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Social Medias as a Disclosure Outlet and its Effect on Information Asymmetry

Empirical evidence from companies listed on the Stockholm stock exchange

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Abstract

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Title: *Social Media as a Disclosure Outlet and its Effect on Information Asymmetry - Empirical Evidence from Companies Listed on the Stockholm Stock Exchange*

Background and problem discussion: Social media has emerged as a new disclosure outlet and many firms have adopted social media channels such as Twitter and Facebook (Du and Jiang, 2015; Zhou et al., 2015). These channels are different from other disclosure outlets as they are timelier and more easily accessible (Saxton, 2012). Moreover, they allow for an interaction between firms and the financial community which investors have expressed a wish for (von Alberti-Alhtaybat and Al-Htaybat, 2016). Recent research suggests social media disclosures to have an impact on information asymmetry but as it is a new phenomenon it can be discussed whether firms' engagement is consistent enough to affect information asymmetry (Blankespoor et al., 2014; Prokofieva, 2015; Xu and Zhang, 2013).

Purpose: The purpose of this study is to explore the current status of usage of multiple social media channels as disclosure outlets and investigate which effect social media disclosures have on the level of information asymmetry.

Methodology: The applied method is an event study investigating disclosures made on social media channels by Large Cap companies listed on the Stockholm Stock Exchange. Events are defined as the annual report announcements of the sample firms and disclosures investigated are those relating to the annual report announcements during 2014-2016.

Results and conclusions: Social media disclosures are not found to have an effect on the level of information asymmetry among Large Cap firms listed on the Stockholm Stock Exchange. The phenomenon of using social media as disclosure outlets is not considered widespread in Sweden and firms are found to be inconsistent in their engagement in social media disclosures. This inconsistency limits investors from using social media as a trusted source of financial information which may be a reason for the withheld beneficial outcomes of social media disclosures.

This study contributes by describing the current status of usage of multiple social media channels and providing empirical evidence on the effect on information asymmetry when firms use multiple social media channels as disclosure outlets. Furthermore, it adds to recent research by analyzing the social media disclosures in a Swedish context.

Key words: social media, disclosure outlets, corporate disclosure, information asymmetry, investor relations, Twitter, Facebook

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1. Introduction

1.1 Background

The Internet has become a crucial part of the daily lives of a significant proportion of the global population (Debreceny, 2015) and in Sweden over 90 % of the population uses the Internet. Sweden has one of the highest Internet penetration rates in the world (World Bank, 2016) and the use stretches over a large spectra of both leisure and business related activities. In the mid-90' companies began to publish annual reports, interim reports and press releases on their websites and a new line of research arose. Internet financial reporting has progressed along with online technology and new manners of disclosing information online have been introduced (Hedlin, 1999; Saxton, 2012; Gajewski and Li, 2015).

Social media has emerged as a new disclosure outlet and hence, corporate websites are no longer the sole online disclosure outlet companies have at their disposal. Many firms have adopted social media channels such as Twitter and Facebook and use them for a variety of purposes. Marketers realized their outreach potential early on and today there are accounts dedicated to customer service due to the accessibility. Recently, social media has also become an outlet for corporate disclosures and a tool for investor relations (Du and Jiang, 2015; Zhou et al., 2015).

Never before has information been as easily and timely accessible as it is with social media today (Saxton, 2012; von Alberti-Alhtaybat and Al-Htaybat, 2016). For companies it is no longer merely about publishing their annual report online but about connecting with investors through the usage of new technologies and involving investors in the information dissemination[1] (Saxton, 2012; Gajewski and Li, 2015). The widespread use of Twitter and Facebook among both firms and investors, as well as the unique technological features of social media as a disclosure outlet make its effect on the capital market an exciting area of research.

1.2 Problem Discussion

Social media channels are the latest addition to investors' information sources (Xu and Zhang, 2013) and the information retrieved from firms' social media accounts is used to follow up on leads or make investment decisions (Golz and Zivin, 2015). Its technological characteristics differentiate social media from traditional disclosure outlets as they allow for corporate disclosures to be made in real-time and spread fast among a broad audience (Saxton, 2012). What differentiates social media from other online disclosure outlets, such as corporate websites, is the possibility of interaction between firms and the financial community. Investors have expressed a wish for increased interaction while firms are hesitant as increased disclosure on social media does not only come with advantages (Bushkin, 2013; von Alberti-Alhtaybat and Al-Htaybat, 2016).

Nonetheless, recent research has suggested one important benefit of engaging in social media investor relations as several studies have found that social media-based disclosures result in more informed markets (Blankespoor et al., 2014; Prokofieva, 2015, Xu and Zhang, 2013). There is evidence that sustained increases in voluntary disclosures have positive effects on the capital market (Healy et al., 1999) but it has been discussed that inconsistency in voluntary disclosures deteriorates their credibility

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[1] There is no distinction made between disclosure and dissemination. The term ''disclosure(s)'' encompasses both new (disclosure) and repetitive (dissemination) messages, unless otherwise specified.

and thus, their potential positive impact (Bischof and Daske, 2013; Diamond and Verrecchia, 1991). Since social media disclosure is a fairly new phenomenon among voluntary disclosure outlets it may be difficult for investors to determine whether firms are committing to continuously increased levels of disclosure or if it is at an experimental phase (Harvard Business Review Analytic Services, 2010). An uncertainty among investors may lead to an absence of the expected positive effects (Bischof and Daske, 2013).

Twitter has been found to be companies' preferred disclose outlet for financial information but its characteristics are very different from other social media channels as a "tweet" is only allowed to contain 140 characters (Zhou et al., 2015). Twitter is also the channel most commonly investigated for disclosure purposes (Blankespoor et al., 2014; Prokofieva, 2015) but the results may not be transferrable for other social media. Facebook is another popular social media channel used for corporate disclosures. Its use has been found to be more focused on non-financial disclosures and the level of interaction between firms and their followers has been shown to be more interactive than on Twitter (Zhou el al., 2015).

There is a gap in the literature regarding the effect on information asymmetry when multiple social media outlets are used for disclosure (Prokofieva, 2015) and increased knowledge in the area may have practical implications for companies' disclosure strategies as most companies present on social media choose to adopt multiple channels (Culnan et al., 2010). The widespread use of Twitter and Facebook as disclosure outlets and their differences in usage cause an interest to study them jointly (Zhou et al., 2015). This study contributes by describing the current status of usage of multiple social media channels and providing empirical evidence on the effect on information asymmetry when firms use multiple social media channels as disclosure outlets. Furthermore, it adds to recent research by analyzing the social media disclosures it in a Swedish context.

1.3 Purpose

The purpose of this study is to explore the current status of usage of multiple social media channels as disclosure outlets and investigate which effect social media disclosures have on the level of information asymmetry.

1.4 Delimitations

The scope of this thesis is to analyze the corporate disclosures related to annual report announcements made on social media by Large Cap companies listed on the Stockholm Stock Exchange. The social media channels investigated in the study are delimited to Twitter and Facebook as those have been shown to be the most commonly used social media channels for corporate disclosures.

1.5 Thesis Outline

The remainder of this thesis is organized as follows. In Chapter 2 a theoretical framework of corporate disclosures, information asymmetry, disclosure outlets, social media and investor relations is presented followed by a section on hypothesis development. The research methodology is provided in Chapter 3. Empirical findings are presented and discussed in Chapter 4 and the thesis concludes with its contributions and suggestions for further research in Chapter 6.

2 Theoretical Framework

2.1 Corporate Disclosure and Information Asymmetry

2.1.1 Corporate Disclosure

Corporate disclosures aim to provide useful information for decision making in the capital market. The main forms of corporate disclosures are the mandatory and voluntary disclosures provided by firms themselves (von Alberti-Alhtaybat et al., 2012). Additionally, there are disclosures[2] communicated by information intermediaries such as analysts, financial media and industry experts (Healy and Palepu, 2001). Corporate disclosures can be financial or narrative, mandatory or voluntary, printed or online and their characteristics can be explained by existing disclosure theories.

In the free market theory it is assumed that there are ideal conditions on the capital market. Accounting information is seen as a public good and the provision of disclosure is driven by supply and demand forces. Under this assumption there would be an optimal level of printed financial disclosure (Riahi-Belkaoui, 2004). However, Healy and Palepu (2001) argue that there is an information problem on the capital market which makes efficient resource allocation impossible, leading to the development of disclosure theories (von Alberti-Alhtaybat et al., 2012).

2.1.2 Information Asymmetry

The economic-based theories explaining corporate disclosures provide a link between financial reporting and its economic consequences but there is no overall unifying theory of disclosure. Rather, the literature suggests a bundle of economic-based models which each attempt to explain the determinants of corporate disclosure (von Alberti-Alhtaybat et al., 2012). In a survey of models considering disclosures Verrecchia (2001) is not able to distinguish or provide a unifying theory. Instead, he suggests information asymmetry to be the starting point of such a theory as it can explain the link between disclosures and the efficiency, incentives and endogeneity of the market process. Verrecchia (2001) further argues that a reduction of information asymmetry ought to lead to an increase in market liquidity which Blankespoor et al. (2014) find true for the case of Twitter disclosures made by IT firms.

The existence of information asymmetry is based on the fact that a seller of a good knows more about its quality than a buyer does. The good can be of high or low quality but an uninformed buyer will estimate its quality to be average. As a consequence sellers of low quality goods receive a higher compensation than the value of the good while sellers of high quality goods receive a lower compensation. The situation may even lead to market failure in the case where sellers of high quality goods do not accept the lower compensation and only inferior goods remain on the market (Akerlof, 1970).

2.1.3 Mandatory Disclosure

One solution to the information asymmetry problem is to impose laws and standards enforcing companies to disclose information of use for stakeholders. Reporting regulations are a result of imperfect market conditions (von Alberti-Alhtaybat et al., 2012) and the trend is going towards a harmonization of the accounting standards (Hope, 2003). The purpose of having a harmonized set of standards is to achieve comparability and transparency, thereby improving the quality of financial accounting and corporate disclosures (Brown et al., 2014).

Companies listed on a regulated market, such as the Stockholm Stock Exchange, are obliged to follow an additional set of rules regarding corporate disclosures in order to ensure that confidence in the

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[2] In this thesis, ''corporate disclosure'' and ''disclosure'' are interchangeable, unless otherwise specified.

securities market is upheld through high standards of market transparency (Finansinspektionen, 2016). Any price-sensitive information and periodic financial information must be published rapidly in a non-discriminatory manner for the information to reach the general public in Sweden and other countries in the European Economic Area as simultaneously as possible. The information must also simultaneously be submitted to the Swedish financial supervisory authority (Finansinspektionen) for storage in their database containing stock exchange information (SFS 2007:528, FFFS 2007:17).

