordic Rights Issue Market

There are three main ways for a company to issue seasoned equity. Rights issues and private placements are the two default methods in the Nordic region. Public offerings, which are often used in the US, are very rare.

The board's authority to issue new equity is decided at the shareholders meeting. The board is generally authorized to make smaller issues independent of the shareholders. For larger issues, the company usually explains its intentions to issue new equity, makes a definite decision at an extraordinary shareholders meeting, and then informs the market about the contents of this meeting through a press release (La Porta et al, 2006). When the equity issue has been decided, it shall immediately be publicly announced<sup>17</sup> together with the general terms and the official purpose of the SEO. This is followed by the issue of a prospectus and then a subscription period when rights are traded and shares subscribed. Finally, the shares are launched in the market.

The information that is released in connection with the issue can be useful to investors and should help them align their expectations with the true prospects of a firm. However, in order to create a fair market, all investors must get access to the same information simultaneously. As a complement to formal laws, stock exchanges have listing requirements with more specific requirements. Regarding information disclosure, the OMX exchanges in Stockholm, Copenhagen and Helsinki on the one hand (Nordic Ex-

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<sup>17</sup> Information is "publicly announced", as described in the rules of the OMX stock exchanges, when it is disclosed simultaneously in a press release at the company website, through 2 established news-agencies and 3 nation wide newspapers as well as through the stock exchange (Nordic Exchange, 2007b).

change, 2007b) and Oslo Børs (2007b) on the other have their own regulations today. However, the underlying concepts of these are the same. The objective of these rules is to create a fair market with “quick, instant, correct, relevant and reliable information” (Nordic Exchange, 2007b), so that investors are not misled. The main rule is that all companies have to make a *public announcement, as soon as possible* of any information that may affect their stock price. This includes forecasts of future operating performance in connection with SEO’s. The forecasts should be easy to find and interpret. For example, if forecasts are included in annual reports or prospectuses they have to be put under separate headings. They must also clearly state whether they are positive or negative. If a company has made earlier forecasts during the same year, these have to be included as well. Firms are also required to make profit warnings if they suspect that their results will deviate much from the forecast, or market expectations if there is no forecast given. Historically, investors have reacted negatively on such profit warnings. For example, Bulkeley and Herreiras (2004) found that shares underperform their market at the announcement of the profit warning as well as for the three following months. However, forecasting is voluntary and, combined with factors like uncertain order intakes and market volatility, the above regulations keep many companies from publicly disclosing forecasts. Especially companies with bad news are reluctant to do this. Forecasts are often announced in connection with earnings announcements, equity offerings and mergers and acquisitions. Forecasts from earlier reports are usually mentioned and commented, but rarely changed except when the company makes a profit warning.

### 3 Methodology and Hypotheses

#### 3.1 Theoretical Framework

In his early work, Hamada (1969) integrates the Miller and Modigliani (1958) valuation model with the capital asset pricing models of Sharpe (1964) and Lintner (1965) and proves that, under certain restrictive assumptions, the value of a firm depends only on the probability distribution of its future earnings and market factors which determine the risk-return payoff structure. In this setting, the information content of earnings forecasts lies in their effect on the assessed probability distribution of future earnings in relation to other assets. Stated in terms of Fama’s (1970) semi-strong form of the efficient market hypothesis, the current stock price reflects all publicly available information about a firm and the price adjusts efficiently to all disclosures of new information, including informative earnings forecasts.

The objective of communicating forecasts to investors should be to align market value with intrinsic value, i.e. managers should try to reduce information asymmetries as an *agent* for the shareholders of the firm, the *principal* (Jensen and Meckling, 1976). However, if conflicts of interest arise in the context of equity issues, then insiders’ forecasts should bear only limited credibility, i.e. give them incentives to “cheap talk” (cf. Crawford and Sobel, 1982).

The market for seasoned equity offerings can effectively be described as a “lemon market” (Akerlof, 1970). Some companies truly invest the money raised in the equity issue in good, profitable projects, while others only exploit good market conditions that are expected to disappear. The disclosure of informative forecasts is a way for managers of

“good” companies to signal their true prospects by reducing information asymmetries. For example, Lang and Lundholm (1996) demonstrate that firms with more informative disclosure policies have a larger analyst following, more accurate analyst earnings forecasts, less dispersion among individual analyst forecasts and less volatility in forecast revision. However, the opportunity for managers of “bad” companies to enjoy private benefits gives them incentives to “hype” the stock in order to unfoundedly increase demand and minimize underpricing of their stock (Lang and Lundholm, 2000). For example, managers of companies with bad prospects have incentives to issue equity while market conditions still allow them to raise an amount of capital that will save them in a future crisis. Thus, regardless of whether the money raised in an equity issue is used in good or bad purpose, managers have incentives to describe the event as a winning proposition for all parties involved. Managerial overconfidence (Eckbo et al, 2000), or hubris (cf. Roll, 1986), might be another reason for unreliable forecasts. However, in contrast to this explanation the former “cheap talk” tenet implies a conscious deception by the managers. Thus, regardless of whether managers have good or bad motives, forecasting can be regarded a potentially profitable activity.

Investors’ view of the prospects of an equity issuer is also undoubtedly affected by the firm’s ownership structure (Agnblad et al, 2002), which is therefore a potential determinant for management forecast bias and accuracy. In their pioneering work, Morck et al (1988) combine two basic hypotheses of ownership concentration. On the one hand, *the convergence-of-interest hypothesis* implies that dispersed ownership encourages managers to seek private benefits (Berle and Means, 1932). This incentive declines as management ownership rises (Jensen and Meckling, 1976). On the other hand, *the entrenchment hypothesis* predicts that managers with substantial ownership stakes will have enough power to secure their own employment at an attractive salary (Weston, 1979) and therefore have incentives to make less thought through decisions.<sup>18</sup>

In summary, we see two main implications. First of all, forecasting can be regarded as a profitable activity, either through reduced information asymmetries or efficient “cheap talking”. Secondly, managers that make good forecasts are those who indicate that they will spend the funds raised in a specific investment project and who hold a medium sized equity stake,<sup>19</sup> i.e. those with the highest incentives to work for value maximization. In the next two sections we develop statistically testable hypotheses for these theories and then introduce control variables that might influence the variables that we introduce.

### 3.2 The Effects of Forecasting

The theoretical foundation leads us to our first hypotheses. Chemmanur and Jiao (2005) show that firms disclosing more informative statements<sup>20</sup> of their post-issue prospects

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<sup>18</sup> The offsetting costs of significant management ownership was pointed out by Demsetz (1983) and Fama and Jensen (1983). They first recognized that managers with small ownership stakes were forced towards value maximization for the shareholders because of market discipline, e.g. the managerial labor market (Fama, 1980), the product market (Hart, 1983), and the market for corporate control (Jensen and Ruback, 1983), but managers free from checks on their control, i.e. with substantial ownership stakes, may indulge their preference for non-value-maximizing behavior, which implies less valuable corporate assets.

<sup>19</sup> See Section 3.3.3 for a precise definition of medium sized ownership level.

<sup>20</sup> Chemmanur and Jiao (2005) investigate the impact of what they call “soft information”, which includes official statements on future performance other than numbers and clichés.



get better announcement returns than other firms. This is also expected for explicit management forecasts in the Nordic region, since these are disclosed under restrictive regulations that discourage uninformative forecasts and instead promotes forecasts that reduce information asymmetries.

**H<sub>1</sub>:** *Forecasting firms will on average experience better announcement returns than non-forecasters.*

Jog and McConomy (2003) find that underpricing of SEO's decreased significantly in Canada as new legislation was introduced which forced companies to produce more accurate forecasts which led to reduced information asymmetries. In line with this, we believe that forecasting firms, if they manage to reduce information asymmetries, will decrease the discount of their issues. We also believe that forecasting will be beneficial for firms with bad news, by being a bit more optimistic, since it will usually be hard for investors to identify the underlying incentives of the equity issue. The possible manager optimism will then be passed on to investors who thereby increase demand, which gives the companies a possibility to reduce the discount.

**H<sub>2</sub>:** *The shares issued by forecasting firms in rights issues will on average be less underpriced than those issued by non-forecasters.*

We have found no recognized studies on the relationship between forecast quality and long run performance.<sup>21</sup> This has probably to do with difficulties in controlling for unanticipated changes in underlying fundamentals. However, we believe that there will be differences between the forecasting companies which will appear in the longer run. Companies that produce relatively overoptimistic and inaccurate forecasts should suffer from underperformance once they are unveiled since their investors will show their disappointment. Conversely, the companies that produce good forecasts will see positive long run effects from this. We believe that this effect will show up already in the 100 days after the issue, which we use as a proxy for the "mid-term".

**H<sub>3</sub>:** *Companies that produce good forecasts will outperform companies that produce bad forecasts in the mid-term.*

As explained in Section 2.2, market timing of SEO's is a well established hypothesis. We hypothesize that companies that produce forecasts also exploit favorable market conditions. However, we expect informative forecasts to reduce this effect. In particular, we predict that companies with specific investment purposes do exploit favorable market conditions to a lesser extent than other firms.

