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1. Introduction

1.1 Background

The relationship between companies and their stakeholders, investor relations, has previously only been done through a section on the companies´ webpages and the annual reports. This format, while informative, is typically static, and does not allow active, real-time communication between investors and corporations (Von Alberti-Alhtaybat & Al-Htaybat, 2016). Over the last decade, social media and social network sites have had a significant impact on how companies interact with individuals and other stakeholders (Pisano, Lepore, & Lamboglia, 2017). Social network sites represent a new wave of internet applications and sites, built on interactive Web 2.0 technology (Kaplan & Haenlein, 2010). Web 2.0 are defined as platforms or sites, which have functions that allow users to interact, collaborate and generate content, instead of being a passive viewer (Kaplan & Haenlein, 2010).

The increased interactivity provided by social network sites have made it one of the most important communication tools to provide information (Miller & Skinner, 2015). The main communication channels when companies want to share information with shareholders and capital markets are social media platforms like Facebook, Instagram and LinkedIn (Miller & Skinner, 2015). It has changed the way companies, in a more effective manner, can capture the attention of potential shareholders and other stakeholders (Von Alberti-Alhtaybat & Al-Htaybat, 2016).

Previous research has shown that social media has had greater scope than conventional online media, which according to Luo, Zhang and Duan (2013), creates greater value and might reduce information asymmetry. Among the largest social network sites, LinkedIn is a site with another approach than for example Facebook and Twitter. The focus of LinkedIn, from a company´s perspective, is to connect with professionals and potential future employees (LinkedIn Corporation, 2019; Bonsón & Bednárová, 2013).

In interactions on LinkedIn, the focus is on non-financial disclosure, mainly human capital (HC) (Pisano et al., 2017). For example, working environment, education and

knowledge becomes an important matter on LinkedIn (Pisano et al., 2017). According to Heery and Noon (2017), the definition of HC is

> *The stock of knowledge, skills, and abilities that determine the labour productivity of an individual. Investment in human capital through education and training can increase the stock, and such investment is one of the sources of economic growth.* (Heery & Noon, 2017).

A key factor in the value-creation process of a company for shareholders is HC information (Chen & Lin, 2003). Companies disclose HC information to stakeholders in order to motivate decisions regarding financial capital and to explain the link between HC and company performance (Pisano et al., 2017).

HC has been a highly investigated topic, and in order to understand HC disclosure, it has often been investigated in a context with corporate governance (Prado-Lorenzo, Gallego-Alvarez, & Garcia-Sanchez, 2009; Patelli & Prencipe, 2007; Maury & Pajuste, 2005). The ownership structure of a company is a corporate governance mechanism, especially when a high level of ownership concentration exists (Connelly, Hoskisson, Tihanyi, & Certo, 2010). What type of disclosure is another factor affected by ownership structure in a company (Chau & Gray, 2002). Furthermore, previous research has examined different corporate disclosure in connection with ownership structure and how companies have adapted their disclosures in social media (Hidalgo, Garcìa-Meca, & Martìnez, 2011; Eng & Mak, 2003; Chau & Gray, 2002; Luo et al., 2013). To explain the corporate governance mechanism and corporate disclosures, previous research has found two prominent theories, agency theory and legitimacy theory (Cerbioni & Parbonetti, 2007; Bonsón & Bednárová, 2013).

1.2   Problem

Previous research in the area of HC disclosure on social network sites have widely been examined during the last decade (Cuozzo, Dumay, Palmaccio, & Lambardi, 2017). The focus has been on Facebook and Twitter, whereas LinkedIn has received little attention within this research area (Pisano et al., 2017). The study made by Pisano et al. (2017) is the only research that has investigated the relationship between corporate ownership

structure and HC disclosure on LinkedIn. However, their study only investigated companies in the southern Europe.

Comparing countries in the southern part of Europe with countries in the Nordic part of Europe, there are differences in how well developed in digitalization the countries are. Sweden stands as leader in the use of digital technology and has the highest value added produced by the information and communication technology among OECD countries (OECD, 2018). The Nordic countries, Sweden and Norway, have a strategy called "industry 4.0" with the aim to enhance the integration of digital technology (Belényesi, 2015).

Since the Nordic countries are more digitalized than southern Europe countries this report will investigate and seek to understand how ownership concentration affect the level of HC disclosure in more digitalized countries. This study will therefore contribute to existing literature in the area of corporate disclosure and ownership structure on LinkedIn. According to agency theory, companies with high ownership concentration will disclose less information, since a large shareholder typically has the information they need (Cormier, Magnan, & Van Velthoven, 2005).

1.3   Purpose

This paper consists of two purposes. The first purpose is to investigate HC disclosure made by companies in Sweden and Norway via LinkedIn. Analysing LinkedIn pages by these companies leads to the second purpose, which is to investigate the relationship between human capital disclosure and ownership concentration in the Swedish and Norwegian market. Therefore, the hypothesis for this report will be:

H1: A negative relationship exists between ownership concentration and the level of HC disclosure via LinkedIn.

This paper will contribute to existing research that focus on other medias. LinkedIn is a social media, which has had low research attention. Only one previous paper has had LinkedIn as the major focus area, when investigate human capital disclosure. Therefore, this study will provide a deeper understanding of how companies use LinkedIn. From

those insights, companies could then grade their own disclosures and improve their management of different corporate disclosures on social media.

1.4 Outline

The chapters in this study are structure in the following way. The next chapter consist of previous research and literature regarding HC disclosure, LinkedIn and ownership concentration. In the same chapter, theoretical background connected to these topics are presented. The next chapter explains the sample selection and method. This is followed the presentation of the findings and result of regression analysis. Finally, the last three chapters consist of the analysis, conclusion and discussion.