In Sweden it is assumed that several information channels or media are used in the information dissemination but there is no definition of which or how many outlets should be used. The requirement is that there should be a mix of disclosure outlets to ensure proper dissemination among investors. Thus, common disclosure outlets are national and international newspapers, specialist periodicals, news agencies and financial websites. Listed companies usually pay a news distribution agency to guarantee that the requirements of rapid, non-discriminatory disclosure are fulfilled. The agency distributes the information simultaneously to several sources which together account for reaching the general public (Finansinspektionen, 2016).

Today companies are obliged to publish mandatory disclosures on their company website as soon as possible and the Swedish financial supervisory authority (Finansinspektionen) suggests that relevant media can change in the future (Finansinspektionen, 2016). Disclosure through social media channels has not been recognized as a primary disclosure outlet in Sweden but there are examples where this development has progressed further. The U.S. are in the forefront in regard to new disclosure outlets and the Securities and Exchange Commission has changed its guidance considering online disclosures, now recognizing social media as a possible primary disclosure outlet (Parrino and Greenslade, 2014).

2.1.4 Voluntary Disclosure

Another possibility to reduce the information gap between companies and investors is by providing voluntary disclosures and the degree of voluntary disclosure is suggested to be determined by managers' incentives to satisfy the information needs of users. The economic-based theories which have been applied in voluntary disclosure research include agency theory, political cost theory, capital need theory, signaling theory and cost-benefit analysis (von Alberti-Alhtaybat et al., 2012). Often these theories are also applied in research concerning online corporate disclosures as the information, whether mandatory or voluntary, is disseminated through a voluntary disclosure outlet. Even though the initial disclosure is mandatory, further dissemination of it, through e.g. social media, is voluntary (Marston and Polei, 2004; Trabelsi et al., 2008).

For voluntary disclosures to have an effect on the level of information asymmetry it is crucial that the disclosures are consistent (Bischof and Daske, 2013; Healy et al., 1999) as sustained increases in voluntary disclosures have been shown to have positive effects on the capital market (Healy et al., 1999). The consequence of firms increasing the level of voluntary disclosure during one period but then decreasing it in the next period is that the positive effects may not appear as expected. For voluntary disclosures to affect the level of information asymmetry investors need to be able to trust that the disclosures will be provided consistently (Bischof and Danske, 2013; Diamond and Verrecchia, 1991).

2.2 New Disclosure Outlets

2.2.1 The Role of the Internet

Traditional disclosure outlets such as printed annual reports and newspapers are still in use for disclosure purposes but since the introduction of the Internet the development of new disclosure outlets has progressed fast. Ever since the Internet became publicly accessible it has been a part of changing how accounting information is disseminated, used and analyzed (Saxton, 2012). According to Lodhia et al.

(2004) the increasing use of the Internet as a disclosure channel is beneficial for users since it is more timely, interactive, accessible and detailed than the traditional disclosures provided by printed reports. Furthermore, Internet financial reporting facilitates reaching and satisfying a broader range of stakeholders than investors alone as the Internet makes it possible to disclose more information than what is physically possible in printed versions (Lodhia et al., 2004). The extensive amount of information provided nowadays increases the transparency of firms (Healy and Palepu, 2001) and thus also the accountability of firms (Lodhia et al., 2004). Unfortunately, the vast availability of information online is not exclusively informative and in some cases the information extent results in an information overload instead of allowing investors to become more informed, as initially intended (Saxton, 2012).

Gajewski and Li (2015) reach the conclusion that Internet-based disclosures reduce information asymmetry. Even though there have been numerous studies on different kinds of traditional disclosures and information asymmetry Gajewski and Li (2015) argue that the results cannot be translated directly to disclosures made online since the technological characteristics are distinct. Therefore, it is crucial to continuously research the effect on the capital market whenever a new disclosure outlet is introduced. Already in the early stages of Internet financial reporting Hedlin (1999) pointed out that there are specific advantages of the Internet and that firms with greater resources and more investors are likely to use these advantages in a more sophisticated manner than other firms.

2.2.2 Traditional Disclosure Outlets vs. New Disclosure Outlets

There is a large difference between the more traditional disclosure outlets and the new ones in regard to how information reaches potential investors. The more traditional outlets require investors to pull the information to acquire it, i.e. they need to request it or actively search for it. Ordering the printed annual report or searching for it on the company's website are examples of pulling information. The newest kinds of outlets use a push technology instead. By signing up for a newsletter investors can receive e-mails when there is an announcement and by following companies' Twitter accounts the information will show up in investors' timelines. Apart from the initial step of signing up or following potential investors will automatically receive information (Bushkin, 2013; Blankespoor et al., 2014; Ngai et al., 2015)

Furthermore, new disclosure outlets differ greatly with respect to the possibility for interaction between firms and potential investors. The new disclosure outlets employ a technology which allows for a two-way communication instead of unidirectional communication. Nevertheless, investors have the sentiment that the use of these interactive features has not developed enough to satisfy their needs. Interaction could have moved further along with the technology of Web 2.0[3] but there is a discrepancy between what the companies are willing to supply and what the investors demand considering interaction. Companies are afraid to be deprived of control of what is being said about them online while investors keep asking for more information (von Alberti-Alhtaybat and Al-Htaybat, 2016). A more detailed discussion on the special characteristics of social media as disclosure outlets and tools for investor relations is provided in a later section.

2.2.3 Connection between Disclosure Outlets

There is a positive relationship between the amount of mandatory and voluntary disclosures provided in print and online since information already produced is simple and inexpensive to post on the corporate websites or link to on social media channels (Xiao et al., 2004). von Alberti-Alhtaybat et al. (2012) call this connection between the different disclosure outlets the disclosure transformation theory. Due to this relationship, dissemination of information is both faster and reaches wider than it did before these new disclosure outlets were introduced.

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[3] Web 2.0 refers to the type of web site where people can retrieve, share, write, and store information as desired.

2.2.4 Importance of New Disclosure Outlets

Online disclosures have become increasingly important as the economy has become more globalized. Investors are searching for investment opportunities internationally which increases the demand for easily accessible information. Yanjie and Wan (2013) show that developed economies use more advanced features concerning investor relations on corporate websites. They also provide empirical evidence that investor relations of companies located in these countries are more complete, convenient, user-friendly, accurate and fair. Once again, one must be careful in translating evidence from Internet financial reporting to disclosure on social media as the technology differs to a great extent here as well (Gajewski and Li, 2015). Nonetheless, the findings show that developed countries are prone to use more advanced features when new disclosure outlets emerge.

2.3 Social Media Channels

2.3.1 Social Media

The definition of social media applied in this study is broad and has been provided by Kaplan and Haenlein (2010). It defines social media as any type of Internet-based application which builds on the foundations of Web 2.0 and facilitates the creation and exchange of user-generated content. Over 90 % of the Swedish population uses the Internet (World Bank, 2016) and globally, 93 % of all Internet users have a social media account (McGrath, 2016a). According to Fan and Gordon (2014) social networking is the most popular online activity and the average social media user spends 1 hour and 49 minutes per day on social media channels which translates into a third of the total time spent online (McGrath, 2016b).

As of January 2016 Facebook was the largest social media network with 1,55 billion monthly active users (Statista, 2016a). At the same time Twitter had 320 million active users (Statista, 2016a) which translates into a global reach of 22 % of social media users (Statista, 2016b). Even though Facebook has the largest amount of active users Twitter has been shown to be the primary choice for companies regarding investor relations (Prokofieva, 2015; Zhou et al., 2015) and it has been argued that active users may not be a proper measure for Twitter as it does not require users to log in in order to visit the website (Mander, 2015).

Due to the fast development and wide outreach of smartphones mobile social media has grown tremendously the past few years (Nielsen and NM Incite, 2012). Some still view social media as experimental and a possible fad driven by the younger generations. However, social media has grown to become a technology used by people of all ages and even though the initial adoption rate was lower for older generations the usage among them has had a high growth rate as well (Harvard Business Review Analytic Services, 2010).

2.3.2 Characteristics of Social Media Channels

Twitter
Twitter is commonly known as a micro-blog and describes itself as a global information network consisting of 140-character messages[4] which can include links, pictures and videos. Messages are termed tweets and are distinguished from other types of messages on social media channels due to their character limitation. A tweet is sent by a Twitter user and is visible in the timeline of followers of that

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[4] In this paper, ''messages'' are used to denote public posts (Facebook) and tweets (Twitter), or both, unless otherwise specified.

particular user. The tweet can also be viewed by others than followers of the account by searching for the username, text included in the tweet or a hashtag (Twitter, 2016).

By searching for or clicking on a hashtag one will find all tweets related to that particular hashtag. One single tweet can include several hashtags which are a form of labels or keywords. Another type of label commonly used on Twitter is the cashtag which is a company ticker symbol preceded by the U.S. dollar sign, e.g. $TWTR (Twitter, 2016). A cashtag, sometimes denominated a stocktwit, is used in the same way as a hashtag but is a special sort of tagging for the area of accounting, auditing and finance (Debreceny, 2015).

There are several features on Twitter which allow users to interact with a tweet. A tweet can be re-tweeted, which is when the original tweet is sent again but from the re-tweeting users account, liked or replied to (Twitter, 2016). Upon reading a tweet a variety of information can be retrieved such as when the tweet was posted, who posted it, the user name, the amount of re-tweets, likes and replies and, of course, the message itself. An example of a corporate disclosure tweet can be found in Appendix A.

Facebook
Facebook is what one might call a typical social network where most connections are between people who already know each other before connecting on Facebook. The most common way of connection requires both parties to approve – a friend request is sent by one party and accepted by another. Nonetheless, it is also possible to follow e.g. companies or brands (Facebook, 2016).

The messages posted on Facebook are termed status updates and can, as on Twitter, contain links, pictures, videos and hashtags (Facebook, 2016). A fundamental difference between the two social media channels is that Facebook, even though it does have a character limit, does not limit the length of the messages to the same extent. Status updates can be quite long which is why it is likely that information disclosed through the two channels will be designed differently (Zhou et al., 2015).