**H<sub>4</sub>:** *Market timing will exist also among companies who issue forecasts.*

### 3.3 Detecting Good Forecasters

We anticipate that companies who produce reliable forecasts of long run investments will outperform those who do not. For example, Diether et al (2002) find that stocks

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<sup>21</sup> A few studies, such as Dechow, Hutton and Sloan (2000), Denis and Sarin (2001), and Pastor-Llorca and Gomez-Sala (2004), have found negative price reactions on the subsequent earnings announcements after an SEO, which is explained by disappointed investors. This is an interesting subject for further research.

with high dispersion in analyst earnings forecasts earn lower future returns than otherwise similar stocks. Furthermore, listing regulations require companies that fail to meet their forecasts to make profit warnings and companies are likely to underperform after these. In the following, we will introduce explanatory variables that are meant to capture management overoptimism, “cheap talking” and lack of skills when producing forecasts. Since all businesses are subject to unanticipated macroeconomic events and some firms are more vulnerable to external market factors, we also introduce a set of control variables to cleanse the desired effects from general volatility. However, we begin by introducing our dependent forecast quality variables.

### 3.3.1 Measuring Forecast Quality

Previous studies use several different variables to measure forecast quality. The most common ones are Forecast Error ( $FE$ ) and Absolute Forecast Error ( $AFE$ ). We calculate  $FE$  as:

$$FE_{i,t} = \frac{AP_{i,t} - FP_{i,t}}{|FP_{i,t}|} \times \frac{365}{FH_{i,t}},$$

Where  $AP_{i,t}$  is the actual (realized) performance,  $FP_{i,t}$  is the forecasted performance and  $FH_{i,t}$  is the forecast horizon, i.e. how far into the future the forecast reaches (in days) for firm  $i$  in year  $t$ . The first part of the equation calculates the relative deviation from the forecasted value. The second part annualizes the data to take different forecast horizons into account. In accordance with previous studies, e.g. Baginski and Hassell (1997), and Ström (2005), we find the forecast horizon to be significantly correlated with forecast error, which is why we choose to transform the forecast errors into yearly figures by weighing them by the horizon. As far as we know, this is the first study to use an annualized forecast quality measure of this kind. The advantage of a relative and annualized measure is that it is easily compared across firms. A positive  $FE$  implies that the actual outcome is better than the predicted one, while a negative  $FE$  implies that the company did not meet its expectations. Thus, we say that  $FE$  measures the forecast *bias*.

To measure forecast *accuracy* we use the absolute value of  $FE$ , which we refer to as  $AFE$ . Accurate forecasts will get low values (close to zero values), while inaccurate forecasts will get large positive values. Thus,  $AFE$  is used to uncover the deviation from the outcome independent of the sign (optimism/hubris) of the forecast error (managers).

As always, there are potential problems with any measures, and the above ones are no exceptions. Firstly, unanticipated events will occur between the release of the forecast and the outcome. This problem is not easy to solve. However, in Section 3.4 we introduce control variables that partly account for this effect. Secondly, when companies produce forecasts that are close to zero, even small differences between outcome and forecast will produce large forecast errors and give unsound results. In Section 4.2.1 we discuss this problem and exclude one such influential observation. We also discuss the influence of firms in financial distress. With these additional preemptive measures, we believe  $FE$  and  $AFE$  to be well suited for our analysis.

### 3.3.2 Purpose of the Rights Issue

As our first explanatory variable, we introduce a dummy that takes the value 1 if the stated purpose of the rights issue is either a merger, acquisition, joint venture, expansion or a specific investment. Most companies disclose informative statements of the main purpose for raising new capital in a rights issue, which we believe to be a good way to reduce information asymmetries. The more specific and promising the purpose, the more likely the company will convey less optimistically biased and more accurate forecasts. Companies being unspecific tend to face risks, which are either openly stated or concealed through vague purpose statements. The latter kind of firms most likely tries to exploit good market opportunities to stay alive rather than investing their money in wise projects. Previous studies have not explored this variable, which makes it interesting. The theoretical foundation, however, is of course transparency, i.e. the amount of information disclosed, which has proven to be positively related with forecasting accuracy by Chemmanur and Jiao (2005) and Mensah et al (1996).

**H<sub>5</sub> (FE):** *Companies who issue equity to finance a specific investment project have less optimistic forecasts (+).*

**H<sub>6</sub> (AFE):** *Companies who issue equity to finance a specific investment project have more accurate forecasts (-).*

### 3.3.3 Ownership Structure

As explained in the theoretical framework, Section 3.1, we believe that a management ownership level characterized by low agency costs can have explanatory power for the reliability of manager forecasts. Inspired by Morck et al's (1988) finding that both highly concentrated and highly dispersed ownership structures increases agency costs, we introduce a dummy variable for companies where the fraction of voting rights of the firm's largest owner is in the 5–25% range.<sup>22</sup> We predict that the companies in this “middle” range will produce less optimistically biased and more accurate forecasts. To our knowledge, this is the first study to test this ownership hypothesis on forecast quality.

**H<sub>7</sub> (FE):** *Companies where the largest owner has a medium size stake of the voting rights, in the 5–25% range, have less optimistic forecasts (+).*

**H<sub>8</sub> (AFE):** *Companies where the largest owner has a medium size stake of the voting rights, in the 5–25% range, have more accurate forecasts (-).*

### 3.3.4 Family Firm

We also introduce a dummy variable that takes the value 1 if a family has more voting rights than other investors with more than 5% of the voting rights have together. We use this variable to gauge agency costs arising from family members making pivotal decisions in inefficient ways, as opposed to professional managers (see for example Cronqvist and Nilsson, 2003, Burkart et al, 2003, and Högfeldt, 2004). Agnblad et al (2001) show that the use of dual-class shares is most prevalent among family-controlled firms, which implies that there may also be an agency problem as ownership and control is dispersed. Family firms may have the larger incentives to “cheap talk” in connection with rights

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<sup>22</sup> This range is partly motivated by Weston (1979), who introduces 25–30% as the ownership range beyond which a firm had (until then) never been acquired in a hostile takeover.

issues as this will provide them with new capital without having to sacrifice power. Thus, we hypothesise that family firms will produce more optimistically biased and inaccurate forecasts.

**H<sub>9</sub> (FE):** *Family firms have more optimistic forecasts (-).*

**H<sub>10</sub> (AFE):** *Family firms have less accurate forecasts (+).*

### 3.4 Control Variables

Previous studies have discovered several ex-ante variables that might be used to predict which companies will live up to their forecasts (Hartnett and Römcke, 2000). We believe the purpose of the rights issue and the connection between a manager's decision and benefit to be closely related to the bias and accuracy of forecasts made in connection with rights issues. To confirm the precision of our results we control for several other characteristics that have been analyzed in previous studies for IPO's and to some extent also for SEO's in other parts of the world. Firstly, we look at three firm characteristics: size, market-to-book and industry belonging. Secondly, we look at three rights issue characteristics: size of the issue, discount, and the level of issuing activity at the time of the issue. Thirdly, we control for general market conditions via time variables. Our unique set of variables will bring new insights on forecasting quality in the Nordic market.

#### 3.4.1 Firm Size

We proxy firm size by the natural logarithm of market capitalization in SEK. Larger companies are thought to produce less optimistic and more accurate forecasts. Firstly, we believe that they have more analyst following, which is thought to reduce information asymmetries (Ruland, 1978).<sup>23</sup> Secondly, as proposed by Cazavan-Jeny and Jeanjean (2005), larger companies are thought to be more diversified, with more steady order intakes, which should reduce volatility and increase the precision of their forecasts. Thirdly, they also propose that large companies are likely to have more influence over their market environment and thus more control over the level of their profits.

**C<sub>1</sub> (FE):** *Larger firms have less optimistic management forecasts (+).*

**C<sub>2</sub> (AFE):** *Larger firms have more accurate management forecasts (-).*

#### 3.4.2 Market-to-book

Defined as the weighted average of beginning of the year and end of the year figures, depending on the month in which the equity is issued. High market-to-book companies are expected to have higher growth expectations, higher risk profiles and more volatile earnings (Rajan and Servaes, 1997), and therefore more optimistic managers and larger forecast errors.

**C<sub>3</sub> (FE):** *Firms with higher market-to-book have more optimistic management forecasts (-).*

**C<sub>4</sub> (AFE):** *Firms with higher market-to-book have less accurate management forecasts (+).*

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<sup>23</sup> Of course, a high level of dispersion among analysts offsets the positive effect of a high level of analyst following (Diether et al, 2002). However, the assumption is that managers become more careful as their company is inspected by more people.

### 3.4.3 Real Estate

A dummy variable that takes the value 1 if the equity issue is made by a real estate company. Stable industries are proxied by real estate investment companies. Firms in more stable industries are likely to produce more accurate forecasts than others, as these companies are thought to have particularly good control over their cash flows. As an example we predict that real estate companies, who historically have been connected with relatively low volatility in earnings, will produce more accurate forecasts. However, since many companies issued equity in connection with the real-estate crisis of the early 90's, we differentiate between real estate companies issuing equity in "normal" years and those issuing during the crisis. We also note that real estate companies are sensitive to changes in the interest rate, which showed heavy fluctuations during this crisis.

**C<sub>5</sub> (FE):** *In times of stability real estate investment companies have less optimistic management forecasts (+), but more optimistic during the real estate crisis (-).*

**C<sub>6</sub> (AFE):** *Real estate investment companies have more accurate forecasts in general (-), but less accurate during the real estate crisis (+).*

### 3.4.4 Issue Size

Defined as the natural logarithm of the capital raised in SEK. We predict that this variable will be highly correlated with firm size since larger companies make larger issues, and similarly associated with better forecasts. We will use this as an alternative variable to firm size in our tests.