2. Literature Review and Theoretical Framework

2.1 HC Disclosure

To understand the value of a company, market value and book value are two ways to valuate a company. The difference between those values has previously been difficult for managers of a company to understand and explain. Goodwill (i.e. trademarks and patents) was therefore used to explain this difference (Bart, 2001). However, in the late 1990s, goodwill was not considered sufficient and new factors explaining the differences were recognized, which were identified as intellectual capital assets (IC) (Brennan & Connell, 2000; Bozbura, 2004). Sveiby (1997) categories IC into three components, individual competence (i.e HC, employees´ capacity to act in a variety of situations to create both tangible and intangible assets), internal structure (i.e intellectual property, models, procedure created by employees but owned by the firm) and external structure (i.e relationships with customers and suppliers). Previous research states that HC is important and a value component of the three IC categories, and is consistently considered a key component in the value-creation process of a company (Bozbura, 2004; Claver-Cortes, Zaragoza-Saez, Molina-Manchon, & Ubeda-Garcia, 2015; Chen & Lin, 2003; Chen & Lin, 2004; Gamerschlag, 2013; Massingham, Nguyet Que Nguyen, & Massingham, 2011; Petty & Guthrie, 2000). The disclosed HC information has been limited, even though researchers has pushed companies to gather knowledge about their HC (Chen & Lin, 2004; Milost, 2007). This would generate more accurate accounting statements and value employees' contribution at an appropriate level (Chen & Lin, 2004; Milost, 2007).

Early research within IC and HC has led to a variety of models, with the aim to complement the information by financial reports, by making previous unknown intangibles visible and measurable (Ordonez de Pablos, 2002). Example of those models includes Kondrad Group´s Invisible Balance Sheet (Sveiby & Annell, 1989), Sveiby´s intangible Assets Monitor (Sveiby, 1997), The Scandia Navigator (Edvinsson & Malone, 1997), the Balanced Scorecard (Kaplan & Norton, 1992) and IC-Index (Roos, Roos, Dragonetti, & Edvinsson, 1997).

Table 1 - List of HC and IC literature

Autors	Publishing year	Invested county/countries	Document	Investigated year/years	Sample size (listed companies if nothing else is	Typ of framework for identifying HC disclosure
Guthrie and Petty	2000	Australia	Annual reports	1998	20 companies	6 items modified from Sveiby (1997)
Brennan	2000	Ireland	Annual reports		11 companies	24 items from Guthrie and Perry (2000)
Olsson	2001	Sweden	Annual reports	1990,1994,1998	18 companies	5 criterias
Williams	2001	UK	Annual reports	1996-2000	31 companies	50 items from earlier literature
April et al.	2003	South africa	Annual reports	2001	30 non-financial companies	24 items from Guthrie and Perry (2000), and Brennan(2000)
Bozzolan et al.	2003	Italy	Annual reports	1998-1999	30 companies	5 items slightly modified from Guthrie and Perry (2000)
Abeysekera and Guthrie	2004	Sri Lanka	Annual reports	1998-2000	30 companies	25 items from earlier literature
Abeysekera and Guthrie	2005	Sri Lanka	Annual reports	1998-2000	30 companies	25 items from earlier literature divided into seven categories
Bukh et al.	2005	Denmark	IPO Prospectuses	1990-2001	68 IPO Prospectuses	78 items from earlier literature
Firer and Williams	2005	Singapore	Annual reports	2000	390 companies	15 items from earlier literature
García-Meca and Martinez	2005	Spain	Report of presentation to analysts and analys	2000-2001	257 reports of presentations	19 items from earlier liteature
García-Meca and Martinez	2005	Spain	Report of presentation to analysts	2000-2001	257 reports	71 items modified from Bukh et al. (2001)
Petty and Cuganesan	2005	Hong-Kong	Annual reports	1992,1998, 2002	53 companies	Not specified

Table 1 - List of HC and IC literature

Autors	Publishing year	Invested county/countries	Document	Investigated year/years	Sample size (listed companies if nothing else is	Typ of framework for identifying HC disclosure
Bozzolan et al.	2006	Italy, UK	Annual reports		60 companies	22 items fron Guthrie and Petty (2000)
Olivieira et al.	2006	Portugal	Management reports and Chairman letters	2003	56 companies	10 items from earlier literature
Cerbioni and Parbonetti	2007	European countries	Operating and financial reviews	2002-2004	54 Biotech companies	5 items modified from Sveiby (1997)
Sujan and Abeysekera	2007	Australia	annual reports	2004	20 companies	7 items from Guthrie et al. (1999)
White et al.	2007	Australia	Annual reports	2005	96 biotech companies	708 items from Bukh et al. (2005)
Abeysekera	2008	Sri Lanka	Annual reports	2001-2002	30 companies	25 items from earlier literature divided into seven categories
Li et al.	2008	UK	Annual reports	2004-2005	100 companies	25 items from earlier literature
Singh and Van der Zahn	2008	Singapore	IPO Prospectuses	1997-2006	444 IPO companies	81 items from earlier literature
Whiting and miller	2008	New Zeeland	Annual reports	2003	70 companies	18 items from Guthrie et al. (2004)
Cormier et al.	2009	Canada	Websites	2005	131 companies	16 items from earlier literature
Kahn and Kahn	2010	Bangladesh	Annual reports	2007-2010	32 manfacturing and service companies	20 items from earlier literature
Cinquini et al.	2012	Italy	Sustainability reports	2005-2006	37 companies	24 indicators grouped in 4 items from earlier literature
Husein et al.	2012	Malaysia	Annual reports	2008	30 companies	50 indicators grouped in 8 items from earlier literature