Similarly to a tweet, a status update can be shared, liked or commented on (Zhou et al., 2015). A status update contains information about when it was posted, the user name, the amount of shares, likes and comments and finally, the message itself. An example of a corporate disclosure status update can be found in Appendix B.

2.4 Social Media Disclosure and Investors Relations

2.4.1 Investor Relations as an Information Source

Investor relations can be described as the communication of corporate information to the financial community which consists of analysts, investors and potential investors. The information provides a link between the company and the financial community which is especially vital for companies relying on equity funding (Marston and Straker, 2001). In general, investor relations are valuable for companies as they may help to raise capital, improve the company's reputation and affect the ratings submitted by financial experts (Armitage and Marston, 2008).

The latest addition to investors' information sources are social media channels which are grouped into the qualitative sources together with the business press and individual journalists (Xu and Zhang, 2013). Recent research has found companies engaging in social media investor relations to have a lower level of information asymmetry (Blankespoor et al., 2014; Prokofieva, 2015, Xu and Zhang, 2013). As social media disclosures are still a quite novel phenomenon it may be difficult for investors to determine whether firms are committing to continuously increased levels of disclosure or if it is at an experimental phase (Harvard Business Review Analytic Services, 2010).

2.4.2 Adoption of Social Media for Investor Relations

Zhou et al. (2015) argue that large firms are early adopters of social media and suggest possession of more information to release and greater resources to maintain the accounts to be plausible reasons. However, there are also arguments against the likelihood of large firms using social media for investor relations as they are in less need of using social media as a disclosure outlet. Blankespoor et al. (2014) conclude that market liquidity is positively correlated with analyst following as higher analyst following leads to reduced information asymmetry which results in higher market liquidity. Thus, companies with high analyst following, and in general high level of media attention, do not need to use social media as disclosure outlets since their investors are already well informed.

The opposite applies for companies with a low level of analyst following as they are given less attention among potential investors. Investors have a limited amount of time and resources to gather information and therefore focus on a limited number of investment opportunities. Naturally, those given more attention will also be the ones likely to be traded i.e. having higher market liquidity. This means that firms with low analyst following will gain more from using social media as a disclosure outlet than firms already attracting much attention (Blankespoor et al., 2014).

Firm size and level of attention are not the only variables affecting the timing and extent of social media adoption but industry belonging also seems to play a large role. Blankespoor et al. (2014) find IT firms to be early adopters of Twitter and thus consider IT firms with low investor attention the earliest adopters of social media channels such as Twitter. When comparing adoption across industries and platforms Zhou et al. (2015) find a difference between Twitter and Facebook. They confirm that IT firms are early adopters of Twitter but discover that firms within the retail industry are early adopters of Facebook.

2.4.3 Investors' Perceptions of Social Media Investor Relations

Investors value companies with social media presence higher than those which have not adopted any social media channels and this is especially driven by Twitter and Facebook presence as these are the most commonly adopted platforms by companies (Du and Jiang, 2015). Furthermore, Du and Jiang (2015) conclude that the use of Twitter and Facebook is positively associated with firm performance measured as stock price and return on investment. These results stress just how important social media has become for investor relations purposes and that there are positive effects companies may forego by not taking advantage of the possibility to use social media as a disclosure outlets.

In a qualitative, exploratory study von Alberti-Alhtaybat and Al-Htaybat (2016) conduct interviews with companies, private investors and institutional investors in the Middle East to explore their perceptions of investor relations on social media. Their results identify Twitter and Facebook as the platforms companies should focus their social media investor relations on and indicate that investors consider companies' Twitter accounts and Facebook pages as trusted sources of information. The reason for the high level of trust in social media as a disclosure outlet traces back to the push technology used by companies. Information posted on Twitter or Facebook comes directly from companies themselves and according to a survey conducted by Golz and Zivin (2015) direct information from companies is ranked as the most important information source for investment decisions. It ranks higher than e.g. real time subscriptions of information sources and analyst research. However, by all of the options for direct company information social media disclosure is ranked the lowest – lagging behind e.g. conference calls, regulatory filings, news releases and the company website. Good and bad news must be treated equally in how they are communicated, otherwise investors may lose the trust they have for direct company information (Bushkin, 2013).

2.4.4 Social Medias' Impact on Investment Decisions

It has been concluded above that there are more important information sources for investors than social media. Nevertheless, information disclosed on social media channels has been shown to have an impact on the actions taken by investors. 26 % of European investors have followed up on leads which they have initially become aware of on social networks, such as Facebook, and the corresponding percentage for micro-blogs, such as Twitter, is 21 %. Out of these, 8 % respectively 9 % have based an investment decision on that initial information (Golz and Zivin, 2015). Other than conducting research, investors also use social media channels to discuss disclosed information with others and further disseminate that information (Saxton, 2012).

However, far from all information posted on companies' social media accounts is related to corporate disclosure. Zhou et al. (2015) find that 7 % of messages posted on Facebook are related to either mandatory or voluntary disclosure and the corresponding percentage for Twitter is 3.5 %. Furthermore, the sort of disclosure posted on the two channels differs as Facebook is more commonly used for disclosure of non-financial information while Twitter is preferred for financial disclosures (Prokofieva, 2015; Zhou et al., 2015).

2.4.5 Companies' Perceptions of Social Media Investor Relations

From a company point of view the use of social media as a channel for investor relations is expected to bring benefits in form of increased transparency, reach of new target groups, increase in market share, competitive advantage and an improved perception by the investment community (von Alberti-Alhtaybat and Al-Htaybat, 2016). These expectations are in line with the beneficial aspects of investor relations in general, presented by Armitage and Marston (2008), but it adds an expectation related to the characteristics of social media – the reach of new target groups. However, the effects are not only potentially beneficial. There are reasons for companies to avoid corporate disclosures on social media and three of them were identified in interviews carried out by von Alberti-Alhtaybat and Al-Htaybat (2016).

First of all, a company disclosing corporate information quickly loses control of that information after its initial presentation. News travel fast on social media and companies do not want to risk losing control of an unfavorable reaction spreading among the investment community. Second, there is a lack of regulation regarding social media disclosures in most countries which makes it an uncertain area. Only the Securities and Exchange Commission in the U.S. has issued guidelines for reporting on social media (Parrino and Greenslade, 2014) and companies in other jurisdictions may not be willing to risk violating the disclosure regulations for regulated markets. The third reason suggested by von Alberti-Alhtaybat and Al-Htaybat (2016) is somewhat conflicting. The interviewed investors had a positive mindset towards investor relations on social media but the companies mentioned that there is not a large enough demand. The results propose that firms are yet to understand the extent of the demand for social media disclosures.

Bushkin (2013) identifies four primary reasons to why firms choose not to adopt social media for investor relation purposes. Two of them are consistent with what is suggested by von Alberti-Alhtaybat and Al-Htaybat (2016), namely a perceived lack of demand from investors and the inability of controlling the message. The remaining two suggest that management does not recognize its value and the inability of using social media to the best advantage of the firm. This stands in contrast to the findings of von Alberti-Alhtaybat and Al-Htaybat (2016) as they did not find firms to be unable of handling investor relations through social media.

2.4.6 The Future of Investor Relations on Social Media

Even though many firms utilize social media as a tool for investor relations the approach for it can be developed much further than it has to this point. The use is still limited and usually revolves around disclosing information regarding share price, publishing financial statements and to some extent updates on general annual meetings (Yanjie and Wan, 2013). Nevertheless, the technological characteristics of social media allow for investor relations to be far more interactive than they are today. It has been stated that online disclosures are much more timely and interactive than traditional disclosure outlets but investors want more in regard to interactivity. The technology supports two-way communication but currently it is mostly about pushing information (Lodhia et al., 2004; von Alberti-Alhtaybat and Al-Htaybat, 2016). The specific features differentiating social media from other disclosure outlets are the possibility to receive real-time accounting information, the rapid spread of information and the fact that it allows for a dialogue between firms and investors (Saxton, 2012). However, all social media channels do not have the same characteristics. They may seem similar but the existing differences contribute to diversified usage and acquisition.

Zhou et al. (2015) study the user engagement on Twitter and Facebook and find that there are large differences in the interactivity. They discover that the time elapsed between the disclosure and the first user interaction is only 13 minutes on Twitter in comparison to 25 minutes on Facebook. Then, measuring the user engagement proxied by the time elapsed from the first user interaction to the last user interaction, they show that Twitter users are only engaged for 10 minutes while Facebook users keep interacting for 427 minutes. Thus, it appears as Facebook might be a better platform for the interactivity sought after by investors. Facebook seems to be more focused on user engagement whereas Twitter appears to be a platform appropriate for spreading news (Zhou et al., 2015).

Most participants interviewed by von Alberti-Alhtaybat and Al-Htaybat (2016) expressed that they believe investor relations on social media will increase which is consistent with the results of a Brunswick survey where 64 % of investors stated that they believe that the role of digital media will increase (Golz and Zivin, 2015). However, Zhou et al. (2015) find that the percentage of corporate disclosure has consistently decreased on Twitter since 2010 while is has increased on Facebook. Thus, it seems as if Twitter may have been companies' first choice in the initial phase of social media investor relations while Facebook may be the preferred platform in the future. This is supported by both the timing of adoption as well as the reverse trends of disclosure amounts on both channels. On the other hand, adoption rates of both Twitter and Facebook are slowing down which might mean that companies' social media presence may not increase as much as investors believe (Zhou et al., 2015).

2.5 Hypothesis Development

The literature discussed above illustrates that social media have become an important tool for investor relations and that the area is under-researched. The use of Twitter and Facebook is widespread among both companies and investors and there is yet much to learn about its effect on the capital market. A key point in the research is that evidence from disclosure research on one social media channel may not be valid for other social media channels due to their very different characteristics. The mechanisms for how information is displayed and interacted with differ greatly and the technological differences must be taken into account when analyzing the effect of social media disclosures on information asymmetry (Gajewski and Li, 2015; Xu and Zhang, 2013).

Sprenger et al. (2014) find evidence that stock-related messages on Twitter are informative which is also supported by the results of Blankespoor et al. (2014) who find that IT firms' disclosure on Twitter reduces information asymmetry. However, such results are not translatable to other types of disclosure outlets or generalizable for samples with other industry distributions. Saxton (2012) points out that evidence regarding other online disclosure channels, such as message boards and email spam, point in

the other direction. Whether corporate disclosures are informative or not can be determined by measuring its effect on information asymmetry.

