The information content of note disclosures and MD&A information in the financial report

Frank Thinggaard, Carsten Sønderby Jeppesen & Kasper Madsen

The preparation of disclosures in the financial report constitutes a significant cost to most companies, but do the disclosures have information content to investors? This paper examines stock market reactions to the release of note disclosures and MD&A (management discussion and analysis) information. The study is based on data from the Danish capital market in 2006-2009 because here it is largely possible to isolate the release of such information from other information in the financial report. The primary results suggest that for some companies, note disclosures and information in the MD&A section are considered highly value-relevant by investors. However, for the majority of companies, investors do not immediately revise their expectations based on the disclosures. The response seems to depend on company specific factors.

1. Introduction

Over recent decades, regulators have continuously increased the disclosure requirements related to annual reports and accounts. As a consequence companies spend large amounts every year on preparing notes and other disclosures to the financial reports and on having the information audited or reviewed. Despite the importance that legislators apparently attach to this information many Danish listed companies did not include notes and MD&A (management discussion and analysis) information in their earnings announcements. This indicates that they did not consider these disclosures to be value-relevant news to the market. It thus appears that regulators and preparers have different perceptions of the importance and/or role of notes and MD&A disclosures in the financial report. The question about usefulness should, however, ultimately be answered by the users of the financial reports.

Our paper contributes to the literature about the (value) relevance of the numerous disclosures in the financial report by (1) providing a direct test of whether investors actually use the collective information in the notes and the information in the MD&A
section at the time of its release and by (2) analysing factors that potentially could influence the usefulness of such information. That is we examine whether the disclosure information in the financial report is able to change the total mix of information in the market place so that investors revise their expectations to a company (J. Francis & Schipper, 1999). Therefore our research aims to answer the question: Do the disclosures have immediate information content - are they value-relevant news to the capital market? Even though information in the financial reports serves purposes other than acting as inputs to equity valuation answers to these questions are still important weights in the balancing of benefits against the costs of disclosure.

We base our study on data from the Danish capital market in 2006-2009 because the setting allows us to largely isolate the release of information in the notes and MD&A from other information in the financial report. Results from Denmark are interesting to other countries. First of all Danish companies follow EU endorsed IFRS standards in their financial statements and the MD&A information is based on requirements in EU accounting directives. This means that the disclosures are similar to those required in many other European countries. To our knowledge no prior study has specifically investigated the information content of the disclosure information required by the IASB and the EU and been able to isolate the release of this information from other information in the financial report. Secondly, despite the fact that the Danish capital market is small, it seems very comparable to the markets of other developed countries in terms of structural factors in the financial reporting environment (DeFond, Hung, & Trezevant, 2007), and in terms of market development (Frost, Gordon, & Hayes, 2006). Moreover, previous studies have concluded that the Danish capital market reacts relatively fast and with precision when quarterly and semi-annual financial reports are released and hence can be considered an efficient capital market (e.g. Bechmann, Raaballe, & Raahauge, 2005). This increases our confidence that the results are transferable to other countries.

Our sample is selected from the full population of 532 annual financial report announcements in 2006-2009 from non-financial companies listed on the Copenhagen Stock Exchange. However, due to various restrictions on the announcements, the sample is reduced to 97 announcements. This underlines that the results are from a small capital market.

We perform two kinds of analyses in the paper to reach a conclusion about the question of information content. First we look at earnings announcements and compare stock market reactions to announcements with and without (full) note disclosures and MD&A information. If the information is value-relevant (and the stock market is efficient) then we expect the stock market to react differently to earnings announce-
ments that contain the broader information set. This analysis indirectly answers the question about information content associated with the additional information. The results indicate that disclosures in the financial report have information content as stock market reactions to earnings announcements seem to be influenced by the inclusion or omission of all note and MD&A information. Our second and primary analysis is a more direct test of the information content associated with note disclosures and MD&A information. Here we analyse market reactions specifically related to the release of the note and MD&A information. The results suggest that for some companies, note disclosures and information in the MD&A section are considered highly value-relevant by investors. However, for the majority of companies, investors do not immediately revise their expectations based on the disclosures. We tried to identify the factors that are associated with the way in which investors respond to the announcement of the additional disclosure information in the full report. However, we were unable to identify any robust factors generally associated with the market reaction, which suggests that the way investors respond to the note and MD&A disclosures depends on company or context specific factors.

The remainder of the study proceeds as follows: The next section contains a literature review. ‘Earnings announcements on the Copenhagen Stock Exchange’ explains the regulation of the content of earnings announcements in our sample period. The following two sections describe the sample and the research design, respectively. The results section contains two parts. The first part briefly presents the results of a test of annual earnings announcements as a foundation for the main analysis of the paper of the market reaction to the release of the disclosure information, which is presented in the second part. The last section ‘Summary and conclusions’ summarizes our findings and concludes the analysis.