**C<sub>7</sub> (FE):** *Firms making larger issues have less optimistic management forecasts (+).*

**C<sub>8</sub> (AFE):** *Firms making larger firms have more accurate management forecasts (-).*

### 3.4.5 Discount

Defined as the percentage discount of the newly issued shares compared to the market price of the old shares at the day of the offering ( $P_0$ ):

$$Discount = \frac{P_0 - P_{offering}}{P_0}$$

A high discount will make the issue attractive for new investors, but is disadvantageous for the company since they will raise less money from the shares issued. In accordance with Lang and Lundholm (2000) we hypothesize that low underpricing may be a result of successful "cheap talking" as share demand is artificially increased, which should be connected with negative forecast errors. Conversely, high underpricing is thought to lead to more analyst following<sup>24</sup> and therefore more accurate forecasts.

**C<sub>9</sub> (FE):** *Firms giving higher discount (cheaper issues) have less optimistic management forecasts (+).*

**C<sub>10</sub> (AFE):** *Firms giving higher discount (cheaper issues) have more accurate forecasts (-).*

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<sup>24</sup> Rajan and Servaes (1997) find underpricing to be associated with more analyst following for IPO's.

### 3.4.6 Hot Markets

Proxied by those years in which relatively many equity issues are made. We predict that some companies will exploit the good opportunities these years provide and issue capital in order to raise money cheaply. These years are also expected to be correlated with overoptimism, market timing and “cheap talking”, which will all result in bad forecasts.

**C<sub>11</sub> (FE):** *Firms who issue equity in “hot” years have more optimistic forecasts (–).*

**C<sub>12</sub> (AFE):** *Firms who issue equity in “hot” years have less accurate forecasts (+).*

### 3.4.7 Millennium

A dummy variable for equity issues made in the years 2000–2005. We expect a shift in the economy around the beginning of the millennium. It started with the IT bubble and the Enron scandal. This was followed by the introduction of tougher market regulations, including the Sarbanes-Oxley regulation (SOX), which set tougher restrictions on earnings management and the use of accruals to meet forecasts. According to Jog and McConomy (2003) “cheap talk” preventing legislation has improved recently, which implies less optimistically biased forecasts. On the other hand, Kasznik (1999) argues that the use of accruals was easier with the more loose legislation. However, because of tougher legislation, but more volatile times lately, we hypothesize these forecasts to be less optimistically biased and less accurate than forecasts made during earlier years. This variable will also uncover more recent trends in forecast quality.

**C<sub>13</sub> (FE):** *Firms who issued equity in 2000–2005 had less optimistic forecasts (+).*

**C<sub>14</sub> (AFE):** *Firms who issued equity in 2000–2005 had less accurate forecasts (+).*

We review the expected effects of our explanatory variables and control variables in Section 5.3 Linear Regression Model (Table 10).

## 4 Data Description

### 4.1 Sample Selection Procedure

We use a unique data set consisting of all Nordic operating companies and real estate investment companies whose managers have made forecasts of either sales, turnover, earnings or cash flows in connection with a rights issue on one of the major Nordic stock exchanges, Stockholm Stock Exchange (SSE), Copenhagen Stock Exchange (CSE), Helsinki Stock Exchange (HSE) or Oslo Stock Exchange (OSE), during the 20-year period 1986–2005.

We begin by collecting lists of all equity issues and capitalizations in the sample period, by both active and dead firms, from the four stock exchanges’ data resources. For recent years we use online resources (Nordic Exchange, 2007a, and Oslo Børs, 2007a), while data for earlier years are collected from paper copies obtained from the exchanges own archives. The lists include rights issues as well as public offerings, private placements, employee stock option plans, bonus issues, stock splits, write-downs and other similar events. Offering dates, issue prices and issue sizes are reported for most issues, and for CSE industry classification are also reported. For SSE we complete the list for the two

earliest years by identifying all listed firms from the book-series *Owners and Power in Sweden's Listed Companies* (Sundqvist et al, 1986, 1987) and documenting every change in equity capital for these firms and years from the Stockholm Information Exchange Trust (SIX Trust) database. This yields an initial list of 7 532 equity issues and capitalizations.

Next, we exclude issues and capitalizations other than rights issues, and issues made by financial companies, utilities and non-Nordic companies. This yields a sample of 846 rights issues.

We then use the FACTIVA database, press releases and financial reports to manually collect all quantitative forecasts of sales, turnover, earnings and/or cash flows that are released to the public in connection with the rights issues by the managers that undertake these share issues. Forecasts with the value zero were excluded. (Most forecasts are released in the offering prospectuses, while a few are made announced in press releases or interim reports some time before the release of the prospectus.) This yields a sample of 132 rights issues with forecasts attached. For every issue with a forecast we document its announcement date and purpose, i.e. the intended main usage of the capital raised. We also collect realized values of the forecasts and the dates when they are announced.

Furthermore, we exclude issuers who lack financial data needed for the analysis (mainly stock prices) and who have less than a one month forecast horizon. Thus, we get a final sample of 92 issues made by 77 companies.

**Table 1** Sample selection procedure for identifying 92 rights issues made on one of four Nordic stock exchanges by 77 Nordic forecasting companies

Step	No. excl.	No. left
All equity capitalizations from the exchanges' resources and SIX Trust	-	7 532
Rights issues	6 686	846
Rights issues with manager forecasts	714	132
Rights issues with manager forecasts and complete financial data	40	92

The financial data is also collected from several databases. We obtain unadjusted stock prices, stock prices adjusted for equity issues, share splits and write-downs, as well as number of shares and pre-issue book values of equity, and stock market indices for CSE, HSE and OSE from Thomson Datastream. For SSE we obtain Affärsvärldens General Index (AFGX) from SIX Trust. The unadjusted stock returns are used to calculate discounts and market values of equity, while adjusted stock prices are used to calculate abnormal returns. The four stock indices are needed as a proxy in the market model estimations. Issue prices and issue sizes are obtained from the original equity issue lists and FACTIVA. Some industry descriptions are also obtained from the original equity issue lists and the rest from the Bureau Van Dijk Orbis database and then converted into 2-digit Global Industry Classification Standard (GICS) codes. To convert some financial figures needed in descriptive statistics to the same currency, exchange rates are obtained from the Federal Reserve Statistical Release (2007) online resource. The percentage voting rights of the largest owner in each company is collected from Sundqvist et al (1986–2005) for SSE listed firms, but is unavailable for the other markets.

## 4.2 Overview of Sample

This section provides an overview of the forecasting activity and rights issue activity for our sample by purpose of the issue, by industry, per firm, over time, and across the four Nordic stock markets. However, we begin with some basic statistics and a discussion of influential observations.

### 4.2.1 Summary Statistics and Influential Observations

From Table 2 below we see that the mean (median) *FE*, or bias, for all 92 observations is -24.4% (-5.3%), which is in line with the general overoptimism literature on the field. This means that forecasted performance is on average overestimated by 24.4%. The mean (median) *AFE*, or accuracy, of the forecasts is 63.8% (26.1%), which means that independent of the sign of the deviation the outcome deviates 63.8% from the forecast. The forecasts errors are annualized by the forecasts horizon, which is on average about three quarters long. We also note that the fraction of voting rights of the largest owner is on average 34.9% and ranges from 3.50% to 78.20%. The standardized abnormal returns (Std. AR) show the abnormal returns (AR) divided by the standard deviation for six different event windows.<sup>25</sup>

**Table 2** Summary statistics for full sample

Variable	N	Min	Max	Mean	Median	Std. dev.
Forecast error [%]	92	-819.2	295.9	-24.4	-5.3	133.88
Absolute forecast error [%]	92	0.7	819.2	63.8	26.1	120.03
Forecast horizon [days]	92	39	555	256.0	269.0	108.12
Market capitalization [mSEK]	92	19.3	55 680.0	2 444.3	612.2	6 405.59
Market-to-book	92	0.22	23.53	3.02	2.01	3.42
Voting rights of largest owner [%]	48	3.5	78.2	34.9	34.2	19.63
Issue size [mSEK]	92	2.9	5 000.0	467.3	193.4	840.39
Discount [%]	92	-30.4	83.6	25.3	24.5	23.94
Fraction placed [%]	92	1.0	90.9	31.5	25.0	19.17
AR [0] [%]	92	-35.58	33.08	0.09	0.00	7.76
AR [-1, 1] [%]	92	-39.08	52.65	0.78	0.15	12.19
AR [-2, 2] [%]	92	-48.58	56.39	1.23	0.70	14.16
AR [-3, 3] [%]	92	-49.65	60.70	1.58	0.37	14.45
AR [-100, 0] [%]	92	-113.28	225.24	3.30	0.57	46.02
AR [0, 100] [%]	92	-124.84	144.66	-0.65	-4.14	41.34
Std. AR [0]	92	-7.65	10.40	0.18	0.00	2.46
Std. AR [-1, 1]	92	-12.65	11.85	0.11	0.03	2.58
Std. AR [-2, 2]	92	-7.44	12.65	0.20	0.13	2.33
Std. AR [-3, 3]	92	-6.23	11.51	0.21	0.05	2.03
Std. AR [-100, 0]	92	-2.35	6.39	0.23	0.03	1.50
Std. AR [0, 100]	92	-2.92	5.76	0.03	-0.14	1.36