Table 1 - List of HC and IC literature

Autors	Publishing year	Invested county/countries	Document	Investigated year/years	Sample size (listed companies if nothing else is	Typ of framework for identifying HC disclosure
Lin et al.	2012	Taiwan	Annual reports	2006	660 companies	40 keywords modified from Vergauwen et al. (2007)
Gamerschlag	2013	Germany	Annual reports	2005-2007	130 companies	27 keywords, grouped in three categories from Möller et al. (2011)
Liao et al.	2013	China	Annual reports	2009	50 companies	2 items from earlier literature
De Silva et al.	2014	New Zeeland	Annual reports	2004,2007,2010	10 companies	8 items modified from Abeysekera (2008)
Pisano	2015	Italy	Management discussion and analysis	2008-2009	7 companies	11 items from from new legal requirements and the guidance of the Italian professional standards setters
Pisano et al.	2017	Italy, France and Germany	Linkedin website	2015	30 companies	9 items from earlier literature
Garanina and Dumay	2017	USA	IPO Prospectuses	2002-2013	151 IPO prospectuses	79 items from earlier literature
Hay et al.	2018	Libanon	Annual reports	2015-2017	48 companies	25 items from earlier literature
Maji and Goswami	2018	India	Annual reports	2010-2015	30 companies	69 items from Bukh et al. 2001

The Scandia Navigator and the Balanced Scorecard are well recognized (Asanga Abhayawansa, 2014). The Scandia Navigator is a measurement model, which combines numerical indicators, visuals or diagrams and narratives to create an account of firm value creation (Andriessen, 2004). The balanced scorecard is a value-measurement, making financial and non-financial goals in measurable procedures (Kaplan & Norton, 1992).

In recent years, research has changed focus towards investigating IC and HC disclosures by individual companies, which means investigating the release of previous unknown or not disclosed information (Dumay, 2016; Pisano et al., 2017). Pisano et al. (2017) made a collection of studies, which investigated and analysed the level of IC and HC disclosure, both regulated and voluntarily disclosures (Table 1).

Previous literature focusing on IC disclosure have aimed towards annual reports or certain specific parts of the report with different disclosure items. Furthermore, earlier research has been studying and analysing a long list of countries and different documents, in order to get insight in IC and HC disclosures (Table 1). Examples of those different focus areas are, Garcia-Meca (2005), and Garcia-Meca and Martinez (2005), who investigated reports of presentations to financial analysts. Another study by Oliviera et al. (2006) focused on the management discussion and analysed the chairman´s letter. Additional studies have studied sustainability reports (Cinquini, Passetti, Tenucci, & Frey, 2012) or IPO prospectuses (Bukh, Nielsen, Gormsen, & Mouritsen, 2005; Garanina & Dumay, 2017; Singh & Van der Zahn, 2008). A smaller number of papers have investigated the company's websites (Cormier, Aerts, Ledoux, & Magnan, 2009) or certain social media (Pisano et al., 2017). There exist studies from the whole world that have investigated IC and HC disclosure, for example Lin, Huang, Du & Lin (2012) in Taiwan, Gamerschlag (2013), in Germany, De Silva, Stratford and Clark (2014) in New Zealand, Pisano et al. (2017) in Italy, France and Germany, and Maji and Goswami (2018) in India. These studies range from investigating one or more countries in a comparable setting to a more international perspective. Most research regarding HC information have been made around or after 2010 (Pisano et al. 2017). For example, Abeysekera (2008), Gamerschlag (2013), Khan and Khan (2010), Lin et al. (2012), Pisano et al. (2017) and Hay, Ragab and Hegazy (2018). Most of the previously mentioned literature has used the Sveiby model and conducted a content analysis, to analyse the IC or HC disclosure level of companies.

Previously literature has found the HC component to be the least frequently disclosed component of the three IC categories (Pisano et al., 2017). Pisano et al. (2017) investigated companies in three European countries, and found that 3 % of the companies did not disclose HC information. Furthermore, a study by Maji and Goswami (2018) in India, shows that companies that do not disclose HC information has been decreasing. It shows that between 2015 to 2017, the amount of Indian companies that did not disclose has changed from 45,25 % to 36,25 %. The level of HC disclosure has consistently been found to be disclosed on a lower level than the other two components in IC assets, the external structure and the internal structure (Pisano et al., 2017). Previous researchers have argued that the low level of HC disclosure may be due to lack of established and accepted frameworks (Petty & Guthrie, 2000). Another argumentation is the lack of perception by firms regarding their employees as a value driver (Garcia-Meca, 2005) or due to risk of such information being used by competitors (Bozzolan, Favotto, & Ricceri, 2003).

Abhayawansa and Abeysekera (2008) criticise the previous literature, as it does not account for human resource practices when developing disclosure indices, due to shortage in the frameworks used. By this argumentation Abhayawansa and Abeysekera (2008), argues that a low level of HC disclosure is a consequence of the shortage in the frameworks. To overcome this, Pisano et al. (2017) have included an additional category, *human resource practices*, which accounts for other factors than *stock of knowledge and capabilities*. Employees' wellness is suggested to be a component of primary IC (Roslender, Stevenson, & Kahn, 2006). For example, Bontis and Fitz-enz (2002) findings display that training, and employee satisfaction affect HC positively. Other reason why a firm disclose HC information, can be to communicate the link between HC and the firm's performance to investors (Abeysekera & Guthrie, 2004). Furthermore, Abeysekera (2008) argues that HC disclosure can be used to reduce the tension between a firm and their stakeholders, when motivating capital decisions.