The abnormal bid-ask spread can be used as a proxy for information asymmetry when investigating the effect of new disclosure outlets (Blankespoor et al., 2014; Prokofieva, 2015; Saxton, 2012). Prokofieva (2015) confirms the results of Blankespoor et al. (2014) finding that corporate disclosure on Twitter by Australian firms reduces information asymmetry. Recent research investigating corporate disclosures on social media reports on the effect of using one single social media channel even though most companies present on social media choose to adopt several social media channels (Culnan et al., 2010). Therefore the current study aims to investigate the effect on information asymmetry when two social media channels, Twitter and Facebook, are jointly utilized as disclosure outlets.

Three hypotheses are formulated and tested based on prior knowledge within the research area. Each hypothesis represents a different stage of usage of social media as disclosure outlets and the first stage is assumed to be the sheer presence on social media channel as investors have been shown to value firms with social media presence higher compared to other firms (Du and Jiang, 2015). Next, the level of information asymmetry is hypothesized to be lower for firms using social media as a disclosure outlet by posting corporate disclosures on Twitter and Facebook (Blankespoor et al., 2014; Prokofieva, 2015). Finally, the aspect of acquisition of disclosures is introduced. By applying users' interaction with the disclosure it is possible to analyze whether the disclosure is used by potential investors or if it is disseminated without any reactions to it. Therefore, the last hypothesis relates to whether the disclosure has been acquired by users or not (cf. Prokofieva, 2015).

(1) Presence Social Media:

H_1: Firms with a high level of social media presence experience lower levels of information asymmetry.

(2) Disclosure Social Media:

H_2: Firms using social media channels as disclosure outlets experience lower levels of information asymmetry.

(3) Acquisition Disclosure:

H_3: Firms whose disclosures through social media channels are acquired by users experience lower levels of information asymmetry.

3 Methodology

3.1 Research Design

3.1.1 Event Study

The hypotheses were tested using an event study where events were defined as the annual report announcements made by a sample of Large Cap companies listed on the Stockholm Stock Exchange (STO). An event day was defined as the day of the annual report announcement and the event period included three days (trading day-1, event day, trading day +1). The time before an event period, until the end of the previous event period, was defined as the pre-event period. See Figure 1 for a visual explanation.

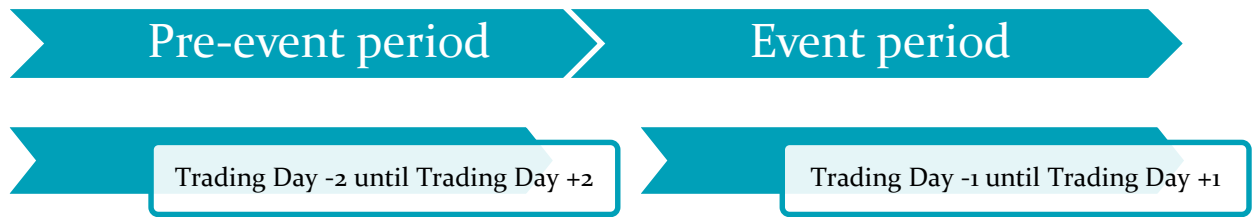| Pre-event period	Event period
Trading Day -2 until Trading Day +2	Trading Day -1 until Trading Day +1

Figure 1. Explanation of Event Period Terms

This definition of event periods is consistent with prior research designs studying the effect of stock market announcements on information asymmetry in an event study (Blankespoor, 2014; Bushee et al., 2010; Prokofieva, 2015). The use of an event window of three days is also recommended by MacKinlay (1997) as it adds certainty in identifying the correct event day which he stresses is crucial for the success of event studies. Since event days can be difficult to determine the use of an event period of three days increases the confidence in capturing the event (MacKinlay, 1997). This research design allowed for knowledge to be derived from empirical findings by explaining if and how information asymmetry is affected by the use of disclosures on companies' official Twitter and Facebook accounts.

3.1.2 Models to Test Social Media Disclosures Effect on Information Asymmetry

To test the hypotheses stated in section 2.5 three corresponding models were specified. All three were developed from a general model aiming to measure the effect of using social media as disclosure outlets. The general model looked as follows:

$$SpreadAbn_{it} = \beta_0 + \beta_1 UsageSocialMedia_{it} + \sum Controls + \varepsilon_{it}$$

where $SpreadAbn_{it}$ measured the information asymmetry for firm i and annual report announcement event t. $UsageSocialMedia_{it}$ represented the tested independent variable in each model and corresponded to the three stages of social media use described in the hypothesis development. Every model used the same set of control variables.

Use of social media as an outlet for corporate disclosure was hypothesized to have an impact on information asymmetry. The literature providing the base for the hypotheses was retrieved from the area of corporate disclosures and investor relations. A visual description of the general model and how it was connected to the theories presented in Chapter 2 is provided in Figure 2 below.

Information Asymmetry	Social Media
Investor Relations	Corporate Disclosure

Figure 2. The General Test Model and its Connection to Theory

Three models were specified with the general model as a basis. This facilitated a comparison of the effect on information asymmetry during the three stages of usage of social media as disclosure outlets. The models differed with respect to the independent variable used to measure usage of social media but were identical in all other aspects. The independent variables were dummies and equaled 1 if the stage of usage was confirmed; and 0 otherwise. The control variables used were *VarEarnings_{it}, VolumeAbn_{it}* and *Volatility_{it}*. Each model was connected to a corresponding hypothesis and the models are explained in more detail below.

(1) Model to Test Presence Social Medias Effect on Information Asymmetry:

$$SpreadAbn_{it} = \beta_0 + \beta_1 PresenceSocialMedia_{it} + \beta_2 VarEarnings_{it} + \beta_3 VolumeAbn_{it} + \beta_4 Volatility_{it} + \varepsilon_{it}$$

PresenceSocialMedia_{it} measured the level of social media presence where a high level of social media presence was defined as having both Twitter *and* Facebook accounts. Thus, Model 1 tested the hypothesis of firms with a high level of social media presence experiencing lower levels of information asymmetry.

(2) Model to Test Disclosure Social Medias Effect on Information Asymmetry:

$$SpreadAbn_{it} = \beta_0 + \beta_1 DisclosureSocialMedia_{it} + \beta_2 VarEarnings_{it} + \beta_3 VolumeAbn_{it} + \beta_4 Volatility_{it} + \varepsilon_{it}$$

DisclosureSocialMedia_{it} represented firms' active use of social media as disclosure outlets defined as having posted messages on both Twitter *and* Facebook related to annual report announcements during the event period. Model 2 tested the hypothesis of firms using social media channels as disclosure outlets experiencing lower levels of information asymmetry.

(3) Model to Test Acquisition Disclosures Effect on Information Asymmetry:

$$SpreadAbn_{it} = \beta_0 + \beta_1 AcquisitionDisclosure_{it} + \beta_2 VarEarnings_{it} + \beta_3 VolumeAbn_{it} + \beta_4 Volatility_{it} + \varepsilon_{it}$$

AcquisitionDisclosure_{it} measured whether the disclosures made on Twitter and Facebook by firms were acquired by the users by interacting with them. The last model, Model 3, tested the hypothesis of firms, whose disclosures through social media channels are acquired by users, experiencing lower levels of information asymmetry.

3.1.3 Measurement of Information Asymmetry

A variety of measures of information asymmetry have been applied in research on disclosures, e.g. trading volume (Leuz and Verrecchia, 2000), stock price volatility (Land and Lundholm, 1996) and the bid-ask spread (Aitken and Frino, 1996; Blankespoor et al., 2014, Bushee et al., 2010; Prokofieva, 2015). Yohn (1998) identifies bid-ask spread as a composition of three cost components, one of them being adverse information cost which is the cost for asymmetric information. The remaining two components are the order processing cost of the market maker which reflects the fee for matching buy and sell orders and the inventory holding cost which reflects the market makers risk for keeping securities in inventory. To isolate the effect of the disclosure on the level of information asymmetry inclusion of control variables was required to control for the effect of order processing cost and inventory holding cost (Affleck-Graves et al., 2000). The control variables are further explained in the section on Control Variables.

The measurement of information asymmetry used in this study was the abnormal bid-ask spread *(SpreadAbn)* as it allowed for firm-fixed effecs correlated with the bid-ask spread to be removed (Blankespoor et al. 2014; Prokofieva, 2015).

3.1.4 Measurement of Use of Social Media as Disclosure Outlets

This study stated three hypotheses which were tested using the models specified in 3.1.2. The models differed by applying three different variables to measure use of social media as disclosure outlets.

The first variable measured the sheer presence on social media and was defined as having active Twitter *and* Facebook accounts. Thus, *PresenceSocialMedia* equaled 1 if a firm had active Twitter *and* Facebook accounts and 0 otherwise.

The second variable, *DisclosureSocialMedia*, measured firms' active use of social media as disclosure outlets by measuring if a firm had posted messages on both Twitter and Facebook relating to the annual report announcements during the event period. The messages on both channels were examined manually to determine if the message was related to the announcement or not. *DiclosureSocialMedia* equaled 1 if related messages were identified and 0 otherwise.

Finally, there third variable measured the acquisition of social media disclosures identified for the variable above. *AcquisitionDisclosure* was used as a measure of investor attention since firms' mere transmission of information does not guarantee the information has been read. Taking interaction into account, *AcquisitionDisclosure* equaled 1 if the message related to the annual report announcement had been re-tweeted/shared, liked and/or replied to/commented on by the users and 0 otherwise.

3.1.5 Control variables

As mentioned earlier it was necessary to control for order processing costs and inventory holding costs when using bid-ask spread as a measure of information asymmetry. This study followed Prokofieva (2015) by employing price volatility *(Volatility)* and trading volume *(VolumeAbn)* as control variables for those effects. The use of these proxies for order processing cost and inventory holding cost has also been confirmed by other studies (Aitken and Frino, 1996; Bushee et al. 2010). Furthermore, the models also controlled for firm specific risk by including a variable controlling for variability of earnings *(VarEarnings)* since firms with unpredictable earnings levels tend to have a higher level of information asymmetry (Yohn, 1998).

3.2 Data Analysis

First, data gathered from firms' individual Twitter and Facebook accounts were analyzed using descriptive statistics to discuss the differences in characteristics and usage. Second, descriptive statistics of variables included in the models and the pairwise correlations of model variables were discussed. Then, to answer the hypotheses stated in section 2.5, a total of three multiple regressions were run using the corresponding models specified in section 3.1.2. Each regression aimed to analyze the effect on information asymmetry when firms use Twitter and Facebook as disclosure outlets at different stages during event periods related to annual report announcements. The first regression analyzed the effect on information asymmetry when firms had a high level of social media presence. The second regression analyzed the effect on information asymmetry when firms actively used social media as disclosure outlets while the third regression analyzed the effect on information asymmetry when users acquired those disclosures by interacting with the messages.