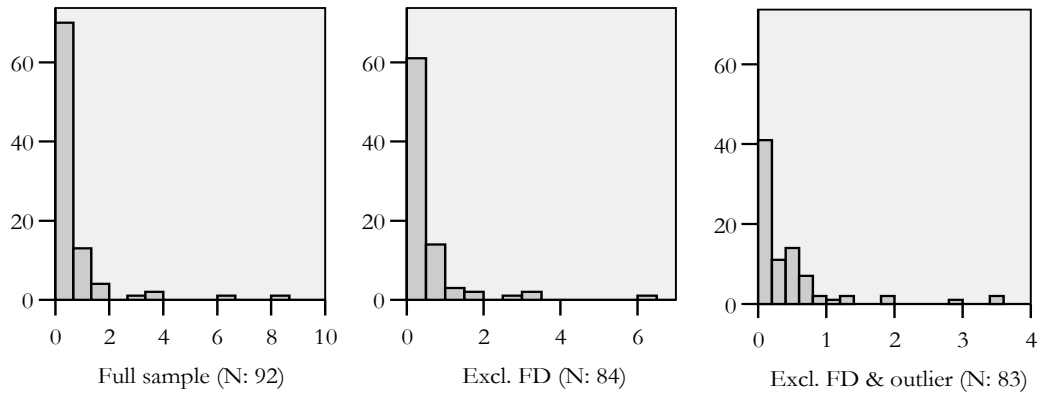
Since the median *FE* and *AFE* are much smaller than the means, we suspect that some outliers influence the entire sample. Firth and Smith (1992) arbitrarily excluded 3 of 92 observations with extreme values of *AFE*. To decide whether to exclude any outliers in our sample, we study the histograms in Figure 1 below. For the full sample, we can see two extreme observations. The most extreme one is a firm in financial distress, while the other one has a forecast close to zero.

<sup>25</sup> We perform our event studies according to the market model as explained by MacKinlay (1997).



The second histogram shows the sample excluding (8) firms in financial distress. These observations highly influence the sample, and in the following sections we analyze the sample both with and without these observations. As can be noted in the summary statistics, the fraction placed in the rights issue, i.e. the number of shares in the issue as a fraction of the number of shares after the issue, varies from 1.0% to 90.9%. We predict a high correlation between the fraction placed and financial distress, because of their great need of capital. We test this in the analysis section.

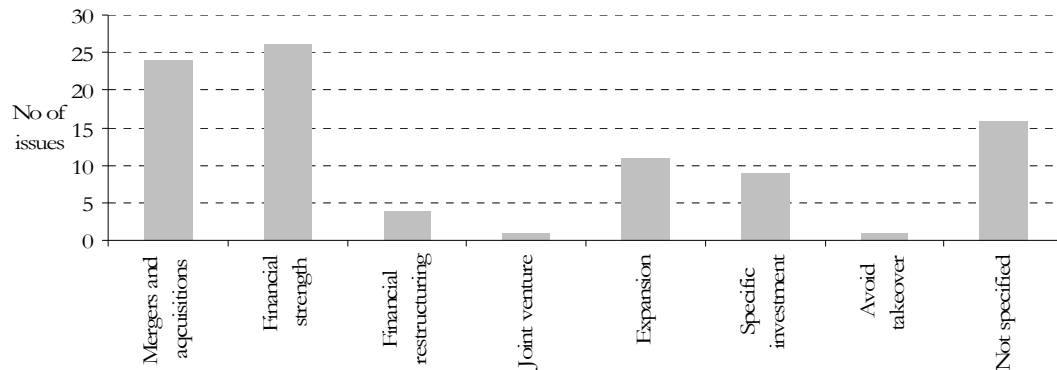
As is evident from the second histogram, the one (1) observation with close to zero forecast is clearly not representative for the sample, which is why we exclude this observation. After this, we observe that the revised sub-sample of 83 observations is still dispersed, but from a statistical point of view we find it questionable to make further exclusions. The remaining “outliers” also do not display extreme operating figures, which is why we only exclude the mentioned observation.



**Figure 1** Histograms for average *AFE* for full sample and two sub-samples (FD=Financial Distress)

#### 4.2.2 Purpose of the Issue

Figure 2 shows that most rights issues with attached forecasts are made with the intent to make M&A's or to improve or maintain their solidity. Many issuers also do not make a specific statement of the main usage of the capital raised in the issue.



**Figure 2** Distribution of rights issues by purpose

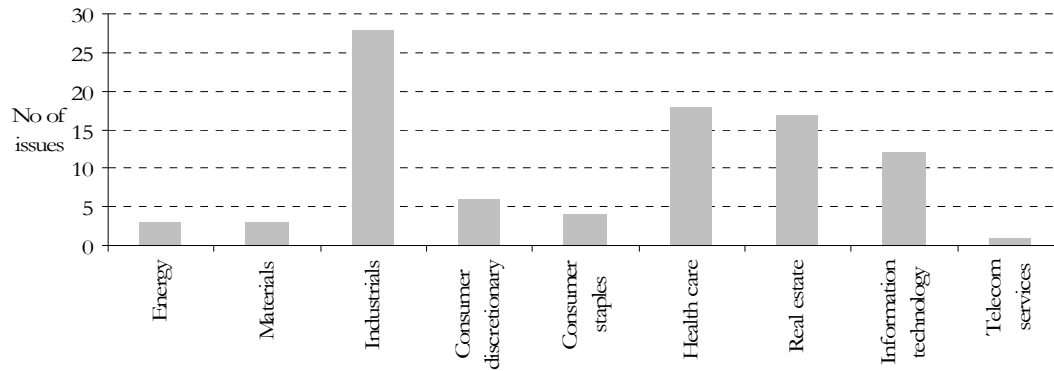
We have chosen to lump together the categories M&A, Joint venture, Expansion and Specific investment to represent those firms that have a specific investment project as the purpose to making the rights issue. The other categories, Financial strength, Avoid takeover and Not specified, represent either vague disclosures of the purpose or a clearly stated intention not to use the proceeds in a specific investment project. From Table 3 we can see that the “specific” categories seem to have significantly lower average *AFE*, which is promising for our analysis.

**Table 3** Distribution of rights issues by purpose

Purpose	Issues	%	Mean FE	Median FE	Mean AFE	Median AFE
M&A	24	26.1	-15.7%	-6.4%	27.9%	11.4%
Solidity/fin. strength	26	28.3	-45.8%	-18.1%	103.1%	48.9%
Fin. restructuring	4	4.3	58.5%	86.9%	120.8%	139.3%
Joint venture	1	1.1	5.2%	5.2%	5.2%	5.2%
Expansion	11	12.0	-8.8%	-9.9%	22.1%	15.%
Specific investment	9	9.8	21.4%	15.6%	36.3%	25.7%
Avoid takeover	1	1.1	-13.1%	-13.1%	13.1%	13.1%
Not specified	16	17.4	-62.3%	-2.8%	90.7%	36.3%
Total	92	100.0	-24.4%	-5.3%	63.8%	26.1%

#### 4.2.3 Industry Classification

Figure 3 below shows that companies classified as Industrials, Health Care, Real estate and Information technology have made particularly many rights issues with attached forecasts during the sample period 1986–2005.



**Figure 3** Distribution of rights issues by industry

From Table 4 it is evident that IT, Real estate, Health care and Industrials are particularly pronounced in terms of forecast accuracy, or *AFE*. Managers of IT and Health care companies on average overstate their performance by about 51%, while managers of Real estate companies on average understate their performance by 28.6%. We find this figure surprising, and it seems not to be highly influenced by outliers. In the regression analysis we use this industry as a control variable.

**Table 4** Distribution of rights issues by industry (2-digit GICS codes)

Industry	Issues	%	Mean FE	Median FE	Mean AFE	Median AFE
10 Energy	3	3.3	8.7%	14.5%	40.6%	47.8%
15 Materials	4	4.3	-0.5%	4.2%	12.4%	11.6%
20 Industrials	28	30.4	-43.6%	-14.2%	63.1%	28.4%
25 Cons. discret.	6	6.5	1.1%	5.6%	13.9%	12.3%
30 Cons. staples	3	3.3	-0.6%	-17.3%	14.6%	17.3%
35 Health care	18	19.6	-51.1%	-12.4%	77.9%	31.7%
40 Real estate	17	18.5	28.6%	19.9%	82.1%	55.9%
45 IT	12	13.0	-51.6%	-29.4%	83.9%	61.8%
50 Telecom	1	1.1	2.1%	2.1%	2.1%	2.1%
Total	92	100.0	-24.4%	-5.3%	63.8%	26.1%

#### 4.2.4 Issues per Firm

From Table 5 we can see that most firms (66 of 77) have made only one rights issue with an attached forecast during our sample period, and that only one company has made four issues, and none above four. The companies with more than one issue are not aggregated into portfolios or considered dependent of one another, since they are made in completely different points in time (cf. Section 5.4.1).