2. Literature review
If information in the notes and MD&A is useful and important to analysts and investors, then we should expect to find a statistical association between the disclosed information and market prices or returns. Previous value relevance research in the disclosure area is mainly based on studies of associations between specific pieces of information in the notes and share prices or long term returns. The aim has typically been to assess the disclosed information’s incremental association with share prices or share returns after controlling for other accounting or market information. Examples are Barth, Beaver and Landsman (1996) who study the fair values of investment securities and loans disclosed in the notes to the financial statements of US banks; Davis-Friday, Paquita, Folami, Liu and Mittelstaedt (1999) who study disclosed and recognised liabilities for certain postretirement benefits; Gu and Lev (2001) who investigate the value relevance of firms’ 10-K disclosures of their royalty income from
patent licensing; and Al Jifri and Citron (2009) who examine whether goodwill values disclosed in the notes of UK companies are value-relevant and whether the disclosed goodwill numbers carry different information content than recognised goodwill numbers. The findings suggest that information in notes to the financial reports is value-relevant to investors. However, contradictory results can also be found in the literature. One example is Ahmed, Kilic and Lobo (2006) who study the value-relevance of recognised and disclosed fair values of derivative financial instruments held for risk management purposes by US bank holding companies. They find that recognised amounts are value-relevant while disclosed amounts are not. Another example is Cotter and Zimmer (2003) who examine the value relevance of recognised and disclosed real estate revaluation increments in Australia. They find evidence which suggests that the market discounts disclosed revaluations compared to recognised revaluations, and in some of their regressions the coefficient on the disclosed revaluation increment is not significantly associated with price.

Another stream of research has explored the link between disclosures and the cost of equity and debt capital. These studies typically regress cost of capital measures on self-constructed measures of disclosure levels in the financial report or disclosure indexes from other sources (for instance from the Center for International Financial Analysis and Research database, CIFAR) together with other issuer characteristics, issue characteristics and macroeconomic conditions. One early example is Botosan (1997) who investigates a broad set of voluntary information collected from the financial reports and its association with cost of equity. She finds that higher disclosure level is associated with lower cost of equity capital, but only for a sample of firms with relatively low analyst following. Another example is Francis et al. (2005) who use a sample from 34 countries and find that an expanded disclosure policy leads to a lower cost of both debt and equity capital. The study by Dhaliwal et al. (2014) complements these results by focusing on nonfinancial disclosure. In an international setting covering 31 countries they find a negative association between CSR disclosure and the cost of equity capital; the relationship is more pronounced in stakeholder-oriented countries. Together these and other papers provide empirical support for theories suggesting that the disclosure policies of firms have important capital-market consequences.

However, because most research relies on associations, it does not tell us whether investors actually use the information contained in the financial report. It might only mean that the disclosed accounting information is correlated with other information or that other more timely sources revealed the information to the capital market (J. Francis & Schipper, 1999). Barth et al. (1996), for instance, report that much of the fair value information for investment securities and loans disclosed in the financial state-
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ments has been reflected in share prices before the information is disclosed in the financial statements. In this case the information seems useful (value-relevant), but the financial reports do not seem to be the (sole) information source.

Based on a review of the empirical disclosure literature Healy and Palepu (2001) make a call for event study tests to answer the under-researched question: ‘Do current accounting standards provide timely information to investors or simply confirm information that is already available to them through other sources?’ (Healy & Palepu, 2001, p. 414). Similarly, based on a review of the research on MD&A disclosures, Cole and Jones (2005, p. 155) conclude that ‘Studying whether the release of MD&A itself provides information that is new to users and that leads them to update their assessments of the firm’s condition is a potential area for future research.’ Unlike the evidence of market reactions to earnings, it is difficult to find direct evidence of other financial statement information (Scott, 2012, p. 173). Our study investigates whether investors actually use the information in the notes and MD&A section to revise their expectations at the time of its release. Our research methodology builds on some of the ideas in Cready and Mynatt (1991) and Bryan (1997). Cready and Mynatt (1991) examine the price and trading response to the release of the annual report in US companies that already made a preliminary earnings announcement.2 Hence they study market reactions related to the release of the incremental information in the full annual report.3 They find that the price response is insignificantly different from zero for each of the event days examined. Moreover, they only find a marginally significant (ten percent level) trading volume response on one event day. The number of transactions, however, seems to increase around the release of the annual report. Only the latter result suggests that investors find the incremental information in the annual report informative. Bryan (1997) selected a sample of 250 full financial reports from US companies. Out of the 250 firms, 241 gave preliminary earnings announcements. This means that the MD&A information (but maybe also other information) is new information to the capital market at the release date if the information did not already reach the market through voluntary press releases. Bryan (1997) identified seven required MD&A disclosures in every financial report and by use of content analysis classified each as unfavourable, neutral, favourable or missing. He then examined the association between the market reactions and the sign of the seven MD&A disclosures plus the return on asset ratio to control partly for financial statement information. Results show only a significant relation between contemporaneous returns and one of the seven MD&A disclosures (information on capital expenditures). Bryan (1997) attributes the lack of significance of the other MD&A information to the possibility that the market was informed about the information through voluntary press releases which he did not control for.
In sum: prior literature suggests that (some) information in notes and in the MD&A section in the financial report is value-relevant to investors. However, few studies analyse stock market reactions to the release of the disclosure information and hence whether the disclosure information in the financial report is able to change the total mix of information in the market place so that investors revise their expectations to a company. No recent study has been made and to the best of our knowledge there are no studies based on IFRS financial reports from European countries.