2.2   LinkedIn

The increase of internet as a tool for corporate disclosure has grown in recent years (Pisano et al., 2017). A company´s website is used to communicate to stakeholders, releasing news and respond to problems (Kent & Taylor, 1998). The fast growth of Web

2.0 and social media, has driven companies to evolve and adapt new platforms for communication (Waters, Burnett, Lamm, & Lucas, 2009). Sites and social networks within Web 2.0 includes Facebook, Twitter, blogs and Wikipedias (Kaplan & Haenlein, 2010). Scholars have argued that it is possible to gain insight to IC from other than traditional sources, for example LinkedIn and Twitter (Cuozzo et al., 2017). The two-way communication tools, enabled by these platforms have made it a powerful and strategic way for companies to disclose IC, building long-term relationships and improving the communication with stakeholders (Dumay & Guthrie, 2017; Kaplan & Haenlein, 2010; Giacosa, Ferraris, & Bresciani, 2017).

Previous research on social media has focussed on general social media, for example Facebook (Zide, Elman, & Shahani-Denning, 2017). However, a few studies have investigated the use of LinkedIn in various areas by companies (Pisano et al., 2017). For example, Archambault and Grudin (2012) makes a study comparing LinkedIn and other social network sites. Another study by Basak and Calisir (2014) examine how users utilize LinkedIn. Moreover, scholars have investigated the extent of how LinkedIn profile provides realistic picture of entry-level jobs and career progression (Case, Gardinier, Rutner, & Dyer, 2012), and Witzig, Spencer and Galvin (2012) examined the use of LinkedIn between three types of organizations, non-profit organizations, large companies and small companies. They concluded that small businesses are more focused on using LinkedIn as a social media tool, rather than larger companies. The most recent study regarding LinkedIn, was made by Pisano et al. (2017), investigating the relationship between HC disclosure and ownership structure.

For recruitment, networking and career purposes, LinkedIn is considered the most popular and widely used social network sites (Pisano et al., 2017), which is supported by findings in previous studies (Caers & Castelyns, 2011; Fisher, McPhail, You, & Ash, 2014; Zide et al., 2017). Bonson and Bednarova (2013) suggest that the primary focus of LinkedIn is on a specific stakeholder group for disclosures, namely current and potential employees. A study by Briones, Kuch, Liu and Jin (2011) finds that social media are necessary, in order to improve the relationship with their stakeholders. Through the interactions that have been made possible by Web 2.0 and social media, companies seek to develop stakeholder relationships and increase timeliness of information (Dumay & Guthrie, 2017; Giacosa et al., 2017; Lovejoy, Waters, & Saxton, 2012; Waters et al.,

2009; Zerfass & Schramm, 2014). This leads to increased transparency and more detailed information provided to the market which may force companies to disclose more IC than their original situation (Bonsón & Flores, 2011; Lardo, Dumay, Trequattrini, & Russo, 2017). Additional studies, focusing on the financial situation of companies have argued that the usefulness of social media as a tool for disclosing financial and non-financial information to investors are important (Lee, Hutton, & Shu, 2015; Luo et al., 2013; Miller & Skinner, 2015). Investors decision to invest in a company are based on more than economic evaluations of the business, hence the corporate transparency and reliability of the management has received more attention (Pisano et al., 2017). Depending on the confidence by investors, a company will provide more disclosures, enabling effective monitoring by investors (Pisano et al., 2017). A company's knowledge regarding how to communicate with the market, can give a competitive advantage (Miller & Skinner, 2015). This can, for example increase their ability to manage recall of products and stop misinformation. (Miller & Skinner, 2015). The pressure companies receive from the financial market force them, not only to disclose financial information, but also to disclose IC and HC information (Miller & Skinner, 2015).

Moreover, it can be said that social media has increased the information flow and the accessibility of information for stakeholders, which enables a dialogue between the parties (Pisano et al., 2017). Coe (2013) and Luo et al. (2013) found that companies use social media to influence investors, because investors tend to trust information release through social media. A study by Von Alberti-Alhtaybat and Al-Htaybat (2016) found that investor relation information through social media is perceived positive by investors. Social media is considered a new tool for investor relations, and give investors more opportunities to evaluate companies (Von Alberti-Alhtaybat & Al-Htaybat, 2016).

2.3 Ownership concentration and HC disclosure

The monitoring level shareholders can have on the management and companies' voluntary disclosures are influenced by the ownership structure (Eng & Mak, 2003). Conflicts between management of a firm and shareholders have received attention by researchers, since the 1900s (Berle & Means, 1932). The agency theory by Jensen and Meckling (1976), is the most commonly used theory explaining the relationship between ownership structure and IC and HC disclosure (Bukh et al., 2005; Cerbioni & Parbonetti,

2007; Firer & Williams, 2005; Li, Pike, & Haniffa, 2008; Oliveira, Rodrigues, & Craig, 2006; Pisano et al., 2017). The ownership structure around the world differs, for example Europeans countries generally have high ownership concentration compared to the US (Pisano et al., 2017). In the agency theory, two types of agency problems exist, type 1 and type 2 agency problems. Type 1 is the conflict between managers and owners and type 2 is the conflict between controlling shareholders and minority shareholders (Fama & Jensen, 1983). Agency theory propose that firms with high concentrated ownership have less conflict between the principal and agent (Fama & Jensen, 1983). The agency theory suggests that firms with dispersed ownership disclose more information to mitigate this problem (Fama & Jensen, 1983).

Previous research has used other theoretical frameworks in explaining determinants, regarding IC and HC disclosures by firms. Those are the stakeholder theory, institutional and legitimacy theory. Bonson and Bednarova (2013) states that the use of these theories should not be seen as competing, but rather complementing each other. Stakeholders theory is based on the presumptions that a company in order to grow and survive, needs to create value for shareholders, through action and businesses that generate economic, social or political benefits to stakeholders (Shocker & Sethi, 1973). Foster and Jonker (2005), and Phillips, Freeman and Wicks (2003) argues that it is essential for a company's existence and their profitability to consider and respect the interests of all stakeholders. Moreover, Freeman (1984) states that in the same context companies will try to disclose more information, in order to gain the approval by stakeholders. Researchers have studied the stakeholder theory, analysing the relationship between corporate social responsibility (CSR) and ownership structure (Prado-Lorenzo et al., 2009). They concluded that major stakeholders would have an impact on the information presented in the CSR report.