3.3 Data Collection

Data consisted of (1) messages and information from companies' individual Twitter and Facebook accounts, (2) announcements of annual report releases and trading information from NASDAQ OMX Nordic and (3) firm data from DataStream Professional.

Information retrieved from companies' official Twitter and Facebook accounts included company specific information such as adoption time and number of followers, messages related to the annual report announcements and users' acquisition of the information posted meaning interaction in the form of re-tweeting/sharing, liking or replying to/commenting on the messages.

Companies' official Twitter and Facebook accounts were found in the following manner. First, the NASDAQ OMX Nordic website was utilized to locate the official websites of the companies. Then, upon entering the websites a visual search was conducted to find a link to their Twitter and Facebook accounts. Usually one could simply click a Twitter or Facebook logo which was often placed next to a text suggesting "Follow us on". A first search was carried out on the websites home page and investor relations page. If nothing was found there the search carried on to the remaining pages of the website. In the cases where a company website did not contain any connections to either Twitter or Facebook accounts the search was extended to the use of Twitters and Facebooks own search engines by entering the company name in the search tool. If an account could not be located it was noted. Some companies had several accounts and in that case they were scanned for the nature of information posted, the amount of followers and the number of messages posted. E.g. a company could have one account dedicated to customer service and another one for investor relations. It could also have one account for its global operations and several smaller accounts for countries in which they operate. It was important to determine that the gathered accounts were the actual official company accounts. In this data collection all identified accounts were regarded official company accounts. If it had been believed that that was not the case those accounts would have been excluded from the sample (Prokofieva, 2015; Zhou et al., 2015).

The messages collected were those found to be related to the announcement of the annual report within the three-day event period. Re-tweets/shares were not collected as their content is not formed by the company but by a third party and therefore not of interest for the analysis in this study.

Companies listed on the Stockholm Stock Exchange (STO) must apply the rules and regulations set for issuers of securities. These rules state that information reasonably expected to affect the price of securities must be disclosed in a manner ensuring fast access to such information on a non-discriminatory basis. Practically, this means that the company is obliged to disclose the required information through the Exchange no later than simultaneously with any other disclosure of the

information (NASDAQ, 2016a). Thus, the most appropriate source of retaining information about the timing of the annual report release was the announcement published on the NASDAQ OMX Nordic website. All information regarding share prices was also collected from the NASDAQ OMX Nordic website. Firm specific data on financial information and industry belonging was collected from the DataStream Professional database.

Next, Table 1 provides a summary of model variables, their definitions and the corresponding source of data collection.

TABLE 1
Variable Definitions

Variable	Measurement	Source
SpreadAbn	Abnormal bid-ask spread calculated as the difference between the event period average daily percent spread minus the pre-event period average daily percent spread. Daily percent spread was measured as the daily average of each quote's spread, calculated as the difference between the offer price and bid price, divided by the midpoint of the offer and bid price.	NASDAQ OMX Nordic
PresenceSocial Media	The variable equaled 1 if the firm had active Twitter and Facebook accounts; and 0 otherwise.	Individual Twitter and Facebook accounts
DisclosureSocial Media	The variable equaled 1 if the firm posted a message on both Twitter and Facebook during the event period closely relating to the content of the annual report announcement; and 0 otherwise.	Individual Twitter and Facebook accounts
Acquisition Disclosure	The variable equaled 1 if the firms message related to their annual report announcement was retweeted (shared) and/or liked and/or replied to (commented on) by other users at least once during the event period; and 0 otherwise.	Individual Twitter and Facebook accounts
VarEarnings	Log of the standard deviation of earnings across eight fiscal quarters before the event period quarter.	DataStream Professional
VolumeAbn	Log of the abnormal trading volume calculated as median- adjusted accumulated volume: the difference between the percentage share turnover for the event period and the median daily share turnover in the pre-event period. The percentage share turnover for the event period is the daily volume of shares divided by the number of common shares outstanding.	DataStream Professional
Volatility	Log of the average daily stock price volatility during the pre-event period calculated as the difference between daily highest price and lowest price divided by the average of the highest and the lowest.	NASDAQ OMX Nordic

3.4 Sample Selection Process

3.4.1 Sample Selection

The total sample consisted of Large Cap firms listed on the Stockholm Stock Exchange (STO) and its details are provided in Table 2, Panel A. As the current study aimed to examine the utilization of social media as disclosure outlets and which effects it has on information asymmetry the sample was chosen on a basis of companies which were likely to use Twitter and Facebook for disclosure purposes. Large firms have been shown to be early adopters of new disclosure practices, such as online financial reporting (Hedlin, 1999; Zhou et al., 2015), and therefore a sample of Large Cap firms increased the probability of identifying observations of firms using Twitter and Facebook as disclosure outlets.

Initially, the sample consisted of all Large Cap firms listed on the Stockholm Stock Exchange (STO) as of April 2016. If a firm had multiple listings the security with the highest trading volume was chosen for data collection purposes resulting in 78 firms. Since social media disclosures are a fairly new phenomenon data retrieval from social media accounts was limited to the years where observations could be found. To be able to find observations where both Twitter and Facebook had been used for corporate disclosures a sample including observations from the past three years was deemed appropriate. Each observation represented an event which was the announcement related to the annual report release of each company during the years 2014-2016. Thus, a sample of 78 firms equaled 234 events related to these firms.

However, due to missing data in the DataStream Professional database the sample was reduced by 17 firms and their corresponding 51 events. Among these firms eight were missing data due to being foreign entities, five had been recently listed meaning data was not available for the entire three-year period and four were missing data due to unknown reasons. The final total sample consisted of 183 events related to 61 firms.

TABLE 2

Sample Details

Panel A: Sample Details - Total Sample

	# of Firms	# of Events
Large Cap firms listed on STO as of April 2016	78	234
Exclude firms with missing DataStream Professional data	(17)	(51)
Final announcements sample	61	183

This table provides data on sample selection. An event was identified as the annual report announcement. Events were identified for the 61 companies during three years. The final sample included 183 STO annual report announcements of Large Cap firms listed on the Stockholm Stock Exchange.

To achieve the purpose of comparing firms using multiple social media channels as disclosure outlets to those who use one or none the total sample was divided into two sub-samples. These were denominated as firms with high level of social media presence and firms with low level of social media presence. Panel B provides the sample details for the sub-sample with high social media presence which was defined as having active Twitter *and* Facebook accounts. Thus, firms without active Twitter and Facebook accounts were excluded from the sample. At this stage the sample was narrowed down to 45 firms and 135 events. After excluding firms with missing data on the DataStream Professional database the sub-sample of firms with a high level of social media presence consisted of 33 firms and their 99 corresponding annual report announcement events.

Panel C provides the sample details of the second sub-sample containing firms with low level of social media presence. This was defined as having either an active Facebook account *or* Twitter account, or not being present on any of these social media channels. After excluding firms having active Twitter and Facebook accounts the second sub-sample consisted of 33 firms and 99 event. By excluding the firms missing DataStream Professional data the final sub-sample of firms with low level of social media presence was selected, consisting of 28 firms and their 84 events.

TABLE 2 (continued)

Panel B: Sample Details - High Social Media Presence Sub-sample

	# of Firms	# of Events
Large Cap firms listed on STO as of April 2016	78	234
Exclude firms without active Twitter and Facebook accounts	(33)	(99)
Firms with active Twitter and Facebook accounts	45	135
Exclude firms with missing DataStream Professional data	(12)	(36)
Final announcement subsample	33	99

This table provides data on sample selection. An event was identified as the annual report announcement. Events were identified for the 33 companies during three years. The final sub-sample included 99 STO annual report announcements of firms which had active Twitter and Facebook accounts.

Panel C: Sample Details - Low Social Media Presence Sub-sample

	# of Firms	# of Events
Large Cap firms listed on STO as of April 2016	78	234
Exclude firms with active Twitter and Facebook accounts	(45)	(135)
Firms without active Twitter and Facebook accounts	33	99
Exclude firms with missing DataStream Professional data	(5)	(15)
Final announcement subsample	28	84

This table provides data on sample selection. An event was identified as the annual report announcement. Events were identified for the 28 companies during three years. The final sub-sample included 84 STO annual report announcements of firms which did not have active Twitter and Facebook accounts.

3.4.2 Industry Distribution

Table 3 provides the sample distribution by industry for the total sample as well as the two sub-samples *High Social Media Presence* and *Low Social Media Presence*. The industry belonging was categorized by SIC codes. Among the ten available industry categories a total of seven were represented in the total sample. The three industries not represented were "*Agriculture, Forestry, Fishing", "Wholesale Trade"* and *"Public Administration"*. Firms within *"Manufacturing"* constituted 44.3 % of the events which is plausible considering the strong tradition of manufacturing firms in Sweden. The next large group was *"Finance, Insurance, Real Estate"* representing 24.7 % of the events followed by *"Services"* adding up to 11.5 % of the events. Only a few observations were related to the industry categories *"Mining", "Construction", "Transportation & Public Utilities"* and *"Retail Trade"*.

The distribution within the *High Social Media Presence* sub-sample included the same industries as the total sample and displayed a quite similar distribution. It differed considering a couple of categories which were the percentage of events for *"Construction"* being twice as high in the sub-sample compared to the total sample and the percentage for *"Manufacturing"* being only 39.4 % in the sub-sample as opposed to 44.3 % in the total sample.

Only half of the industries were represented in the *Low Social Media Presence* sub-sample as there were neither observations related to "*Mining"* nor *"Construction"*. Observations related to *"Manufacturing"* constituted half of the sub-sample while *"Finance, Insurance, Real Estate"* represented 32.1 %. A few observations related to the industry categories *"Transportation & Public Utilities"*, *"Retail Trade"* and *"Services"*.