3. Earnings announcements on the Copenhagen Stock Exchange

The regulation of the content of earnings announcements applicable to issuers of shares on the Copenhagen Stock Exchange (now Nasdaq OMX Nordic) stated the following (Copenhagen Stock Exchange, 2001, §26):

‘Companies are required to issue an earnings announcement immediately after the board meeting where the annual report has been approved. The earnings announcement shall be an abbreviated version of the annual report...The announcement must be made no later than three months after the end of the financial year...The specific content and presentation of the earnings announcement are regulated in form B...A company does not have to make an earnings announcement if the company discloses the full annual report immediately after the board meeting where the annual report is approved.’

Form B states that

‘The earnings announcement shall be an abbreviated version of the annual report, and it must be so comprehensive that the release of the annual report does not result in any new information which is so significant that it is expected to have an effect on the pricing of the shares.’

Form B then continues with a rather detailed specification of information which must be included in the earnings announcement, including an income statement, a balance sheet, a cash flow statement and a statement of changes in equity, a summary of the prospective information contained in the annual report, and information about proposed dividends. However, form B does not require the inclusion of notes and specific MD&A information.

In the group that makes two announcements in our sample almost every company responded to the requirements by including a full set of financial statements (i.e., income statement, balance sheet, cash flow statement and a statement of changes in equity) in the earnings announcement, but without the (complete) accompanying notes
and MD&A information. Thus the market only receives this information when the full annual report is released. The non-inclusion of this information by the companies and the acceptance of this practice by the Copenhagen Stock Exchange indicate that the preparers and regulators consider this information to be value irrelevant.

The regulation was relaxed with effect for announcements made after July 1, 2008. However, our data show that earnings announcements until late 2009 still followed the old pattern.

4. Sample selection
Table 1 describes our sample selection procedure. The population includes all listed shares on the Copenhagen Stock Exchange from non-financial companies in 2006-2009. Our sample period begins in 2006 since 2005 was the first year of mandatory IFRS application, and the 2006 announcements disclose this information to the market. In order to conduct our study it is necessary that companies closely comply with the specific Danish regulation and especially that a wide selection of companies do not release the note and MD&A information until the publication of the full annual report. However, as explained above the regulation was relaxed with effect for announcements made after July 1, 2008. Importantly, the new rules did not include a detailed list of items to be included/not included in the earnings announcements. Collecting data after this date consequently entails a risk that the companies that continue to use the old rules and delay the publication of note and MD&A information somehow differ from the companies included before the rules were changed. However, legal experts recommended companies to continue to be guided by the old rules (at least) for the next announcement to facilitate comparison with earlier announcements (Clausen, 2008), and our data show that earnings announcements until late 2009 widely followed the old pattern. Therefore, we decided to include announcements after July 1, 2008 (to increase our sample size), and end our sample period in late 2009 where we are confident that the de facto disclosure system is similar to the system before the change. The maximum number of announcements is 532. However, this amount is reduced due to various restrictions. First of all we need to know the exact dates of the particular announcements. Dates were obtained from the OMX News Client database, which provides historical announcements for all the companies listed at NASDAQ OMX Nordic with the exact date and time of dissemination of the information to the market. In some cases this information was unavailable. For the full financial report sample we are interested in those companies that did not disclose full note and MD&A information in the earnings announcement, i.e. we are only interested in the companies that make a second announcement where full notes and MD&A information constitute the new information to the capital market. Furthermore we need to be able to study market reactions to this in isolation. Therefore we deleted
all cases where the first earnings announcement contains the full annual report and cases where the date of the release of the second announcement was so close to the first announcement that the event windows were overlapping. This reduced the sample by 264 (56%) and 4 observations, respectively.