**Table 5** Distribution of rights issues per firm

Iss./firm	Firms	Issues	%	Mean FE	Median FE	Mean AFE	Median AFE
1	66	66	71.7	-24.8%	-5.9%	65.9%	24.9%
2	8	16	17.4	-43.0%	-3.9%	56.5%	19.1%
3	2	6	6.5	-2.3%	-35.9%	81.4%	69.7%
4	1	4	4.3	24.1%	36.1%	31.6%	36.1%
Total	77	92	100.0	-24.4%	-5.3%	63.8%	26.1%

#### 4.2.5 Over Time

In Figure 4 we observe that forecasting/issuance activity seems to have increased over the sample period, especially since the new millennium, which is in line with previous findings (Fritzell and Hansveden, 2006). This increased activity may reflect the fact that there were fewer listed companies in the beginning of our sample period as well as the availability of data, which is more easily accessible closer to present time.

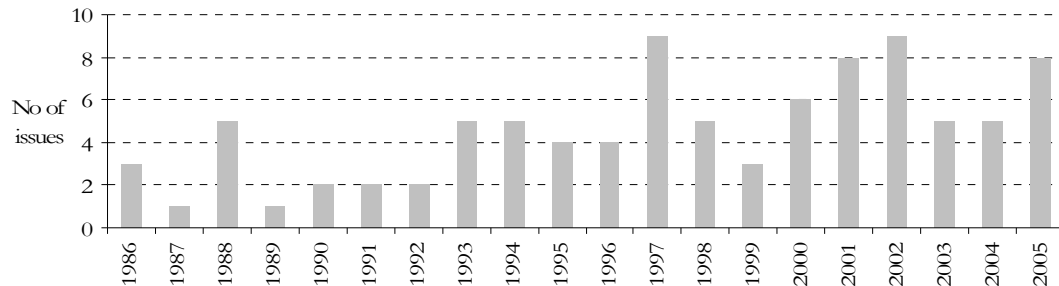
**Figure 4** Distribution of rights issues by year of flotation

Table 6 shows the distribution of rights issues over time for our sample period 1986–2005. We can see that forecasting/issuance activity is particularly high in 1997, 2001,

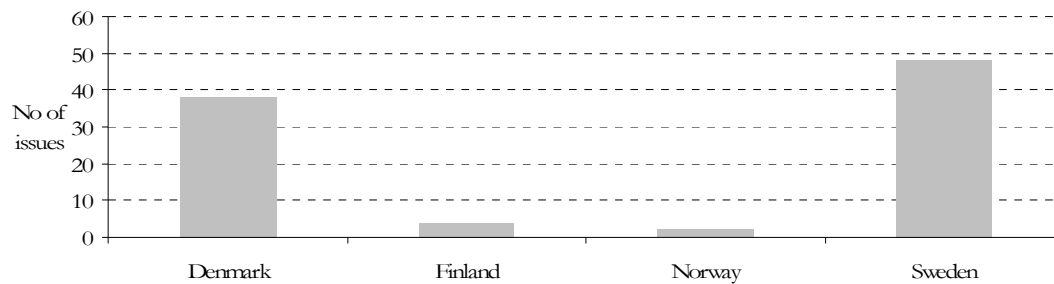
2002 and 2005. These peaks in the level of activity seem to be a result of higher issuance activity, and not higher forecasting activity, since the same pattern is found for the sum of forecasting and non-forecasting companies in other studies made on Nordic markets (Fritzell and Hansveden, 2006). We use these years as a dummy for hot market activity. We also note that the issuance activity as well as volatility in forecast errors, seems to have increased around the beginning of the new millennium.

**Table 6** Distribution of rights issues by year of flotation and activity level classification

Year	Issues	%	Activity Level	Mean FE	Median FE	Mean AFE	Median AFE
1986	3	3.1	Normal	3.6%	15.5%	38.5%	47.7%
1987	1	1.0	Cold	-819.2%	-819.2%	819.2%	819.2%
1988	5	5.2	Normal	-4.4%	3.1%	32.5%	15.5%
1989	1	1.0	Cold	-17.3%	-17.3%	17.3%	17.3%
1990	2	2.1	Cold	3.9%	3.9%	17.0%	17.0%
1991	2	2.1	Cold	-24.8%	-24.8%	25.5%	25.5%
1992	2	2.1	Cold	-33.0%	-33.0%	33.0%	33.0%
1993	5	5.2	Normal	-8.8%	-25.7%	90.7%	40.6%
1994	5	5.2	Normal	-66.1%	64.9%	186.4%	67.7%
1995	4	4.2	Normal	9.8%	-3.6%	26.5%	16.7%
1996	4	4.2	Normal	11.1%	10.8%	38.8%	38.5%
1997	9	9.4	Hot	-12.0%	9.6%	53.2%	55.9%
1998	5	5.2	Normal	5.9%	7.3%	11.1%	8.9%
1999	3	2.1	Normal	6.7%	7.4%	6.7%	7.4%
2000	6	7.3	Normal	-66.6%	-11.2%	67.8%	11.2%
2001	8	8.3	Hot	-34.4%	-12.4%	48.6%	27.4%
2002	9	9.4	Hot	-16.3%	-5.1%	36.4%	36.0%
2003	5	5.2	Normal	-101.2%	-41.1%	101.2%	41.1%
2004	5	5.2	Normal	-6.9%	-5.5%	19.1%	15.2%
2005	8	8.3	Hot	53.0%	12.5%	84.9%	42.0%
Total	92	100		-24.4%	-5.3%	63.8%	26.1%
Average no. of issues			4.6				
Standard deviation			2.5				
Hot period limit			8				
Cold period limit			2				
Obs. in Hot periods			37%				

#### 4.2.6 Across Four Exchanges

As can be seen in Figure 5, the number of issues made in Denmark (CSE) and Sweden (SSE) is higher than in Finland (HSE) and Norway (OSE).



**Figure 5** Distribution of rights issues by market

Table 7 shows that forecast accuracy and bias is somewhat worse in Sweden than in the other countries. Telling from the difference between means and medians, this effect seems to be driven by outliers. Our assumption is that the four stock markets are equal in terms of forecasting activity, and from the general *FE* or *AFE* patterns we can see no significant differences between the four stock exchanges.

**Table 7** Distribution of rights issues by market

Market	Issues	%	Mean FE	Median FE	Mean AFE	Median AFE
Denmark	38	41.3	-17.2%	-5.3%	43.7%	16.7%
Finland	4	4.3	-1.7%	2.6%	5.9%	2.6%
Norway	2	2.2	14.6%	14.6%	33.1%	33.1%
Sweden	48	52.2	-33.6%	-7.6%	85.8%	40.9%
Total	92	100.0	-24.4%	-5.3%	63.8%	26.1%

## 5 Results and Analysis

The preceding sample overview indicates overoptimism in forecasts, slightly positive announcement returns for forecasting firms and a connection between specific investment purposes and accurate forecasts. Also, there seems to be a shift in the economy after the year 2000 and no major differences in forecast quality across the four exchanges in our study. Specific years had larger issuance activity and real estate investment companies seem to deviate from the overall forecast quality pattern. In the following sections we analyze and make more formal tests of the hypotheses introduced in Section 3.

### 5.1 The Effects of Forecasting

This section evaluates the short run effects of forecasting at the announcement of the rights issue, the effects on stock demand, the mid-term performance of the forecasting companies, and market timing.

#### 5.1.1 Announcement Effects

We predicted forecasting firms to get better announcement returns than non-forecasters. Table 8 shows that the firms included in our sample have slightly positive announcement returns on average, and about 3½ percent better returns than in Fritzell and Hansveden (2006), who use a sample of both forecasting and non-forecasting firms for the same sample period as we do. The shorter sample periods, but otherwise comparable samples, of Cronqvist and Nilsson (2005), and Molin (1996), show similar differences. These results speak in favour of our hypothesis. To develop the hypothesis further we use the *Purpose* dummy as a proxy for firms that have managed to reduce information asymmetries. A simple regression between the announcement return and *Purpose* demonstrates that these firms get about 2% better announcement returns than the rest of our sample. The same difference shows up for different event windows and both with and without firms in financial distress. However, the difference is weakly statistically significant. In the Appendix, Table A-2, we show a regression between the announcement returns and forecast quality. However, due to confounding information and the short run feature of earnings forecasts, these are not entirely comparable with the market reaction at the announcement of the rights issue. As expected, the correlations are insignificant, but the

signs of the coefficients are consistent with the theory that more accurate forecasts (low *AFE*) and companies that outperform their forecasts (positive *FE*) get more positive reactions in the short run.

**Table 8** Comparison of announcement returns with previous findings

Study	Market	Ev. Win.	CAR (full sample)	CAR (excl. fin. dist)
Fritzell and Hansveden (2006)	Sweden	[0]	-2.20%	-
Fritzell and Hansveden (2006)	Sweden	[-1, 1]	-2.76%	-
Cronqvist and Nilsson (2003)	Sweden	[-1, 1]	0.37%	-0.46%
Molin (1996)	Sweden	[0]	-0.42%	-
Molin (1996)	Sweden	[-1, 1]	-0.89%	-
Our study	Nordic	[0]	0.09%	0.28%
Our study	Nordic	[-1, 1]	0.78%	0.81%
Our study	Sweden	[0]	0.99%	1.22%
Our study	Sweden	[-1, 1]	1.19%	1.02%

### 5.1.2 Demand Effects

We predicted forecasting firms to get lower underpricing than non-forecasters. In their recent study, Fritzell and Hansveden (2006) find that Swedish rights issues are on average underpriced by 40.9% during our sample period 1986–2005. Their study includes all rights issues, while we only analyze those that also have management forecasts. The average underpricing in our sample is 25.3% for the full sample and 31.9% for Swedish firms, which indicates that forecasting firms may gain from lower costs of capital. We also find a significant positive correlation between underpricing and forecast error for firms that are not in financial distress, which implies that the managers of the companies with the least underpriced issues are the most optimistic ex-ante. Our interpretation is that there are short run benefits from disclosing overly positive forecasts since it can lower the cost of capital. Since the firms in our sample are on average overpositive and since this is correlated with underpricing, we compute a *FE*-adjusted discount. After controlling for this effect the average discount is only slightly higher, 26.6% (33.7%) for the full sample (for Sweden).