The main concept of legitimacy theory consists of a company´s right to exist, if their values and actions are legitimized by society (Suchman, 1995). Suchman defines legitimacy as:

> *Legitimacy is a generalized perception or assumption that the*
> *actions of an entity are desirable, proper, or appropriate*
> *within some socially constructed system of norms, values,*
> *beliefs, and definitions.* (Suchman, 1995, p. 574)

DiMaggio and Powell (2000) states that for a company to gain legitimacy, companies incorporate external norms and rules from society in their operations. This is achieved by companies through actions towards society, in order to acquire legitimacy (Suchman, 1995). Those actions can for example be to disclose more and better information to gain legitimacy (DiMaggio & Powell, 2000). Even though a company once has gained legitimacy, there is still an ongoing challenge to maintain it (Suchman, 1995). If a company's legitimation is damaged by, for example bad actions by managers, it will require the company to dedicate at least as much resources to repair the damaged legitimacy, as it would be acquiring it from the beginning (Suchman, 1995).

According to Pisano et al. (2017) agency theory is the most relevant theory to use when investigating the relationship between ownership concentration and HC disclosure. The separation of ownership and control between agents and principals in agency theory, might generate conflicts between shareholders and management or the dominant shareholders (Fama & Jensen, 1983). These conflicts can emerge due to differences in acceptable risk or investment preferences between management or dominant shareholders and other shareholders (Firer & Williams, 2005; Vafeas & Theodorou, 1998). Researchers have found that voluntary disclosure and other different mechanisms that monitor the behaviour of management or dominant shareholders have importance, in order to reduce conflicts and maintain control by the principal (Frankforter, Berman, & Jones, 2000; Ho & Wong, 2001; Jensen & Meckling, 1976). By applying voluntary disclosures to the type 1 agency problem, shareholders can effectively monitor whether their economic interests are optimized, and that management acts in their best interest (Fama & Jensen, 1983)

Fama and Jensen (1983) states that the level of monitoring is dependent by the level of ownership concentration, a higher concentrated ownership requires less monitoring expenses. Previous studies suggest that a negative relationship between ownership concentration and voluntary disclosure exists (Brammer & Pavelin, 2006; Chau & Gray, 2002; Cormier et al., 2005; Patelli & Prencipe, 2007). Other studies investigating the relationship between ownership structure and IC or HC disclosure has found the same negative relationship (Firer & Williams, 2005; Li et al, 2008; Oliveira et al., 2006; Pisano et al., 2017). This relationship can exist due to the presumption that a dominant shareholder has the power and possibility to obtain any information they need (Brammer

& Pavelin, 2006; Chau & Gray, 2002; Cormier et al., 2005; Patelli & Prencipe, 2007). Contradictory, a few studies have found a positive relationship between ownership concentration and disclosure (McKinnon & Dalimunthe, 1993; Mitchell, Chia, & Loh, 1995; Schadewitz & Blevins, 1998). Studies investigating environmental reporting and ownership have found ownership structure negatively affecting disclosures (Brammer & Pavelin, 2006; Cormier et al., 2005).

Cormier et al. (2005) states that firms with a higher level of concentrated ownership have less information asymmetry between the agent and principal. This is in accordance with agency theory, which argues that, to reduce agency cost and information asymmetry, firms with low ownership concentration experience more pressure to have a higher level of disclosure (Li et al., 2008; Raffournier, 1995).

A study within OECD countries shows that there is a difference in how well developed in digitalization the countries are. Sweden stands as leader in the use of digital technology and has the highest value added produced by the information and communication technology among OECD countries (OECD, 2018). The Nordic countries, Sweden and Norway, have a strategy called "industry 4.0" with the aim to enhance the integration of digital technology (Belényesi, 2015). Concluding, the literature review, IC and HC disclosure is an area that has been thoroughly examined by scholars. At the same time as the usage of internet has increased, it has enabled a new way of communicating and disseminating information to different stakeholders. Studies have investigated different aspect of those new networks, but LinkedIn as a tool has received very little attention. Combining LinkedIn with proposed theories and studies regarding ownership structure and level of disclosure, which leads to the following hypothesis:

H1: A negative relationship exists between ownership concentration and the level of HC disclosure via LinkedIn.

3. Method

The sample for this study consisted of 150 listed companies from Sweden and Norway. The 75 largest listed companies ordered by market capitalization were selected from each of the countries. The process of compiling a list of companies was performed 7:th of January 2019. Since this study is focusing on LinkedIn, companies without a LinkedIn page were excluded. Furthermore, financial companies and a few investment fund companies were also excluded, because financial data were unavailable.

The final sample therefore consisted of the largest, on the Swedish market, listed company until the 85:th largest company by market capitalization (Appendix 1). Hence, in Sweden 10 companies were excluded, as they did not meet the prerequisites. In Norway, the range were from the largest up until the 108:th largest company (Appendix 1). The reason for a larger drop-off in Norway depends on the larger amount of financial companies.

Table 2 - Sample distribution

Country	Total investigated samples	Excluded	Excluded (%)	Final sample
Sweden	85	10	12 %	75
Norway	108	33	31 %	75
Total	193	43	22 %	150

The financial data was collected from the Orbis database. The financial data was obtained from companies' annual reports of 2017. The reason to have data retrieved from 2017 was since only a few companies had released their annual reports for the fiscal year 2018. Furthermore, annual reports were used to collect data on ownership structure and the largest shareholders. By analysing LinkedIn pages from each company, data on HC disclosures were gathered. The analysis on LinkedIn consisted of the sections *Home*, *About*, *Life* and *Jobs*. Regarding the *Home* section, a limit was set, only analysing posts within a time-span of four weeks. The analysis of the LinkedIn pages was completed between February, up until Mars 2019. A key word search on Scopus was performed, to search for literature regarding IC and HC disclosure published after Pisano et al. (2017) and then they were included in table 1. The key words used were "Intellectual capital", "Human Capital", "Disclosure" and "Reporting".