For both the earnings announcement sample and the full financial report sample we require that the shares are traded on each day in the three-day event window $t[0;2]$ and on the day before $t[-1]$ in order to calculate genuine stock returns in the event period. Furthermore we require that shares are traded on at least $2/3$ of the days in the 180-day estimation period $t[-180;-1]$ in order to produce robust estimates of normal returns. Table 1 shows that the requirement of trading on every day in the event period was rather restrictive for both the earnings announcement and the full financial report sample, resulting in the elimination of 177 out of 463 observations and 65 of 201 observations, respectively. One reason for the large proportion of companies that are not traded on every day could be that the capital is concentrated and hence ‘patient’ in many Danish listed companies (Thomsen, 2013). Another reason might be that many companies are small by international standards and hence receive less attention by investors. Noise in the event window due to the simultaneous release of other confounding information is also a large contributor to the reduction in the earn-

### Table 1: Sample selection

<table>
<thead>
<tr>
<th></th>
<th>Earnings announcement (first annual announcement)</th>
<th>Full financial report/‘paper version’ (second annual announcement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of listed shares</td>
<td>141</td>
<td>141</td>
</tr>
<tr>
<td>Dual stock classes</td>
<td>(8)</td>
<td>(8)</td>
</tr>
<tr>
<td>No of included companies</td>
<td>133</td>
<td>133</td>
</tr>
<tr>
<td>Max. no of events</td>
<td>532</td>
<td>532</td>
</tr>
<tr>
<td>2006-2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Announcement or announcement date not available</td>
<td>(28)</td>
<td>(22)</td>
</tr>
<tr>
<td>Events due to new listed companies</td>
<td>(41)</td>
<td>(41)</td>
</tr>
<tr>
<td>Subtotal</td>
<td>463</td>
<td>469</td>
</tr>
<tr>
<td>Full annual report released as first announcement</td>
<td>N/A</td>
<td>(264)</td>
</tr>
<tr>
<td>Overlapping event window between first and second announcement</td>
<td>N/A</td>
<td>(4)</td>
</tr>
<tr>
<td>Subtotal</td>
<td>463</td>
<td>201</td>
</tr>
<tr>
<td>Noise in event window</td>
<td>(149)</td>
<td>(23)</td>
</tr>
<tr>
<td>Not traded on every day in event window</td>
<td>(177)</td>
<td>(65)</td>
</tr>
<tr>
<td>Too few trade days in estimation period</td>
<td>(2)</td>
<td>(16)</td>
</tr>
<tr>
<td>Included no of events</td>
<td>135</td>
<td>97</td>
</tr>
</tbody>
</table>

*Our initial sample is based on the number of companies listed at the end of our sample period, October 2009. This number is reduced if a company became listed during the sample period or otherwise did not have a complete set of announcements available.

*Events were deleted if a company simultaneously released confounding information.*
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ings announcement sample size, but less so for the full financial report sample. This is not surprising since regulators, users and companies consider the earnings announcement to be perhaps the most important of the mandatory announcements, and companies often use this attention to disclose additional company information such as share buy backs, replacement or appointment of managers, acquisitions, new orders etc. We exclude these observations in order to get a clear, uncontaminated response to the disclosures in the annual report. The final sample is 135 firm year observations for the earnings announcement sample and 97 for the full financial report sample.

5. Research design
We measure the information content of earnings announcements and announcements of notes and MD&A information (the full report), respectively, as the abnormal return variance (AVAR) around the announcement dates. The abnormal volatility measure is founded on Beavers (1968) seminal study and has since been used by many other researchers (e.g. DeFond, et al., 2007; Givoly & Palmon, 1982; Landsman & Maydew, 2002; Patell, 1976; Warner, Watts, & Wruck, 1988). We define abnormal return variance according to the following equation:

$$AVAR_{i,t} = \mu^2_{i,t}/\sigma^2_i$$

where AVAR is calculated for day \( t \), \( t = 0, +1, +2 \) relative to announcement day 0 for firm \( i \). \( \mu_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{m,t}) \), \( R_{i,t} \) is the raw return of firm \( i \) for day \( t \), and \( R_{m,t} \) is the value weighted return of market for day \( t \) (OMX CPI), \( \alpha_i \) and \( \beta_i \) are firm \( i \)'s market model parameter estimates and \( \sigma^2_i \) is the variance of firm \( i \)'s market model adjusted (residual) returns, each of which is calculated during the period \( t = -180 \) to \( t = -1.6 \).