### 5.1.3 Mid-term Performance

In order to see if companies with good forecast quality perform better we run simple regressions between the +100 day CAR and our forecast quality measures, *FE* and *AFE*. The *FE* regression shows a positive relationship, implying that companies outperforming their forecasted targets are likely to perform well in the mid-term. However, this specification is not statistically significant (p-value: 0.166). When running the same regression for companies not in financial distress the significance drops slightly, but the beta coefficient increases.

The *AFE* regression shows a negative relationship, implying that companies getting closer to their forecasts perform better in the stock market. This specification is significant at the 10% level (p-value: 0.0975). However, when firms in financial distress are excluded, the coefficient becomes insignificantly different from zero, which implies that the result was driven by firms in financial distress.

Our findings suggest that the long-run performance subsequent to a rights issue might be positively related to forecast quality. Our results in the mid-term (100 days) are statistically weak, but we believe that a future study will prove a long-run effect over 1–5 years to be significant.

#### 5.1.4 Market Timing

The market timing hypothesis of equity offerings is well established. We analyze whether this phenomenon also exists in our sample. We calculate cumulative abnormal returns for the 100 day pre-issue and the 100 day post-issue windows to estimate this effect. The difference in performance before and after the issue, as shown in Table 9, displays market timing. However, the effect is only relative and does not seem to hurt investors, since our companies perform in line with the market even after the announcement. The increase in stock price volatility for all sub-samples also speaks in favour of the market timing hypothesis. We also find that firms in financial distress and firms with specific investment projects perform poorly over the 100 day post-issue window. Especially the latter of these two is surprising since the firms with specific investment purposes had more positive price effects around the announcement and were predicted not to exploit favourable market conditions to the same extent, which this finding contradicts. We believe that confounding information explains this effect, since the different investment projects are likely to catch more attention from the investors than the equity issue.

**Table 9** Average CAR's and standard deviations for 100 day pre- and post-issue event windows

Sample	Pre-Issue [-100, 0] [%]		Post-Issue [0, 100] [%]	
	CAR	Std. dev.	CAR	Std. dev.
Full sample	3.30	4.06	-0.65	7.03
Only firms in financial distress	-24.84	7.70	-26.26	13.34
Excl. firms in financial distress	6.45	3.51	2.58	6.08
Only firms with specific investment	2.62	2.54	-4.22	4.40
Excl. firms in fin. dist. & with spec. inv.	10.53	4.33	9.05	7.51

## 5.2 Linear Regression Model

Investors want to listen to managers who produce good forecasts and avoid “cheap talkers”. In the following sections we run several ordinary least squares regressions in which our measures of forecast quality, forecast error ( $FE$ ) and absolute forecast error ( $AFE$ ), are explained by the variables that we presented in the hypothesis section. Significant coefficients of explanatory variables against  $FE$  ( $AFE$ ) indicate that they have explanatory power for the bias (accuracy) of management forecasts. A variable that picks up bias effects will indicate the optimism level of the management. Thus, if managers that are ex-ante thought to be reliable and transparent, as measured by *Purpose* and *Ownership*, are found to be less positively biased (have higher  $FE$ ), our interpretation is that less reliable and transparent managers are successful in putting their incentives to “cheap talk” into action. Lack of correlation implies that managers’ freedom of action is narrow regarding uninformative and “hyped” forecasts. A significant correlation with  $AFE$  implies that our explanatory variables measure the managers’ skills to produce reliable forecasts. The control variables that we introduced after our hypotheses are thought to account for the volatility induced by firm and issue specific characteristics. Table 10 summarizes the included variables, their expected effect and the rationale.

**Table 10** Review of hypotheses and control variables: expected signs of correlations with forecast quality

Variable	Code	FE	AFE	Description
Purpose	<i>PUR</i>	+	–	Firms with specific investment projects make better forecasts
Ownership	<i>OWN</i>	+	–	Medium sized owners make better forecasts
Family	<i>FAM</i>	–	+	Family firms make worse forecasts
Firm size	<i>CAP</i>	+	–	Larger firms make better forecasts
Market-to-book	<i>MTB</i>	–	+	Growth companies make worse forecasts
Real estate	<i>REE</i>	+/-	-/+	Real estate firms make better forecasts (but not in crisis)
Issue size	<i>SIS</i>	+	–	Firms with larger issues make better forecasts
Discount	<i>DIS</i>	+	–	Firms with cheap issues make better forecasts
Hot market	<i>HOT</i>	–	+	Firms issuing in years 97, 01, 02, 05 make worse forecasts
Millennium	<i>MIL</i>	+	+	Firms issuing in 2000–05 make worse (but unbiased) forecasts

### 5.2.1 Correlation Analysis

We begin our analysis by looking at the simple correlations, as presented in Table 11, between our forecast quality measures, *FE* and *AFE*, and the explanatory and control variables. Our explanatory variables, *Purpose* and *Ownership*, are of the expected sign and significant, with and without firms in financial distress (and one outlier). The *Family* correlation is insignificant. When excluding companies in financial distress and one outlier, we see that the fraction placed (*FRA*) becomes insignificantly different from zero, according to our presumption. We can also note that the correlation between financially distressed firms (*FDS*) and forecast quality is highly significant, which implies that these firms make notably worse forecasts than the rest. However, to be able to generalize our findings we will only analyze “healthy” companies in our regressions, i.e. we will use the sub-sample of 83 firms that are not in financial distress at the time of the rights issue and excluding one unrepresentative outlier. We also note that the *market-to-book* does not show the expected sign and seems to be uncorrelated with *FE* and *AFE*, contrary to our expectation.

**Table 11** Correlations between dependent and independent variables (1-tailed)

	Full sample			Excl. FDS & outlier			Expected Sign		Significance	
	N	FE	AFE	N	FE	AFE	FE	AFE	FE	AFE
PUR	92	0.15*	-0.30***	83	0.07	-0.28***	Yes	Yes	Low	High
OWN	48	0.11	-0.27**	42	0.01	-0.24*	Yes	Yes	No	Good
FAM	48	-0.16	0.17	42	0.15	-0.11	Mixed	Mixed	No	No
CAP	92	0.20**	-0.22**	83	0.22**	-0.19**	Yes	Yes	Good	Good
MTB	92	0.08	-0.07	83	0.12	-0.05	No	No	No	No
REE	92	0.19**	0.07	83	0.12	0.20**	Yes	No	Mixed	Mixed
SIS	92	0.16*	-0.17*	83	0.23**	-0.23**	Yes	Yes	Good	Good
DIS	92	0.03	0.12	83	0.31***	-0.08	Yes	Mixed	Good	No
HOT	92	0.12	-0.06	83	0.12	0.10	No	Mixed	No	No
MIL	92	0.01	-0.04	83	-0.10	0.16*	Mixed	Mixed	No	No
Y93	92	0.02	0.04	83	-0.18*	0.10	Mixed	Yes	Mixed	No
FDS	92	-0.23**	0.40***	–	–	–	Yes	Yes	Good	High
FRA	92	-0.16*	0.25***	83	0.00	-0.02	Yes	Mixed	No	High

\*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% levels, respectively.

### 5.2.2 Multicollinearity

Before estimating regression models it is vital to address the issue of multicollinearity between independent variables as this might give spurious results. The best way to deal with this issue is to run variables that are highly correlated in separate regressions. The



cross correlations in Table 12 show us that some of the firm characteristics and issue characteristics are correlated with each other. For example, larger companies (*CAP*) are likely to make larger issues (*SIS*). Also, as mentioned earlier, the potential shift in economy that happened after the year 2000 (as measured by *MIL*) is associated with more equity issuance activity, which is what the *HOT* variable measures. We choose to run firm characteristics plus the *Millennium*-dummy and issue characteristics separately, as well as together. We run all regressions with and without our explanatory variables *Purpose* on the one hand and *Ownership* and *Family* on the other, to see whether these are more close to explaining the variability in forecast quality than the control variables.