3.1 Measure Independent and control variables

To conduct the research, a regression analysis was performed, which included dependent, independent, control, and dummy variables. First, the dependent variable in the model was HC disclosure on LinkedIn (LinkedIn_HCDisc). Through content analysis of the sample companies LinkedIn pages, data for the dependent variable was collected. Content analysis is a widely used research method to measure disclosure of IC and HC (Guthrie, Petty, Yongvanich, & Ricceri, 2004; Maji & Goswami, 2018; Pisano et al., 2017; Singh & Kansal, 2011). This method assigns codes to qualitative or quantitative data into pre-defined categories based on certain criteria's, which might be a disclosure list or disclosure index (Krippendorff, 2013). The definition of content analysis is:

> *Content analysis is a research technique for making replicable*
> *and valid inferences from test (or other meaningful matter) to*
> *the contexts of their use.* (Krippendorff, 2013, p. 24)

Through this method, it is possible to find patterns in disclosed information provided from companies, for example from LinkedIn or annual reports (Cuozzo et al., 2017; Dumay, 2014; Dumay & Guthrie, 2017; Guthrie et al., 2004). The analysis used a single information source, LinkedIn to provide a more accurate and reliable analysis (Cormier et al., 2009; Striukova, Unerman, & Guthrie, 2008).

To apply the content analysis in this study, a coding procedure was introduced. Before the coding, the disclosure items had to be identified. The identified HC disclosure items were based from previous research in IC and HC disclosures (Table 3).

Table 3 - Definitions of variables

Variable	Definition	Measurement	Data source
LinkedIn_HCDisc	HC disclosure on LinkedIn	Total items disclosed by each company divided by average disclosed items in total.	LinkedIn
A02	Accumulated ownership of the two largest shareholders	Summarizing the largest and second largest shares	Orbis
ShrType	Largest shareholder type	Dummy variable in four different groups: ShrFIN, ShrIND/FAM/INDV, ShrSTA and ShrMAN	Orbis
Profit	Profitability	Net income divided by total sales	Orbis
Size	Firm size	Natural logarithm of total assets	Orbis
Lev	Leverage	Total long-term debt divided by total assets	Orbis

Based on earlier literature, nine HC disclosure items were thereby identified, which were divided in two categories, *the stock of knowledge and capabilities* and *the human resource management practices* (Pisano et al., 2017). HC items included in *the stock of knowledge and capabilities* were *Employee-related measurements*, *Education* and *Know-how and experience*. In the category *Human Resource Management practices*, *Recruitment*, *Training*, *Career development*, *Welfare and motivation*, *Health and safety* and *Union activity* were included (Table 4).

Table 4 - Definitions of items

HC disclosure item	Definition and examples of information
Stock of knowledge and capabilities	
Employee-related measurement	Number of employees, gender distribution of employees, employees per division, revenue per employee.
Education	Education of management and the board members and education by regular employees.
Know-how and experience	Expertise of employees, experience within the company, knowledge by employees and special competences they are looking for.
Human resources management practices	
Recruiting	Job descriptions/requirements.
Training	Training policies, trainee programs, possible education within the company.
Career development	Description of development procedures and possible internal promotion.
Welfare and motivation	Salaries, pension systems, remuneration systems, share option schemes, employee satisfaction and employee motivation.
Health and safety	Safety policies and number of accidents.
Union activity	Trade union activities.

Recording units in the content analysis were sentences, because they are more reliable than word count (Gray, Kouchy, & Lavers, 1995; Guthrie et al., 2004; Milne & Adler, 1999). Each *unit of analysis* on the sample companies LinkedIn were analysed individually. If a HC disclosure item was found in a sentence, a score of 1 was given, and a score of 0 was recorded if no items were identified. In those cases, when a HC disclosure item was disclosed multiple times, it was only counted once.

In the methodology of content analysis, it is important to test for reliability (Dumay & Cai, 2015). However, only a minority of the previous research in IC and HC disclosure has been found to include a coder reliability test (Dumay & Cai, 2015). To verify the reliability and accuracy of the coding process, the two coders performed a coding test (Guthrie et al., 2004; Striukova et al., 2008). First, the coders defined a set of coding rules. Each coder analysed a sample of twenty companies, ten from each investigated country,

individually. The differences in the coding were discussed, and a final coding procedures was defined.

The level of HC disclosure was calculated by taking the sum of disclosure items for each firm, within a range of zero to nine. The sum was then divided by the average of total items disclosed and assigned to LinkedIn_HCDisc. The benefit of calculating LinkedIn_HCDisc for each of the sample companies, was that it made it possible to rank and compare them.

Equation 1 - LinkedIn_HCDisc – calculation of companies HC disclosure

$$LinkedIn\_HCDisc^i = \sum_{i=1}^{150} \frac{Items^i}{average\ items}$$

The independent variable ownership concentration, named A02, consisted of the accumulated ownership of the largest and the second largest shareholders (Pisano et al., 2017). More specifically, A02 measures the percentage of owned shares. Previously, only one study by Pisano et al. (2017) has used ownership concentration as an independent variable. To interpret A02, a higher value means that a firm is owned to a high degree by two shareholders (Pisano et al., 2017).