AVAR\(_{i,t}\) between zero and one are indicative of smaller than normal volatility and when AVAR\(_{i,t}\) is greater than one the volatility is larger than normal. AVAR is a useful measure of information content when the firm-specific portion of a stock price return following the release of information is expected to average out to zero (Patell, 1976).

To formally test for significant unusual stock price performance independent of mean effect sign we use the test statistic developed by Patell (1976), which is an approximately normal variate:

$$Z_t = \frac{\sum_{i=1}^{N} \left[ (AVAR_{i,t} \times \frac{T_i}{T_i-2} \right] -1 \right)}{\left[ \sum_{i=1}^{N} \frac{2 (T_i-3)}{(T_i-6)} \right]^{1/2}}$$

where \( T_i \) is the number of observed returns in the estimation period.
We supplement the parametric test with a nonparametric rank test for abnormal stock price performance (Bartholdy, et al., 2007; C. J. Corrado, 1989; Charles J. Corrado & Zivney, 1992)

\[
T = \frac{1}{\sqrt{N}} \sum_{i=1}^{N} \left( U_{i,t} - \frac{1}{2} \right)
\]

where

\[
U_{i,t} = \frac{K_{i,t}}{(1 + T_i)} \quad \text{and} \quad K_{i,t} = \text{rank} \left( \mu_{i,t} \right) \text{for } t = -180, ..., +2, \quad N_{i} = \text{No. of returns in a cross-section of } N \text{ firms at time } t, \quad T_i = \text{No. of non-missing abnormal returns for security } i \text{ over the entire period and}
\]

\[
S(K) = \sqrt{\frac{1}{183} \sum_{t=-180}^{+2} \left[ \frac{1}{\sqrt{N_t}} \sum_{i=1}^{N_t} \left( U_{i,t} - \frac{1}{2} \right) \right]^2}
\]

It is important to note that our research design analyses the market reaction and hence the information content of note and MD&A disclosures at the time of the announcement of the financial report. Finding no reaction does not necessarily imply, however, that investors are uninterested in the information. As discussed in Francis and Schipper (1999) the information may have a ‘settling-up role,’ in which the audited financial report confirms more timely value-relevant information. Knowing that the information will appear in the financial report may encourage early disclosure and may discipline the more timely information.

6. Results
6.1. Market reactions to annual earnings announcements
The primary focus of the study is to analyse stock market reactions to the release of note disclosures and MD&A information. Hence our primary focus is on market reactions to the announcement of the full financial report for those companies that already made an earnings announcement since in Denmark this second announcement largely isolates these disclosures. However, important insights can also be gained by looking at stock market reactions to the release of the first announcement. If note disclosures and MD&A information are important to the stock market, then we would expect to find a different reaction between the companies that announce the full annual report in their earnings announcements, i.e. companies that only make one announcement, and the companies that make an earnings announcement without the full note and MD&A disclosures, and then later make a second announcement with
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this information. Therefore we begin by analysing the market reactions to the earnings announcements for the two groups. We base our conclusions on the combined results reported in table 2 and figure 1.

Table 2 panel A presents the mean values of $AVAR_{it}$ around the earnings announcement date $t=0$ for the group that only makes one announcement; i.e. the full annual report is announced at once, and the group that makes two announcements. The p-values $P(Z_t)$ are the two sided probabilities based on the Z statistic in equation (2). Table 2 panel B presents the values of the test statistic and two sided p-values $P(Z_t)$ from the nonparametric rank test for abnormal stock price performance in equation (3). Bartholdy et al. (2007) state that nonparametric tests are generally preferable to parametric tests of abnormal performance due to the nonnormality of stock returns on the Danish stock exchange.