TABLE 3

Industry Distribution of Sample

Distribution of Sample Events by Industry - Total Sample and Sub-Samples

Industry Division	# of Events	Total Sample % of Events	# of Events	High Social Media Presence % of Events	# of Events	Low Social Media Presence % of Events
Agriculture, Forestry, Fishing	0	0.0	0	0.0	0	0.0
Mining	3	1.6	3	3.0	0	0.0
Construction	12	6.5	12	12.1	0	0.0
Manufacturing	81	44.3	39	39.4	42	50.0
Transportation & Public Utilities	12	6.5	9	9.1	3	3.6
Wholesale Trade	0	0.0	0	0.0	0	0.0
Retail Trade	9	4.9	6	6.1	3	3.6
Finance, Insurance, Real Estate	45	24.7	18	18.2	27	32.1
Services	21	11.5	12	12.1	9	10.7
Public Administration	0	0.0	0	0.0	0	0.0
	183	100%	99	100%	84	100%

The panel provides distribution of sample events by industry. Industry categories were based on SIC codes of corresponding firms. The total sample consisted of 183 annual report announcements of 61 firms. The sub-sample *High Social Media Presence* included 99 annual report announcements of 33 firms with active Twitter and Facebook accounts. The sub-sample *low Social Media Presence* included 84 annual report announcements of 28 firms without active Twitter and Facebook accounts. The data relate to announcement events from February 2014 to April 2016.

3.5 Literature Search

In pursuance of identifying the relevant body of literature addressing the subject area a literature search was carried out prior to any data collection. The literature was found by searching for a set of keywords (*social media, disclosure outlets, corporate disclosure, mandatory disclosure, voluntary disclosure, information asymmetry, investor relations, Twitter, Facebook)* on the databases *Business Source Premier* and *Emerald insight*. The process of searching for relevant literature continued with the use of the snowballing technique, finding additional literature within the reference lists of articles read.

The research area of social media disclosure is closely related to both the area of accounting and the area of management information systems. Thus, literature was found in journals such as *Journal of Accounting and Economics, Journal of Accounting Research* and *The Accounting Review* as well as *Journal of Information System* and *MIS Quarterly*.

3.6 Evaluation of Validity and Reliability

As this study used quantitative data for analysis it is reliable since it would be possible to re-create the study and receive the same results (Ryan et al., 2002 p. 155) Some manual assessment was included in the process of gathering data as it had to be determined if messages were related to annual report announcements or not and which accounts were the official company accounts. Nonetheless, it is deemed likely that another researcher would make the same interpretations as have been made in this study since no difficulties in determination were experienced.

With regard to the internal validity efforts were made to conduct a thorough literature review to identify the most appropriate measures to include in the model for analyzing the effect on information asymmetry (Ryan et al., 2002 p.123). Due to the limited number of observations available for the Swedish context not all potentially relevant variables could be included as controls. Furthermore, the measurements of social media usage were adapted to the resources and time available for this study. Other measurements may capture the social media usage better than the dummy variables used in this study but that would require much more advanced manners of data collection than manual gathering.

The external validity concerns the generalizability of the results (Ryan et al., 2002 p.124). The study sample included all Large Cap firms listed on the Stockholm Stock Exchange implying that the findings can be generalized for large companies. However, since the use of social media differs between countries it is not certain that the evidence will hold in other geographical areas.

Additional tests have been performed to test the robustness of the model. The means of the model variables were compared across the three different groupings *(PresenceSocialMedia, DisclosureSocialMedia* and *AcquisitionDisclosure)* to see if there were any significant differences between the groups with regards the bid-ask spread but no such differences were found. Furthermore, regressions using variables related to only Twitter activity instead of social media activity (Twitter and Facebook) were run without any significantly different results. Thus, the model appears to be robust.

3.7 Limitations

The sample was delimited to large companies listed on the Stockholm Stock Exchange (STO) and thus its generalization ability for smaller firms is limited. The results cannot on their own be transferred to other capital markets as the use of social media or industry mix is likely to differ. Furthermore, the study is limited to analyzing the messages related to annual reports announcements on Twitter and Facebook. Inclusion of other market affecting announcements may result in a different conclusion.

4 Empirical Results and Discussion

4.1 Descriptive Statistics of Social Media Activity and Model Variables

4.1.1 Descriptive Statistics of Social Media Activity

Recent research has shown that Twitter and Facebook have different characteristics and are used for different purposes (Zhou et al. 2015). Table 4 provides descriptive statistics of firms' social media accounts and activities such as adoption dates, number of followers and usage of features for both social media channels. This analysis is performed on the sub-sample of firms with high social media presence as those have active Twitter and Facebook accounts which is a requirement for this part of the analysis. Panel A provides the statistics for Twitter activity of 33 firms while Panel B provides the statistics for Facebook activity of the same 33 firms.

The number of Large Cap firms listed on the Stockholm Stock Exchange with active Twitter and Facebook accounts adds up to over 50 % of the firms in the total sample which can be compared 30% of public U.S firms having adopted both Twitter and Facebook (Zhou et al. 2015). The number of events analyzed in Panel A and B for each social media channel is 49 observations for Twitter and 24 observations for Facebook. Among these observations most messages were posted on the event day, shortly after the annual report announcement had been published. A few messages were posted the day after the event day and none were posted before the event day which is consistent with the regulations on simultaneous disclosure.

By comparing the results in Panel A and B conclusions can be drawn regarding the differences in characteristics and usage of Twitter and Facebook. The number of messages is higher on Twitter (49) than on Facebook (24) indicating that Twitter is the preferred channel for further disclosure of annual report announcements. These results are consistent with Twitter being the preferred channel for disclosure of financial information (Prokofieva, 2015; Zhou et al., 2015).

Adoption of Twitter occurred earlier than adoption of Facebook which is clear upon examining both the first adoption date but also every percentile. The average adoption date for Twitter (July 2010) is almost a year earlier than it is for Facebook (May 2011). Zhou et al. (2015) show that adoption rates are slowing down but adoption of social media channels still occurs as the last adoption of both Twitter and Facebook was in 2015.

There is a large dispersion regarding the amount of followers, both between the two channels as well as within them. The minimum number of followers on Twitter and Facebook are 177 and 416 respectively while the maximum is almost 8 million for Twitter and 30 million for Facebook. Some firms are international and are therefore likely to have more followers if using one global account. Also, some firms use the accounts exclusively for investor relations while others also use them for marketing, customer service or recruitment which also affects the number of followers. The same applies for firms whose products/services target individuals rather than other companies. As there are some outliers in the sample the mean is not a good estimate for comparing Twitter and Facebook so the median is used for this part of the analysis. The median number of followers for Twitter accounts (4 093) is less than half of the median number of followers for Facebook accounts (10 798) which indicates a wider outreach on Facebook and a potential to reach more investors with the disclosed information.

When it comes to the design of the messages there are several possibilities for variation. As discussed earlier Twitter has a limitation of 140 characters per tweet whereas it is possible to write lengthy updates on Facebook. This part of the analysis examines the usage of hashtags, pictures and links in the disclosures made and finds hashtags to be more commonly used by firms on Twitter. Approximately one fifth (22,.5 %) of tweets examined include a hashtag whereas no hashtags are found in the Facebook

status updates. The cashtags, or stocktwits, which can be used for specific tagging for messages relating to accounting, auditing and finance, are not included in any of the messages. Pictures are used to a greater extent on Facebook, where more than half (58.3 %) of the updates include pictures, than on Twitter where the corresponding amount is approximately a quarter (24.0 %). Links are the most commonly used features on both channels. All Facebook updates and 98 % of tweets include a link leading to annual reports or firms' investor relations websites.

Users can interact with tweets and updates by re-tweeting/sharing, liking or replying to/commenting on a message. The interaction is a sign that the user has acquired the information disclosed and not simply scrolled passed it (Prokofieva, 2015). However, one must bear in mind that a lack of interaction does not mean that the information has not been acquired. A message can be read by potential investors without them interacting with it. The percentage of messages related to annual report announcements interacted with is 71.4 % for Twitter and 95.8 % for Facebook.

Among the three possible ways of interaction likes and re-tweets are the most common on Twitter whereas not even one tweet in the sample was replied to. The average number of likes for a tweet is 1.37 while re-tweets seem a bit more popular with an average of 1.45 per tweet.

Comments, which are the equivalent of replies, are similarly the least used tool for interaction on Facebook. The average number of comments is 0.46 per status update and 3 is the maximum amount of comments given a status update. Likes are the most common way of interacting with status updates with an average of 32.75 likes per status update which is much higher than the 1.37 likes the average tweet receives. Shares on Facebook are also more common than the re-tweets on Twitter with an average of 3.5 and a maximum of 36. The maximum number of re-tweets is 8.

It appears as the level of interaction is higher on Facebook than on Twitter which implies Facebook is a better channel for a two-way communication with investors (von Alberti-Alhtaybat and Al-Htaybat, 2016). This, together with the evidence of longer interaction periods on Facebook provided by Zhou et al. (2015) suggests that Facebook may actually be a more appropriate social media channel for investor relations in the future considering the new demands from investors.

During the manual gathering of messages and data related to these their content has also been investigated. A majority of the messages posted on Twitter and Facebook relating to the same annual report announcement are identically designed, or at least contain the same text but may or may not include a picture. This finding supports the theory of information already produced being disseminated through several channels as it is simple and inexpensive to do so. Once a message has been designed it is easily disclosed on multiple social media channels (Xiao et al, 2004). Only in a couple cases the texts in the messages differ and in those cases the status updates are longer than the tweets, exceeding the 140 character limitation on Twitter. This is a clear example of how Twitter and Facebook are used differently due to their different technological characteristics.

TABLE 4

Descriptive Statistics of Social Media Activity

Panel A: Twitter Activity across Firms in High Social Media Presence Subsample

Variable	n	Mean	Std.Dev.	Min	P25	Median	P75	Max
Total Sample								
Adoption date	33	2010/07/18	610	2008/04/15	2009/03/19	2009/11/10	2011/07/16	2015/06/18
No. of followers	33	249 024.818	1 358 534.605	177.000	1 716.000	4 093.000	8 498.000	7 814 271.000
Hashtags tweets	49	0.225	0.422	0.000	0.000	0.000	0.000	1.000
Pictures tweets	49	0.240	0.434	0.000	0.000	0.000	0.500	1.000
Links tweets	49	0.980	0.143	0.000	1.000	0.000	1.000	1.000
Acquisition tweets	49	0.714	0.456	0.000	0.000	1.000	1.000	1.000
Likes tweets	49	1.370	1.901	0.000	0.000	0.000	2.500	7.000
Re-tweets tweets	49	1.450	1.883	0.000	0.000	1.000	1.000	8.000
Replies tweets	49	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Variable Definitions:

Adoption date = date of the creation of the firm's Twitter account;

Number of followers = number of Twitter users signed up to receive the firm's tweets as of April 27th 2016;

Hashtags tweets = percentage of the firm's tweets related to the announcement of the annual report which include one or more hashtags;

Pictures tweets =percentage of the firm's tweets related to the announcement of the annual report which include a picture;

Links tweets = percentage of the firm's tweets related to the announcement of the annual report which include a hyperlink;

Acquisition tweets =percentage of firm's tweets related to the announcement of the annual report which are acquired by Twitter users by liking, re-tweeting or replying to the tweet;

Likes tweets = number of likes achieved by the firm's tweets related to the announcement of the annual report;

Re-tweets tweets = number of re-tweets achieved by the firm's tweets related to the announcement of the annual report;

Replies tweets = number of replies achieved by the firm's tweets related to the announcement of the annual report.