**Table 12** Cross correlations of independent variables (1-tailed)

	PUR	OWN	FAM	CAP	MTB	REE	SIS	DIS	HOT	MIL	Y93	FDS	FRA
PUR	1	-0.15	<u>0.21</u>	<u>0.39</u>	-0.01	-0.07	<u>0.27</u>	<u>-0.15</u>	0.02	-0.00	<u>-0.17</u>	<u>-0.24</u>	<u>-0.33</u>
OWN	-0.15	1	<u>-0.33</u>	0.11	-0.07	0.01	0.18	-0.17	0.15	0.18	-0.05	<u>-0.30</u>	-0.02
FAM	<u>0.21</u>	<u>-0.33</u>	1	0.09	-0.09	-0.15	0.04	<u>0.20</u>	-0.04	-0.23	-0.16	0.04	-0.00
CAP	<u>0.39</u>	0.11	0.09	1	0.10	-0.13	<u>0.83</u>	0.10	-0.06	0.04	<u>-0.18</u>	<u>-0.31</u>	<u>-0.54</u>
MTB	-0.01	-0.07	-0.09	0.10	1	<u>-0.15</u>	-0.00	<u>0.20</u>	0.12	<u>0.19</u>	-0.09	-0.09	-0.09
REE	-0.07	0.01	-0.15	-0.13	<u>-0.15</u>	1	-0.03	0.11	-0.07	<u>-0.31</u>	<u>0.44</u>	<u>0.14</u>	<u>0.18</u>
SIS	<u>0.27</u>	0.18	0.04	<u>0.83</u>	-0.00	-0.03	1	<u>0.15</u>	-0.11	0.02	-0.08	0.01	-0.04
DIS	<u>-0.15</u>	-0.17	<u>0.20</u>	0.10	<u>0.20</u>	0.11	<u>0.15</u>	1	<u>-0.17</u>	<u>-0.18</u>	0.05	<u>0.20</u>	<u>0.27</u>
HOT	0.02	0.15	-0.04	-0.06	0.12	-0.07	-0.11	<u>-0.17</u>	1	<u>0.45</u>	<u>-0.20</u>	<u>-0.17</u>	-0.09
MIL	-0.00	0.18	-0.23	0.04	<u>0.19</u>	<u>-0.31</u>	0.02	<u>-0.18</u>	<u>0.45</u>	1	<u>-0.24</u>	-0.06	-0.07
Y93	<u>-0.17</u>	-0.05	-0.16	<u>-0.18</u>	-0.09	<u>0.44</u>	-0.08	0.05	<u>-0.20</u>	<u>-0.24</u>	1	<u>0.22</u>	<u>0.20</u>
FDS	<u>-0.24</u>	<u>-0.30</u>	0.04	<u>-0.31</u>	-0.09	<u>0.14</u>	0.01	<u>0.20</u>	<u>-0.17</u>	-0.06	<u>0.22</u>	1	<u>0.69</u>
FRA	<u>-0.33</u>	-0.02	-0.00	<u>-0.54</u>	-0.09	<u>0.18</u>	-0.04	<u>0.27</u>	-0.09	-0.07	<u>0.20</u>	<u>0.69</u>	1

... ,    and    denote significance at the 10%, 5% and 1% levels, respectively.

As already mentioned, we have decided to exclude firms in financial distress from our regressions as these firms show completely different characteristics compared to the rest of the firms in our sample. Looking at the correlation between *Financial Distress* and *Fraction placed* it is evident that companies in financial distress place larger fractions, as expected. The correlation coefficient between *Fraction Placed* and *Discount* tells us that equity issues where larger fractions are placed also use higher discounts in order to meet investor demand. The significantly positive correlation between *Market-to-book* and *Discount* also makes economic sense, since growth companies are likely to have incentives to attract investors through cheaper issues. We also see that real estate firms are more likely to be in financial distress, which may drive the results of this variable. We also included the year 1993 (*Y93*) to capture the effect of the many equity issues made by real estate companies during the financial crisis, an effect which shows up in the correlation with *REE*.

### 5.2.3 Forecast Bias (*FE*)

This section introduces our first regressions to explain the variability in forecast error (*FE*). To address multicollinearity issues we run a simple regression with the *Purpose* variable, then run it with and without control variables for firm characteristics, with and without control variables for issue characteristics and finally with all variables. The results are presented in Table 13. We make the same procedure for *Ownership* and *Family* as explanatory variables in Table 14. In the next section we present similar regressions with absolute forecast error (*AFE*) as dependent variable, after which we wrap up the results presentation with a comparison between *FE* and *AFE* and the explanatory power of our variables.

**Table 13** Regressions with *FE* as dependent variable (83 observations)

Variable	1	2	3	4	5	6
CONSTANT	-0.17	-0.82**	-0.82**	-1.03***	-1.04***	-1.08***
PUR	0.12		-0.03		0.09	0.03
LN CAP		0.10*	0.10*			-0.01
MTB		0.03	0.03			0.03
REE		0.29	0.29			0.19
LN SIS				0.11*	0.10	0.12
DIS				1.00***	1.03***	0.85**
HOT				0.29*	0.28*	0.42**
MIL		-0.16	-0.17			-0.31
F-value	0.433	1.873	1.485	4.934***	3.727***	2.377**
R <sup>2</sup>	0.005	0.088	0.088	0.158	0.160	0.204
SE of the estimate	0.799	0.780	0.785	0.744	0.748	0.748

\*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% levels, respectively.

From Table 13 it is evident that the purpose being a specific investment project does not have much explanatory power for the bias of management forecasts. Hence, we cannot reject the hypothesis that managers who report specific purposes for their equity issue do not make as optimistic forecasts as other companies. The signs of the coefficients are in line with the theory, except for the case when *CAP* is introduced and *PUR* changes sign, which is most likely because of multicollinearity. It seems that the *Discount* picks up some of the effect. The coefficient tells us that issues with 1% more discount are associated with 1% less optimistic forecasts. Regression 4 has the largest overall significance level. None of the specifications have much explanatory power, as measured by R-square. The regressions also confirm the hypothesis that larger firms, with larger issues, make less optimistic forecasts. It also seems that hot issue times are associated with less optimistic forecasts, which contradicts our expectation. This might be due to multicollinearity between *Discount* and *Hot markets*.

**Table 14** Regressions with *FE* as dependent variable (42 observations)

Variable	1	2	3	4	5	6
CONSTANT	-0.24	-1.63***	-1.75***	-1.42**	-1.45**	-1.76***
OWN	0.13		0.04		0.05	0.09
FAM	0.44		0.48		0.32	0.48
LN CAP		0.21***	0.19**			0.10
MTB		-0.02	-0.01			-0.00
REE		0.44	0.56			0.55
LN SIS				0.15	0.14	0.02
DIS				1.27	1.24	1.23
HOT				0.39	0.40	0.34
MIL		0.22	0.34			0.27
F-value	0.533	2.246*	1.680	3.416**	2.113*	1.418
R <sup>2</sup>	0.027	0.195	0.224	0.212	0.227	0.285
SE of the estimate	0.894	0.835	0.843	0.815	0.830	0.846

\*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% levels, respectively.

Table 14 demonstrates similar results for ownership. The *Ownership* variable is of the expected sign, but insignificantly different from zero, so we cannot reject the hypothesis that firms with medium sized largest owners do not make as optimistic forecasts as other firms. For *Family firms*, for which the incentives to “cheap talk” were hypothesized to be

extra high, we found no support for the hypothesis of more optimistic forecasts. Again, we confirm the hypothesis that larger firms make less optimistic forecasts. The other control variables have signs consistent with the previous regressions, but the significance drops, partly since the ownership data is only for about half of the sample.

#### 5.2.4 Forecast Accuracy (*AFE*)

In Tables 15 and 16 we find that *PUR* and *OWN* are highly significant against *AFE*, with the expected sign, i.e. that firms covered by these variables produce more accurate forecasts on average. The negative, and insignificant, sign on *FAM* indicates that family firms seem to produce more accurate forecasts, which contradicts our prediction. Among the control variables, *CAP* and *SIS* are consistent with previous regressions. Interestingly, their significance disappears once *PUR* is introduced, which implies that size variables pick up indirect purpose effects that are accounted for through *PUR*. To our knowledge, this is the first study to illustrate this point. The *PUR* variable is robust through all specifications. Important control variables appear to be *REE* and *MIL*. They are significant with positive coefficients, which implies that real estate investment companies and companies that have issued capital after year 2000 tend to produce less accurate forecasts. The sign of *REE* matches our crisis hypothesis (see Section 3.4.3).

**Table 15** Regressions with *AFE* as dependent variable (83 observations)

Variable	1	2	3	4	5	6
CONSTANT	0.66***	0.71**	0.68**	0.96***	0.99***	0.73**
PUR	-0.38***		-0.31**		-0.34**	-0.34**
LN CAP		-0.07*	-0.04			0.10
MTB		-0.00	0.00			-0.00
REE		0.44**	0.43**			0.47**
LN SIS				-0.10**	-0.07	-0.17
DIS				-0.10	-0.20	-0.21
HOT				0.09	0.10	-0.02
MIL		0.31**	0.29**			0.30*
F-value	7.133***	2.707**	3.158**	1.663	2.595**	2.381**
R <sup>2</sup>	0.081	0.122	0.164	0.059	0.113	0.205
SE of the estimate	0.639	0.636	0.611	0.654	0.625	0.622

\*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% levels, respectively.

**Table 16** Regressions with *AFE* as dependent variable (42 observations)

Variable	1	2	3	4	5	6
CONSTANT	0.81***	0.46	0.64	0.88*	0.91**	0.56
OWN	-0.46**		-0.54**		-0.51**	-0.61**
FAM	-0.46		-0.34		-0.44	-0.35
LN CAP		-0.03	-0.01			-0.04
MTB		-0.03	-0.04			-0.04
REE		0.58**	0.56**			0.55*
LN SIS				-0.04	0.03	0.10
DIS				-0.54	-0.83	-0.57
HOT				0.10	0.08	-0.10
MIL		0.40	0.43*			0.42
F-value	2.291	1.830	2.338*	0.630	1.353	1.576
R <sup>2</sup>	0.105	0.165	0.286	0.047	0.158	0.307
SE of the estimate	0.684	0.678	0.645	0.715	0.691	0.665

\*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% levels, respectively.