<table>
<thead>
<tr>
<th>Event day</th>
<th>Companies that make two announcements $n=53$</th>
<th>Companies that make one announcement $n=82$</th>
<th>Companies that make two announcements $n=53$</th>
<th>Companies that make one announcement $n=82$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean $AVAR_t$</td>
<td>$P(Z_t)$</td>
<td>Mean $AVAR_t$</td>
<td>$P(Z_t)$</td>
</tr>
<tr>
<td>-5</td>
<td>1.133</td>
<td>0.497</td>
<td>1.151</td>
<td>0.338</td>
</tr>
<tr>
<td>-4</td>
<td>0.769</td>
<td>0.238</td>
<td>1.046</td>
<td>0.769</td>
</tr>
<tr>
<td>-3</td>
<td>1.413</td>
<td>0.035*</td>
<td>1.507</td>
<td>0.001*</td>
</tr>
<tr>
<td>-2</td>
<td>1.594</td>
<td>0.002*</td>
<td>0.967</td>
<td>0.836</td>
</tr>
<tr>
<td>-1</td>
<td>0.858</td>
<td>0.468</td>
<td>0.983</td>
<td>0.915</td>
</tr>
<tr>
<td>0</td>
<td>5.072</td>
<td>0.000*</td>
<td>2.880</td>
<td>0.000*</td>
</tr>
<tr>
<td>+1</td>
<td>2.935</td>
<td>0.000*</td>
<td>3.071</td>
<td>0.000*</td>
</tr>
<tr>
<td>+2</td>
<td>1.524</td>
<td>0.007*</td>
<td>1.281</td>
<td>0.074</td>
</tr>
<tr>
<td>+3</td>
<td>1.389</td>
<td>0.047*</td>
<td>2.005</td>
<td>0.000*</td>
</tr>
<tr>
<td>+4</td>
<td>0.707</td>
<td>0.135</td>
<td>1.247</td>
<td>0.116</td>
</tr>
<tr>
<td>+5</td>
<td>1.096</td>
<td>0.623</td>
<td>0.975</td>
<td>0.874</td>
</tr>
</tbody>
</table>

Companies that make two announcements disclose some of the information from the full annual report in the earnings announcement and the rest in a second announcement after the event period. Companies that make one announcement are companies where the earnings announcement contains the full annual report. Mean $AVAR_t$ is the average values of the stock return variance on the specific days in the event window, scaled by the stock return variance over the estimation period. The stock return variance in the event window is the squared prediction errors from the market model in the firm’s earnings announcement window. The stock return variance over the estimation period equals the variance of the residual returns from the firm’s market model estimated over day -180 through day -1 relative to the announcement date $t=0$. Day 0 is the earnings announcement date reported in OMX News Client. $P(Z_t)$ in panel A are the two sided probabilities based on the Z Statistic in equation (2). Test statistic $T$ in panel B is the statistic calculated from equation (3) based on ranks of the squared prediction errors from the market model over both the estimation period and the event period. Market model parameters are estimated over day -180 through day -1 relative to the announcement date $t=0$. $P(Z_t)$ in panel B are the two sided probabilities based on the T statistic in equation (3).* indicate statistical significant values at the 5 per cent level or better.
Figure 1 plots the mean abnormal return variance metrics for the two groups. The figure provides pictorial evidence that abnormal volatility changed substantially during the event period.

Consistent across both the parametric and non-parametric tests, the results show that the announcement date $t_0$ and the following day $t_1$ are characterized by a significant larger-than-usual price movement in both portfolios. The parametric and non-parametric tests also agree that an unusual price activity can be detected as early as three days before the announcements $t_3$ in the group of firms that make two announcements, and three days after the announcements $t_3$ in the group of firms that make one announcement. No significant stock price movements are found in any of the tests more than three days after the announcements. Combined with the evidence in figure 1 the following overall picture seems to emerge: Information in the earnings announcements has information content in both groups. Stock price movement subsides within four days. The abnormal stock market volatility on the announcement day seems to be stronger when investors are deprived of some of the information in the full annual report, i.e. when they do not receive the full annual report at once. Put differently: it seems that including complete note disclosures and MD&A information in the earnings announcement has a dampening or stabilising effect on the stock market volatility on the day of the release. On the other hand the results also indicate that it takes more time for the stock market to digest the earnings announcement information when all information is included. Nontabulated two-sample Wilcoxon rank-sum tests
(Mann-Whitney) show statistically insignificant differences between the two groups' underlying distributions of assets, equity, revenue, net income, return on assets, percentage change in revenue and net income (absolute values) from the previous year, which indicates that the different market reactions cannot be attributed to this.

Taken (all) together the results suggest that the reactions of the stock market to earnings announcements are influenced by whether or not all note and MD&A information are included, which indirectly suggests that the disclosures have information content.

6.2. Market reactions to the release of disclosure information

The next results based on stock market reactions to the release of the missing disclosures provide more direct insight into the question of information content. Here we examine whether the release of the disclosure information in the financial report is able to change the total mix of information in the market place so that investors revise their expectations to a company given that the investors have already received the information in the primary financial statements.

Table 3 presents descriptive information about the analysed companies.