TABLE 4 (continued)

Panel B: Facebook Activity across Firms in High Social Media Presence Subsample

Variable	n	Mean	Std.Dev.	Min	P25	Median	P75	Max
Total Sample								
Adoption date	33	2011/05/15	596	2009/03/23	2010/03/09	2010/10/25	2012/08/27	2015/02/12
No. of followers	33	968 280.606	4 699 653.763	416.000	3 535.000	10 798.000	50 790.000	26 916 452.000
Hashtags updates	24	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pictures updates	24	0.583	0.504	0.000	0.000	1.000	1.000	1.000
Links updates	24	1.000	0.000	1.000	1.000	1.000	1.000	1.000
Acquisition updates	24	0.958	0.204	0.000	1.000	1.000	1.000	1.000
Likes updates	24	32.750	54.120	0.000	5.250	14.000	33.750	203.000
Shares updates	24	3.500	9.189	0.000	0.000	0.500	2.000	36.000
Comments updates	24	0.460	0.977	0.000	0.000	0.000	0.000	3.000

Variable Definitions:

Adoption date = date of the first status update for the firm's Facebook account;

Number of followers = number of Facebook users signed up to receive the firm's updates as of April 27th 2016;

Hashtags updates = percentage of the firm's updates related to the announcement of the annual report which include one or more hashtags;

Pictures updates =percentage of the firm's updates related to the announcement of the annual report which include a picture;

Links updates = percentage of the firm's updates related to the announcement of the annual report which include a hyperlink;

Acquisition updates =percentage of firm's updates related to the announcement of the annual report which are acquired by Facebook users by liking, sharing or commenting to the update;

Likes updates = number of likes achieved by the firm's updates related to the announcement of the annual report;

Shares updates = number of shares achieved by the firm's updates related to the announcement of the annual report;

Comments updates = number of comments achieved by the firm's updates related to the announcement of the annual report.

4.1.2 Descriptive Statistics of Model Variables

Table 5 reveals the descriptive statistics of model variables for the total sample of 183 observations relating to Large Cap firms listed on the Stockholm Stock Exchange. For a reminder of the measurement of each variable, see Table 1.

The mean for *SpreadAbn* (-0.013) indicates that the level of information asymmetry is lower during the event period than during the pre-event period. However, the difference between the minimum (-0.206) and maximum (0.170) values is large and the median is only slightly negative (-0.007). The fact that the data point in both directions means that the abnormal bid-ask spread can be both higher and lower during the event period than during the pre-event period. The nature of the information may affect the abnormal spread.

More than half (54 %) of the Large Cap firms listed on the Stockholm Stock Exchange have a high level of social media presence. The proportion of firms using social media as disclosure outlets is however much lower. 11 % of the annual report announcements the past three years have been further disclosed on firms' own official Twitter and Facebook accounts. The percentage of disclosures acquired by social media users is slightly lower (9%) meaning that not all, but a high proportion, of messages have been interacted with by users. The fact that few of the firms present on both Twitter and Facebook choose to disclose corporate information through those channels may be due to the perceived risk of such disclosures.

4.1.3 Pairwise Correlations of Model Variables

Table 6 describes the pairwise correlations for all model variables. It is found that firms with high social media presence *(PresenceSocialMedia)* have a significantly lower level of abnormal trading volume *(VolumeAbn)* during the event period compared to firms with low levels of social media presence. For the independent variable *(DisclosureSocialMedia)* there is a significant correlation with the level of volatility *(Volatility),* indicating that more volatile firms engage in disclosing corporate information on social media. The results for the independent variable measuring investor attention *(AcquisitionDisclosure)* are very similar to the correlations of *DisclosureSocialMedia.* Firms whose social media disclosures are acquired by users are more volatile than those whose disclosures are not acquired.

There are no significant correlations between any of the variables measuring usage of social media as disclosure outlet *(PresenceSocialMedia, DisclosureSocialMedia, AcquisitionDisclosure)* and the information asymmetry *(SpreadAbn).* Earnings variability *(VarEarnings)* is the only variable significantly correlating to information asymmetry *(SpreadAbn)* which is interpreted as riskier firms having a higher level of information asymmetry during the event period. Furthermore, it is found that abnormal trading volume *(VolumeAbn)* and volatility *(Volatility)* decreases when firms have higher earnings variability *(VarEarnings)*.

The independent variables are significantly correlated which is intuitive as they measure different stages of use of social media as disclosure outlets. The correlation is the strongest between *DisclosureSocialMedia* and *AcquisitionSocialMedia* which is consistent with the high level of acquisition found in the descriptive statistics of social media activity. Thus, the correlation between *SocialMediaPresence* and *DisclosureSocialMedia* and *AcquisitionSocialMedia* is quite similar.

TABLE 5

Descriptive Statistics of Model Variables

Descriptive Statistics of Model Variables

Variable	n	Mean	Std. Dev.	Min	P25	Median	P75	Max
Total Sample								
SpreadAbn	183	-0.013	0.063	-0.206	-0.028	-0.007	0.013	0.170
PresenceSocialMedia	183	0.540	0.500	0.000	0.000	1.000	1.000	1.000
DisclosureSocialMedia	183	0.110	0.313	0.000	0.000	0.000	0.000	1.000
AcquisitionDisclosure	183	0.090	0.291	0.000	0.000	0.000	0.000	1.000
VarEarnings	183	12.945	1.512	7.808	11.904	12.810	13.900	16.868
VolumeAbn	183	0.000	0.001	-0.003	-0.000	0.000	0.001	0.005
Volatility	183	-3.914	0.223	-4.649	-4.073	-3.910	-3.774	-3.163

All continuous variables have been winsorized on the 1 percent level.

Table 5 provides the descriptive statistics for the sample of annual report announcement events. The total sample includes 183 events of 61 Large Cap firms listed on the Stockholm Stock Exchange. The data relate to announcement events from February 2014 to April 2016.

TABLE 6

Pairwise Correlations of Model Variables

Correlation Matrix of Model Variables

	SpreadAbn	*Presence SocialMedia*	*Disclosure SocialMedia*	*Acquisition Disclosure*	*VarEarnings*	*VolumeAbn*	*Volatility*
SpreadAbn	1.000						
PresenceSocialMedia	0.062	1.000					
	(0.200)						
DisclosureSocialMedia	0.025	0.323***	1.000				
	(0.368)	(0.000)					
AcquisitionDisclosure	0.018	0.295***	0.914***	1.000			
	(0.405)	(0.000)	(0.000)				
VarEarnings	0.223***	0.010	0.016	0.013	1.000		
	(0.002)	(0.445)	(0.417)	(0.430)			
VolumeAbn	-0.083	-0.134**	-0.028	-0.004	-0.141*	1.000	
	(0.264)	(0.035)	(0.353)	(0.479)	(0.057)		
Volatility	-0.094	-0.075	0.161**	0.204***	-0.262***	0.003	1.000
	(0.206)	(0.158)	(0.015)	(0.003)	(0.000)	0.972	

*,**,*** indicate significance at the 10 percent, 5 percent and 1 percent, or lower levels, respectively.
P-values are in parentheses.
Table 6 provides the pairwise correlations between the model variables using the Pearson correlation. The total sample includes 183 events of 61 Large Cap firms listed on the Stockholm Stock Exchange. The data relate to announcement events from February 2014 to April 2016.

4.2 Effect of Social Media Disclosure on Information Asymmetry

In this section the results of the multiple regression analysis is presented and discussed. A total of three regressions are run to test the hypotheses stated. *SpreadAbn* is utilized as a proxy for information asymmetry and is thus the dependent variable measured in all three regressions. Control variables used in all three models are *VarEarnings, VolumeAbn* and *Volatility*. Each regression uses a different independent variable as a measure for usage of social media as a disclosure outlet. The first variable represents the sheer presence on social media (1), the second whether social media is actively used as a disclosure outlet (2) and the third whether that disclosure is acquired by users (3).

Thus, Table 7 provides the multiple regression results of regressing abnormal bid-ask spread (*SpreadAbn*) on the following variables related to usage of social media as disclosure outlets:

(1) Social Media Presence
(2) Disclosure Social Media
(3) Acquisition Disclosure

and Control variables according to the general model below.

$$SpreadAbn_{it} = \beta_0 + \beta_1 UsageSocialMedia_{it} + \sum Controls + \varepsilon_{it}$$

TABLE 7

Results of Multiple Regression Analysis

Dependent Variable: *SpreadAbn*

Variable	Expected Sign	(1)	(2)	(3)
PresenceSocialMedia	-	0.006		
		(0.009)		
DisclosureSocialMedia	-		0.005	
			(0.015)	
AcquisitionDisclosure	-			0.005
				(0.016)
VarEarnings	+	0.009***	0.009***	0.009***
		(0.003)	(0.003)	(0.003)
VolumeAbn	-	-2.221	-2.544	-2.577
		(3.635)	(3.605)	(3.605)
Volatility	-	-0.009	-0.012	-0.012
		(0.021)	(0.021)	(0.022)
Constant		-0.168**	-0.173**	-0.173**
		(0.082)	(0.083)	(0.084)
n		183	183	183
R²		0.061	0.059	0.059
F-test		2.876**	2.781**	2.772**

*,**,*** indicate significance at the 10 percent, 5 percent and 1 percent, or lower levels, respectively.
All continuous variables have been winsorized on the 1 percent level.
Standard errors are in parentheses.
Table 7 provides the results of regressing abnormal bid-ask spread *(SpreadAbn)* on variables related to usage of social media as disclosure outlets and control variables. The table presents the results of the regressions using the sample of 183 announcement events relating to 61 firms from February 2014 to April 2016.