The control variables which previous research have identified to affect the HC disclosure, were firm size, leverage, profitability and shareholder type (Table 3) (Pisano et al., 2017; Cuozzo et al., 2017; Rimmel, Nielsen, & Yosano, 2009). An earlier study by Hossain, Perera and Rahman (1995) predicted that larger firms provide more information to their stakeholders, due to demand by investors. Furthermore, this leads to lower cost for collecting and disseminating information for larger firms compared to smaller firms. This is in conjunction with findings by Pisano et al. (2017), that the prediction regarding firm size (Size) is positive correlated with LinkedIn_HCDisc. Since Size has been confirmed by previous studies to have a positive impact, it was tested as a control variable in the regression model.

Leverage (Lev) was the second control variable included in the model, calculated as the long-term debt over total assets. According to Jensen and Meckling (1976) and Chow and Wong-Boren (1987), firms with high leverage sustain high monitoring cost, which can be

reduced by a higher level of disclosure. With high leverage, higher demand for information by short-term and long-term creditors exists (Chow & Wong-Boren, 1987). Furthermore, findings by Pisano et al. (2017), supports the prediction that a positive correlation between leverage and HC disclosure exist. Moreover, profitability was included as a control variable. This is, because firms with high profitability could have incentives for more corporate disclosures, to highlight the firm's good performance (Raffournier, 1995). In addition, previous studies have concluded that profitability has a significant correlation with IC and HC disclosure (Ferriera, Branco, & Moreira, 2012; Pisano, Lepore, & Lamboglia, 2017). Therefore, the model assumes a positive and significant correlation with profitability.

Following Pisano et al. (2017), shareholder type (ShrType) was included as a dummy variable, to get a better understanding of the effect the largest shareholder type has on corporate disclosure. Included were four different shareholder identities, which were identified by Pisano et al. (2017) through previous literature in IC and HC. The shareholder types were, financial company (ShrFin), industrial company or other public listed company, family or individual owned company (ShrInd/Fam/Indv), the state or public authority (ShrSta), and employee or director (ShrMan).

To complete the regression analysis, a number of control variables were included. Control variables were included, only if they had an impact on the dependent variable, which follows previous procedures in studies regarding HC and IC disclosure (Bozzolan et al., 2003; Bukh et al, 2005; Cuozzo et al., 2017; Garcia-Meca & Martinez, 2005; Rimmel et al., 2009; Williams, 2001). This regression model (Model 1) excludes the independent variable, in order to test the impact of the control variables.

Thereby, the following regression models were developed:

1. $LinkedIn\_HCDisc = \alpha + \beta_1 \circ ShrType + \beta_2 Profit + \beta_3 Size + \beta_5 Lev + \varepsilon$ (Model 1)

Since model 1 will test the association between control variables and the dependent variable, another model was developed, which include the independent variable. The two different regression models were tested to understand the findings and the variables association with each other.

2. $LinkedIn\_HCDisc = \alpha + \beta_1 A02 + \beta_2 1°ShrType + \beta_3 Profit + \beta_4 Size + \beta_5 Lev + \varepsilon$ (Model 2)

4. Findings

4.1 Descriptive statistics

The descriptive statistics for our study (Table 5), shows the minimum, maximum, mean and standard deviation for each variable. The minimum and maximum for the variable LinkedIn_HCDisc, were between 0,34 to 2,73, and had a mean of 1,00. The observed spread of A02 differs between 36,70 % (minimum) and 93,10 % (maximum). The average ownership percentage for the two largest shareholders combined in the sample are 35,86 % (Table 5).

Table 5 - Descriptive statistics of variables

Variables	N	Minimum	Maximum	Mean	Std. Deviation
LinkedIn_HCDisc	150	0,34169	2,73349	1,00000	0,61212
A02	150	0,03670	0,93100	0,35859	0,18709
ShrTypeFIN	150	0,00000	1,00000	0,13333	0,34107
ShrTypeInd/Fam/Indv	150	0,00000	1,00000	0,80000	0,40134
ShrTypeSTA	150	0,00000	1,00000	0,06000	0,23828
ShrTypeMAN	150	0,00000	1,00000	0,00667	0,08165
Profit	150	-5,61351	2,47018	0,11839	0,79392
Size	150	12,02894	20,63105	16,60969	1,65968
Lev	150	0,00000	0,75328	0,20024	0,17099

Table 6 shows the specific ownership structure in the sample, where the ownership of the largest shareholders (second largest shareholders) ranges from 2,17 % (1,50 %) to 83,00 % (30,00 %). Furthermore, the mean for the largest shareholders (second largest shareholders) are 27,61 % (8,34 %).

The largest shareholders (second largest shareholders) for companies in Sweden have an ownership ranging from 5,00 % (2,10 %) to 77,50 % (22,00 %) (Table 6). The same range for companies in Norway are 2,17 % (1,50 %) to 83,00 % (30,00 %). The mean for the largest shareholders (second largest shareholders) for companies in Sweden and Norway are 22,37 % (8.37 %) respectively 35,05 % (9,30 %).

Table 7 shows the ownership composition among the investigated companies. Of the 150 investigated companies, 36 (24 %) had a financial company as the largest shareholder, 104 (69 %) companies had either an industrial-, family- or an individual owned company

as the largest shareholder. Nine (6 %) companies had the state as the largest shareholder and just one (1 %) had an employee or manager within the company as largest shareholder.