<table>
<thead>
<tr>
<th>Table 3: Descriptive statistics</th>
</tr>
</thead>
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<tr>
<td></td>
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<tr>
<td>No. of pages Earnings announcement</td>
</tr>
<tr>
<td>No. of notes Earnings announcement</td>
</tr>
<tr>
<td>No. of words Earnings announcement</td>
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<tr>
<td>No. of pages in Full report</td>
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<tr>
<td>No. of notes in Full report</td>
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<td>No. of words in Full report</td>
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<tr>
<td>Full income statement in Earnings announcement?</td>
</tr>
<tr>
<td>Full balance sheet in Earnings announcement?</td>
</tr>
<tr>
<td>Full cashflow statement in Earnings announcement?</td>
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<tr>
<td>Full Equity statement in Earnings announcement?</td>
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</table>

The table shows that the primary financial statements (income statement, balance sheet, cash flow statement and equity statement) were in fact not new information to the stock market when the sample companies made a second announcement with the full annual report. Ninety-nine percent of the companies already released the full income statement and balance sheet in their earnings announcements. In contrast, the table shows that very few notes were disclosed in the first announcement (mean 3.9, median 0)⁸, and that the stock market received more than two thirds of the total page
and word information in the second announcement on average. This shows that the second announcement is about note disclosures and narrative information. The average length of the annual report is 79 pages.

Table 4 reports the results of our tests of abnormal stock market activity at the time of the release of the disclosures. Panel A shows the results from the parametric test based on equation (2), and panel B shows the results from the nonparametric rank test based on equation (3).

<table>
<thead>
<tr>
<th>Event day</th>
<th>Panel A</th>
<th>Panel B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full sample n= 97</td>
<td>Removal of companies with the 1% highest AVARs n=96</td>
</tr>
<tr>
<td>Mean AVAR</td>
<td>$P(Z_t)$</td>
<td>Mean AVAR</td>
</tr>
<tr>
<td>0</td>
<td>1.424</td>
<td>0.003*</td>
</tr>
<tr>
<td>+1</td>
<td>1.705</td>
<td>0.000*</td>
</tr>
<tr>
<td>+2</td>
<td>1.288</td>
<td>0.046*</td>
</tr>
</tbody>
</table>

Mean $AVAR_t$ is the average values of the stock return variance on the specific days in the event window, scaled by the stock return variance over the estimation period. The stock return variance in the event window is the squared prediction errors from the market model in the firm’s earnings announcement window. The stock return variance over the estimation period equals the variance of the residual returns from the firm’s market model estimated over day -180 through day -1 relative to the announcement date $t=0$. Day 0 is the announcement date of the full financial report reported in OMX News Client. $P(Z_t)$ in panel A are the two sided probabilities based on the Z Statistic in equation (2). Test statistic $T$ in panel B is the statistic calculated from equation (3) based on ranks of the squared prediction errors from the market model over both the estimation period and the event period. Market model parameters are estimated over day -180 through day -1 relative to the announcement date $t=0$. Day 0 is the announcement date of the full financial report reported in OMX News Client. $P(Z_t)$ in panel B are the two sided probabilities based on the $T$ statistic in equation (3).

* indicate statistical significant values at the 5 per cent level or better.

In both the parametric and non-parametric tests – though not on the same days in the reduced sample - the results show statistically significant abnormal return variance in the three-day event window after the release of the full financial report. This also holds after deleting 1% of our companies with the highest stock return variances in the event window. However, if we delete 5% of the companies, the market reaction is insignificant. This suggests that for some companies, note disclosures and information in the MD&A section are considered highly value-relevant news by investors. However, for the majority of companies, investors do not immediately revise their expectations to a company significantly based on the note disclosures and MD&A information in the financial report, i.e. they do not consider this information to be particularly value-relevant when they have already received the primary financial statements of the companies. The insignificant reaction found in the majority of
companies could reflect that the information is truly of no use to investors. Campbell and Slack (2008), for instance, explored questions of usefulness and materiality of annual report disclosures by interviewing 19 sell-side analysts in the UK. They found a general belief among the analysts that narrative reporting was neither immediately applicable nor helpful in their forecasting activities. However, the results might also reflect that recognised items or other information sources have already captured the information. Yet another explanation may be that investors find the note and MD&A information relevant, but that the reliability of such information is reduced by the interpretations and actions of auditors. Results from experiments in Libby, Nelson, and Hunton (2006), for instance, indicate that auditors require much greater correction of misstatements in recognised amounts than they do for the same amounts that have only been disclosed.10

As an additional analysis we tried to identify factors associated with the response of investors to the announcement of the incremental disclosure information in the full report, i.e. we tried to identify the factors that influence the usefulness of such information. We applied a broad range of factors, including the number of extra pages received in the full financial report over and above the number of pages received in the earnings announcement, additional number of notes received, additional words, timeliness of the disclosures, the information environment of the companies, proxies for risk associated with a company, profitability measures, indications of earnings management, and the number of Big Four audit firms involved in the audit. However, we were unable to identify any robust factors generally associated with the market reaction, which suggests that the way investors respond to the note and MD&A disclosures depends on company or context specific factors not captured by our explanatory variables.