### 5.2.5 Comparison

Comparing the *FE* and *AFE* regressions gives a clear message. As can be seen in Table 17, our ex-ante measures of transparent managers, i.e. those with specific disclosures of their investment purposes (*PUR*) under effective ownership structures (*OWN*), show positive, but insignificant, association with forecast bias (*FE* specifications 1–3) and highly significant negative association with forecast accuracy (*AFE* specifications 4–6). The results confirm our hypotheses. In a world where incentives to “cheap talk” are narrowed to a minimum it is quite difficult to capture such effects. Our explanatory variables proved to have weak explanatory power in this respect. Our interpretation is that skillful managers are better both at seeing the future and exploiting the few good opportunities to show only the good side of their business, either through “cheap talking” or “slanting”. Thus, the lion part of the information content of management forecasts lies in managers’ abilities to predict the future outcome of the firm’s profits, skills which turns out to be highly correlated with *Purpose* and *Ownership*.

**Table 17** Regressions with *FE* (specifications 1–3) and *AFE* (specifications 4–6) as dependent variable

Variable	1	2	3	4	5	6
CONSTANT	-0.44	-0.43	-0.32	0.52	0.66***	0.90***
PUR	0.18	0.19	0.17	-0.41**	-0.45**	-0.50**
OWN	0.04	0.04	0.05	-0.56***	-0.53**	-0.50**
MTB	0.01			-0.03		
REE	0.43	0.42	0.32	0.61**	0.65**	0.45**
MIL	0.15	0.17		0.42*	0.36	
F-value	0.328	0.411	0.475	3.666***	4.165***	4.512***
R <sup>2</sup>	0.044	0.043	0.036	0.337	0.310	0.263
SE of the estimate	0.923	0.911	0.902	0.613	0.617	0.629

\*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% levels, respectively.

## 5.4 Additional Robustness Checks

Besides accounting for multicollinearity in the explanatory variables by running our regressions with different specifications, we need to make an additional robustness check.

### 5.4.1 Clustering

An underlying assumption when aggregating abnormal returns in our event study is that the event windows of the included stocks do not overlap in calendar time, i.e. that their covariances are zero (MacKinlay, 1997). However, none of the securities in our sample are on the same date. Only a few of the 92 event windows overlap when we use event windows of 3–7 days, as can be seen from Table 18. Accommodating this problem by aggregating these securities into portfolios, as suggested by Bernard (1987), does not affect our results significantly.

**Table 18** Number of overlapping event windows

Event Window	Overlapping Events	Fraction [%]	Significant Effect
Event day	0	0.0	No
-1, 1	5	5.4	No
-3, 3	6	6.5	No
-5, 5	14	15.2	No
-7, 7	17	18.5	No

## 6 Conclusion

Management forecasts of future operating performance seem to be beneficial for Nordic companies in connection with rights issues. The forecasted performance is on average overestimated by 24.4% in our sample. This positive bias seems to be passed on to the investors. Firstly, while negative abnormal announcement returns are found for stock issuing companies in general, we find about 3½ percent larger and positive abnormal announcement returns for companies disclosing forecasts in connection with their issue. Secondly, the rights issues in our sample are on average underpriced by 25.3%, but compared to all companies, they are about 5-10% less underpriced. Thirdly, forecasting companies have significantly positive abnormal stock returns in the 100 day pre-issue window, but negative (and more volatile) abnormal stock returns in the 100 day post-issue window.

Our conclusion is that there are strong incentives for managers to intentionally display an overly positive picture of their business through overoptimistic forecasts as this is expected to boost demand in the short run. However, legal boundaries for investor communication, in particular restrictive listing regulations, as well as reputation concerns and disappointments in connection with imminent profit warnings, discourage such actions.

We find no direct support for systematic deception by managers for certain types of issues. The only statistically and economically significant explanatory factor for forecast bias in our regression models is firm size. Smaller firms produce more optimistically biased forecasts, which we interpret as them not having the same resources and incentives as large firms to produce reliable forecasts.

However, we find strong statistical support for the hypothesis that the managers that ex-ante have the highest incentives to work for value maximization are those that produce the most accurate forecasts. We introduce two previously unexplored variables, depicting the *purpose* of the issue at hand and the *ownership* structure of the firm, that turn out to capture the effect from other variables, such as firm size. The purpose variable shows that companies who clearly state that they will use the capital from the rights issue in a specific investment project, produce significantly more accurate forecasts. The ownership variable shows that companies where the pivotal owner holds a medium sized stake, in the 5–25% range, of the voting rights also produce significantly more accurate forecasts. The findings are robust across all regressions, using different control variables. We also test whether family firms produce less accurate forecasts, but find no support for this.

Thus, the information content of explicit management forecasts disclosed in connection with Nordic rights issues depends mainly on the managers' skills to foresee an increasingly uncertain future and not on intentional deception.

### 6.1 Suggestions for Further Research

The nature of management forecasts in the Nordic market raises a few issues that have to be left for future studies to uncover. To find out whether managers live up to their

words in a longer perspective and not just through short run measures like earnings management, a relatively longer forecast horizon would be required. Data that would allow for an implied valuation based on the managers' forecasts of for example cash flows would give an opportunity to better understand the relationship between forecast quality and market valuation, and thus how much investors discount managers' words in the long run. Such data might become available in the future, either in connection with seasoned equity offerings or other significant events like mergers and acquisitions. Another possibility would be to weigh long-term earnings forecasts (if they become available) against abnormal effects at a number of earnings announcements subsequent to the event at hand. At first glance, such an analysis for our observations seems promising.

Some news wire databases can also be used to distinguish whether a manager is known for being overconfident, as applied by Malmendier and Tate (2006), and see if the market reacts differently to their forecasts.

The firms that were run by a family in our study were only seven. However, case studies of these firms or a quantitative analysis with a larger data sample could give further insights on the forecast quality of these companies. Differentiating between founder and non-founder family firms, as suggested by Villalonga and Amit (2005), is one interesting possibility.

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## Appendix

**Table A-1** Definition of variables

Code	Variable	Description
FE	Forecast error	The percentage deviation of actual (realized) performance from the forecasted performance for firm $i$ in year $t$ , adjusted for the forecast horizon in days: $[(AP_{i,t} - FP_{i,t}) /  FP_{i,t} ] * (365 / FH_{i,t})$
AFE	Absolute forecast error	The absolute value of the percentage deviation of actual performance from the forecasted performance for firm $i$ in year $t$ , adjusted for the forecast horizon in days: $ (\mathcal{A}P_{i,t} - FP_{i,t}) / FP_{i,t}  * (365 / FH_{i,t})$
PUR	Issue purpose	A dummy variable that takes the value 1 if the stated purpose of the equity issue is either a merger, acquisition, joint venture, expansion or a specific investment.
OWN	Ownership structure	A dummy variable that takes the value 1 for companies where the firm's largest owner holds 5–25% of the voting rights.
FAM	Family firm	A dummy variable that takes the value 1 if a family has more voting rights than other investors with more than 5% have together.
LN CAP	Firm size	The natural logarithm of market capitalization on the day before the rights issue, measured in SEK.
MTB	Market-to-book	The weighted average of beginning of the year and end of the year ratios of the market value of outstanding equity and book value of equity, depending on the month in which the equity is issued: $[(12-m)/12] * MTB_{-1} + (m/12) * MTB_{+1}$
REE	Real estate	A dummy variable that takes the value 1 if the equity issue is made by a real estate company (GICS code 4040).
LN SIS	Issue size	The natural logarithm of the capital raised, measured in SEK.
DIS	Discount	The percentage discount of the newly issued shares compared to the market price of the old shares at the offering day: $(P_0 - P_{offering}) / P_0$
HOT	Hot markets	A dummy variable that takes the value 1 if the equity issue is made in a year when the issue market is hot, i.e. when the number of equity issues exceeds the sample mean by at least one standard deviation.
MIL	Millennium	A dummy variable that takes the value 1 for equity issues made in the years 2000–2005.
Y93	Year 1993	A dummy variable that takes the value 1 for equity issues made in the year 1993.
FDS	Financial distress	A dummy variable that takes the value 1 if the company making the equity issue is in financial distress.
FRA	Fraction placed	The number of shares issued compared to the total number of shares after the equity issue: $(N_{+t} - N_{-t}) / N_{+t}$

**Table A-2** Correlations between with  $CAR$  and  $(\mathcal{A})FE$

	Full sample (92 observations)				Excl. FDS & outlier (83 observations)			
	CAR [0]		CAR[-1, 1]		CAR[0]		CAR[-1, 1]	
FE	0.0023		0.0082		0.0030		0.0082	
AFE	-0.0020		0.0046		-0.0031		-0.0082	
F-value	0.1390	0.0865	0.7420	0.1855	0.1248	0.1016	0.5491	0.4218
P-value	0.7102	0.7693	0.3913	0.6677	0.7248	0.7507	0.4608	0.5179
R <sup>2</sup>	0.0015	0.0010	0.0082	0.0021	0.0015	0.0012	0.0067	0.0051
SE of the estimate	0.0061	0.0068	0.0096	0.0107	0.0085	0.0097	0.0111	0.0126