None of the independent variables related to the usage of social media as disclosure outlets *(PresenceSocialMedia, DisclosureSocialMedia, AcquisitionDisclosure)* turn out significant when regressing abnormal bid-ask spread *(SpreadAbn)* on the independent variables using *VarEarnings, VolumeAbn* and *Volatiliy* as control variables. The outcome is consistent with the correlation analysis which did not find any significant correlation between the variables related to the usage of social media as disclosure outlets and *SpreadAbn.* These results stand in contrast to the conslusions of Blankespoor et al. (2014) and Prokofieva (2015) who find disclosures on Twitter to have a negative effect on the level of information asymmetry. This study uses a measure of multiple social media channels but the expectation is that use of multiple channels would reduce information asymmetry as well.

A possible explanation for the lack of significant effect on information asymmetry is that capital market benefits due to increased voluntary disclosure only apply if the increased disclosure level is believed to be consistent (Bischof and Daske, 2013; Diamond and Verrecchia, 1991; Healy et al., 1999). In the sample used there are examples of firms engaging in disclosing information on Twitter and Facebook one year, but not the following year. This leads to an uncertainty among potential investor as they do not find the disclosure outlet to consistently provide a higher level of disclosure. Investors have been found to view social media channels as trusted disclosure outlets (von Alberti-Alhtaybat and Al-Htaybat, 2016) but that may not be the case in Sweden as the disclosure related variables do not have any effect on the information asymmetry. A solution to the inconsistency and lack of trust may be to issue guidelines such as the ones issued by the Securities and Exchange Commission in U.S. The guidelines state that a social media channel has to be established as a recognized channel by being announced as a primary disclosure outlet (Parrino and Greenslade, 2014). Potential investors would then be able to rely on the social media channel of interest as a disclosure outlet instead of viewing such disclosures as a one-time disclosure which might be the current issue in Sweden.

Another feasible explanation is the sample selection of the current study and the distinction of samples of recent studies. Blankespoor et al. (2014) use IT firms which is an industry assumed to be in the forefront of using new technology and Prokofieva (2015) uses firms on the Australian Securities Exchange which is a much larger equity market than the Stockholm Stock Exchange measured as the number of listed companies. The Australian Securities Exchange has over two thousand listed companies whereas the Stockholm Stock exchange only has 282, as of April 2016 (ASX, 2016; NASDAQ, 2016b).

Furthermore, Blankespoor et al. (2014) argue that large firms do not have a need of using social media as a disclosure outlet as their potential investors already acquire enough information from other sources. As the sample in this study uses Large Cap firms to increase the probability of identifying observations where both Twitter and Facebook are utilized as disclosure outlets it is possible that the lack of effect is related to the sample selection. However, there is a demand from investors which may change the importance of social media disclosures for large firms in the future (von Alberti-Alhtaybat and Al-Htaybat, 2016).

When comparing the regression results of each regression to each other it is found that the result are very similar. A comparison between the effect of *PresenceSocialMedia* and *DisclosureSocialMedia* reveals that there are no significant differences between firms with active social media accounts and those utilizing it for disclosures. Neither is there a significant difference when comparing to *AcquisitionDisclosure.* Earnings variability *(VarEarnings)*, which is a control variable in the model, is shown to significantly affect the level of information asymmetry by increasing the abnormal bid-ask spread *(SpreadAbn)* during the event period in all three regressions. This is expected since earnings variability is a measure for risk and firms with unpredictable earnings tend to have a larger level of information asymmetry (Yohn, 1998).

5 Conclusion

5.1 Conclusion

The purpose of this study is twofold. It aims to both explore the current status of usage of multiple social media channels as disclosure outlets as well as to investigate which effect social media disclosures have on the level of information asymmetry. The results of the study are concluded in the following sections.

5.1.1 Usage of Multiple Social Media Channels as Disclosure Outlets

The study confirms Twitter as the preferred social media channel for financial disclosures. However, considering investors' new demands for more interactive investor relations (von Alberti-Alhtaybat and Al-Htaybat, 2016) Facebook is the more appropriate channel as its interaction is more extensive and has a wider outreach. The study also confirms the differences in usage found by Zhou et al. (2015). Although the contents of tweets and status updates are often identical, the designs of the messages differ considering the use of hashtags and pictures.

Many large firms have adopted social media channels but the proportion of firms using their accounts to make corporate disclosures is still quite low. However, a large proportion of disclosures made manage to grab investors' attention. The firms engaging in social media disclosures show a tendency of being more volatile and those are also the firms with a larger tendency to have investors interacting with them.

5.1.2 Social Media Disclosures' Effect on Information Asymmetry

The use of multiple social media channels as disclosure outlets is not found to have an effect on the level of information asymmetry in Sweden. The evidence of social media disclosures' impact on the information asymmetry found among IT firms (Blankespoor et al. 2014) and firms listed on the Australian Securities Exchange (Prokofieva, 2015) does not apply to the context of Large Cap firms listed on the Stockholm Stock Exchange. Prior evidence considering Twitter disclosures does not seem to hold across a mixture of industries or smaller equity markets, such as Sweden. This applies to all three stages of social media use tested which infers that there is no difference in the effect on information asymmetry whether firms are simply present on social media, use it to disclose financial information or manage to grab investors' attention with that information.

The phenomenon of using social media as disclosure outlets is not widespread among Large Cap firms in Sweden and firms are found to be inconsistent in their engagement in social media disclosures. This inconsistency limits investors from using social media as a trusted source of financial information which may be the reason for the withheld beneficial outcomes of social media disclosures (Bischof and Daske, 2013; Diamond and Verrecchia, 1991; Healy et al., 1999).

5.2 Contribution

Recent research has provided the current status of the use of social media as disclosure outlets (Zhou et al. 2015) and investigated the effects on the capital market when information is disclosed on Twitter (Blankespoor, 2014; Prokofieva 2015). This thesis adds to the exciting line of recent disclosure research investigating the use of social media and its effect on the capital market. More specifically, this study the use of multiple social media channels as disclosure outlets and analyzes the effect on information asymmetry when large Swedish firms use these channels as disclosure outlets for financial information. It contributes to the area by including multiple social media in the analysis and by analyzing it in a new context.

By investigating the effect on information asymmetry when more than one social media are used for disclosure the study captures a fuller picture of how firms conduct their social media disclosure. As most

firms present on social media choose to adopt several channels it is necessary to study the combined effect of using them for disclosure purposes.

Increased knowledge of the use of social media as disclosure outlets has practical implications on firms' disclosure strategies in regard to choice and utilization of multiple social media channels for investor relations purposes.

Moreover, by examining the effect of social media disclosures made by large firms in Sweden the study contributes with evidence from a mixture of industries in a smaller equity market. Thereby it complements the recent research which has focused on IT firms and larger markets.

5.3 Suggestions for Further Research

Research on social media as a disclosure outlet is still at its early stages and the area presents many opportunities for further research. The results of this study stand in contrast to other recent studies implying that more research needs to be conducted to find what determines if social media disclosures have an effect on information asymmetry or not.

Since there were quite few observations of annual report announcements available for the Swedish market one opportunity is to conduct a larger scale study including observations from several markets (e.g. the Nordic countries) or including other types of market impacting events. Also, a similar investigation could also be made using a different mix of social media channels. However, such a study may be more appropriate in a few years from now when the practice of social media disclosures has had time to develop further.

This thesis provides some evidence on the similarities and differences of messages posted on Twitter and Facebook. It has also concluded that the level of interaction differs and that there is a large dispersion in the amount of interaction per message. Another opportunity for research is to deeper investigate the form and content of messages directed to investors on social media. Which messages receive the most investor attention? Is there a connection to what other information is posted on the account?

It has also been concluded that firms are not yet consistent in their engagement in social media disclosures which opens up for an investigation of reasons behind that inconsistency. For example, are good and bad new treated equally? In general, what is the perception of social media disclosures among both firms and investors in Sweden? A qualitative study within the Swedish context would complement the conclusions drawn in this study and may provide further explanations of the results.

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Appendices

Appendix A: Example of Annual Report Announcement and related Tweet (Atlas Copco)

Published: 2016-03-10 08:30:00 CET

Atlas Copco's Annual Report has been published

Stockholm, Sweden, March 10, 2016: Atlas Copco, a leading provider of sustainable productivity solutions, has today published its Annual Report for 2015 on the Group's website.

The annual report reflects Atlas Copco's mission of creating sustainable, profitable growth and integrates financial, sustainability and governance information in order to describe the Group in a comprehensive and cohesive manner. Whether the reader is a shareholder, customer or other stakeholder, the annual report shows Atlas Copco's vision, mission, strategy, structure and governance, how the Group does business as well as its long-term performance.

The Annual Report can be downloaded from Atlas Copco's website: http://www.atlascopcogroup.com/investor-relations/.

Atlas Copco @AtlasCopcoGroup · 10 mars

Read our 2015 annual report published today!
atlascopcogroup.com/media/corporat...

ATLAS COPCO ANNUAL REPORT 2015

Atlas Copco achieved record revenues, operating profit and operating cash flow in tough market conditions

Atlas Copco

Source: NASDAQ Stockholm Announcements and Twitter.
Graphics are unedited from the source material.

Appendix B: Example of Annual Report Announcement and Related Status Update (SSAB)

SSAB

PRESS RELEASE
March 15, 2016

SSAB's Annual Report 2015 published

SSAB has today published its Annual Report 2015 and the Corporate Governance Report 2015.

The Annual Report comprises four parts:
- the Business review
- Corporate Governance Report
- the GRI report
- the Financial reports (adopted by the Board of Directors)

The sustainability report, which was earlier published separately, has now been integrated to form one part of the annual report. Annual Report provides an overview of SSAB's financial, social and environmental performance in 2015. The GRI report has been prepared in accordance with the "Core" option of the GRI (Global Reporting Initiative) G4 Guidelines.

SSAB **SSAB AB**
March 15 · 🌐

SSAB's Annual Report 2015 is published! Read about our financial, social and environmental performance in 2015. You can download the report either in full or in separate parts at ssab.com.

SSAB
ANNUAL REPORT 2015
TOWARD INDUSTRY-LEADING PROFITABILITY

Reports and presentations - SSAB

Cold-formed and welded structural hollow sections for multiple purposes, ranging from versatile SSAB Domex Tubes to ultra-high-strength Strenx Tubes.

SSAB.COM

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Source: NASDAQ Stockholm Announcements and Facebook.
Graphics are unedited from the source material.