7. Summary and conclusion
In this study, we examine market reactions to note disclosures and MD&A information in a small, but modern capital market. We specifically examine whether investors actually use IFRS based notes and EU Directive based MD&A disclosures in setting prices at the time of their release, when they have already received the information in the primary statements (income statement, balance sheet, statement of changes in equity, and cash flow statement). We base our study on data from the Danish capital market in 2006-2009 because this setting allows us to largely isolate the release of such information from other information in the financial report. We use abnormal stock price volatility as our measure of information content.

Initial results based on market reactions to earnings announcements suggest that the reactions of the stock market to earnings announcements are influenced by the
inclusion or lack of inclusion of all note and MD&A information. It seems that including complete note disclosures and MD&A information in the earnings announcement has a dampening or stabilising effect on the stock market volatility on the day of the release. On the other hand the results also indicate that it takes more time for the stock market to digest the earnings announcement information when all information is included. This indirectly suggests that the disclosures have information content.

Our primary results based on market reactions to the release of the note and MD&A information show statistically significant abnormal return variance in the three-day event window after the release of the information for the full sample. This also holds after deleting 1% of our companies with the highest stock return variances in the event window. However, if we delete 5% of the companies, the market reaction is insignificant. This suggests that for some companies, note disclosures and information in the MD&A section are considered highly value-relevant by investors. However, for the majority of companies, investors do not significantly revise their expectations to a company immediately based on the note disclosures and MD&A information in the financial report, i.e. it seems that they do not consider this information to be particularly value-relevant when they have already received the primary financial statements of the companies. This might reflect that the information is truly of no use to the investors or it might reflect that the information is useful per se, but that recognised amounts capture the information or capture so much of it that the incremental disclosure information is immaterial or that the disclosures simply confirm information that is already available to the investors through other sources. Another explanation may be that as a consequence of relegating information to notes and the MD&A section the reliability of such information is reduced by the interpretations and actions of auditors.

We tried to identify the factors that are associated with the way in which investors respond to the announcement of the additional disclosure information in the full report. We applied a broad range of factors. However, we were unable to identify any robust factors generally associated with the market reaction, which suggests that the way investors respond to the note and MD&A disclosures depends on company or context specific factors not captured by our explanatory variables.

The Danish capital market is small and we are constrained by the number of available observations. This is a limitation in our study which should be taken into account when generalising our findings. It could be interesting to have additional current research from larger capital markets where it is possible to isolate the release of disclosure information from other types of information in the financial report.
The information content of note disclosures and MD&A information in the financial report

References


Notes
1. For reviews of the empirical disclosure literature see Healy and Palepu (2001) and Botosan (2006).
2. We do not use trading measures in our study due to many small trades in our sample. Bechmann et al. (2005) analyse both stock price and trading reactions to the release of financial reports in the Danish capital market. The trade volume study includes infrequently traded companies. Bechmann et al. (2005) compare the results based on stock prices with results based on trading volume and reach the same conclusion about market efficiency.
4. In order to maximize the number of observations available for analysis we include all observations that meet the selection criteria at each of the announcement dates. That is, we do not require companies that make two announcements to meet the criteria at both announcement dates since this would reduce our sample size significantly.
5. We use the 'lumped' treatment of missing trades when we calculate our measures of information content due to the strict criteria for inclusion in our sample. Maynes and Rumsey (1993) show that this procedure is reasonably well-specified for moderately traded shares.
6. We follow Patell (1976, formula 3) and divide each variance of the residual returns with T-2, where T is the number of observed returns in the estimation period.
7. Note that in line with many other studies we do not adjust the denominator in AVAR, to account for the variance of the forecast error, since T (the number of observed returns in the estimation period) is large, resulting in a small adjustment factor (Bartholdy, Olson, & Peare, 2007)
8. Many companies that include notes in the earnings announcement disclose information about their operating segments (products, services, geographical areas etc.), income statement information for the four quarters of the fiscal year, and/or (changes in) accounting policies in particular in the first year of IFRS adoption.
9. The idea of looking at the distribution of abnormal return variance is inspired by Bamber, Christensen & Gaver (2000) and DeFond, Hung & Trezevant (2007).
10. In Denmark information in the MD&A section of the annual report was formally audited by the external auditors until a change in legislation with effect for financial statement years beginning on September 1, 2008. From this date auditors do not have to audit the information, but they still have to provide some assurance and have to issue a statement about the consistency of the MD&A information with the information in the financial statements. Hence, we do not think that lack of auditor verification of the MD&A information alone can explain the results.