Table 6 - Descriptive statistics of Ownership structure

Country		Min	Max	Mean
Sweden	Largest	5,00%	77,50%	22,37%
	Second	2,10%	22,00%	8,37%
Norway	Largest	2,17%	83,00%	35,05%
	Second	1,50%	30,00%	9,30%
Total	Largest	2,17%	83,00%	27,61%
	Second	1,50%	30,00%	8,34%

Table 7 - Company type of the largest shareholder

	Number of companies	% of total
FIN	36	24%
Ind/Fam/Indv	104	69%
STA	9	6%
MAN	1	1%
Total	150	100%

Based on the disclosure grid, which includes the nine HC items (Table 4), the maximum outcome of disclosed items was 1350, with 675 in Sweden and 675 in Norway (Table 8). In total, 438 of 1350 (32,44 %) items were disclosed. Table 8, shows that 282 items of 675 (41,78 %) were disclosed in Sweden. In Norway the result was 156 of 675 (23,11 %). A comparison between the investigated countries shows that the number of disclosed items were 126 more in Sweden compared to Norway, and stands for 64,38 % of the total disclosed items.

Table 8 - Disclosure items divided into country level

Possible disclosure	1350	
Possible disclosure/country	675	
Sweden	282	41,78%
Norway	156	23,11%
Total disclosure	438	32,44%

The possible number of disclosures for every item were 150, 75 companies from Sweden and 75 companies from Norway. The highest disclosure item, *Employee-related measurement,* was disclosed in 150 (100 %) of the investigated companies. *Union activity,* the least disclosed item, was found in zero (0 %) of the companies. The other items disclosed were as follows from the largest to smallest (in percentage): *Recruitment* (76 %), *Welfare and motivation* (32,67 %), *Career development* (28,67 %), *Know-how and expertise* (24,67%), *Training* (20,67 %), *Education* (6 %) and *Health and safety* (4 %) (Table 9).

Table 9 - Disclosure for individual items

Items disclosed	Number of outcomes	Disclosed	Percentage disclosed
Employee-related measurement	150	150	100,00%
Education	150	9	6,00%
Know-how and expertise	150	37	24,67%
Recruitment	150	114	76,00%
Training	150	31	20,67%
Career development	150	43	28,67%
Welfare and motivation	150	49	32,67%
Health and safety	150	6	4,00%
Union activity	150	0	0,00%

4.2 Pearson correlation

A Pearson correlation test was conducted for this study to investigate the linear relationship between different variables and understand the strength of those relationships. Pearson correlation coefficients can take values between -1 and +1, where values of either -1 or +1 indicates either a perfect negative or a perfect positive correlation. A value of zero indicates no correlation (Andersson, Sweeney, Williams, Freeman, & Shoesmith, 2014).

The result of the Pearson correlation test is shown in Table 10. The test was conducted with p-values of 0,05 and 0,01 (1 % respectively 5 % levels of significance). From table 10, two variables (A02 and Size) are significant correlated at $p < 0,01$ to the dependent variable LinkedIn_HCDisc, and at $p < 0,05$, Lev is significant correlated to the dependent variable. Moreover, the Pearson correlation test shows that no other variable is significantly correlated to the dependent variable.

Table 10 - Pearson correlation table

Variables		1	2	3	4	5	6	7	8	9
1. LinkedIn_HCDisc	Pearson Correlation	1								
	Sig. (2-tailed)									
	N	150								
2. A02	Pearson Correlation	-,268[**]	1							
	Sig. (2-tailed)	0,001								
	N	150	150							
3. ShrTypeFIN	Pearson Correlation	0,005	-0,091	1						
	Sig. (2-tailed)	0,950	0,270							
	N	150	150	150						
4. ShrTypeInd/Fam/Indv	Pearson Correlation	-0,133	0,022	-,784[**]	1					
	Sig. (2-tailed)	0,106	0,788	0,000						
	N	150	150	150	150					
5. ShrTypeSTA	Pearson Correlation	,183[*]	0,046	-0,099	-,505[**]	1				
	Sig. (2-tailed)	0,025	0,580	0,228	0,000					
	N	150	150	150	150	150				
6. ShrTypeMAN	Pearson Correlation	0,095	0,137	-0,032	-,164[*]	-0,021	1			
	Sig. (2-tailed)	0,247	0,095	0,696	0,045	0,802				
	N	150	150	150	150	150	150			
7. Profit	Pearson Correlation	0,075	0,044	,227[**]	-,268[**]	0,128	-0,003	1		
	Sig. (2-tailed)	0,364	0,592	0,005	0,001	0,119	0,971			
	N	150	150	150	150	150	150	150		
8. Size	Pearson Correlation	,472[**]	0,025	0,023	-0,150	,210[**]	0,027	,308[**]	1	
	Sig. (2-tailed)	0,000	0,763	0,780	0,068	0,010	0,746	0,000		
	N	150	150	150	150	150	150	150	150	
9. Lev	Pearson Correlation	-,186[*]	,175[*]	-0,054	0,012	0,044	0,036	0,117	,236[**]	1
	Sig. (2-tailed)	0,023	0,032	0,513	0,881	0,593	0,665	0,154	0,004	
	N	150	150	150	150	150	150	150	150	150

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.3   Regression analysis

Table 11 and 12 presents a summary of the results by the regression analysis. The result from the regression analysis of Model 1, shows that the variables firm size and leverage are statistically significant ($p < 0,01$). The regression analysis of model 2 shows statistical significance for the same variables, size and leverage ($p < 0,01$). Model 2 also shows that the independent variable A02 is statistically significant ($p < 0,01$). However, the variable profitability and the dummy variables for ownership composition are not found to be statistically significant in either model (Table 11 & 12). Both of the regression models are found to be significant.

To understand the association between the intercept and the control variables, the standardized beta (Beta) coefficient can be used. The standardized beta coefficient allows

for comparing the strength of the effect of each individual variable to the dependent variable, regardless of their unit of measurement (Bring, 1994). In model 1, Beta for the statistically significant variables are 0,545 for firm size and -0,314 for leverage (Table 11). Different Beta for the significant variables in model 2 are -0,255 (A02), -0535 (Size) and -0,271 (Lev) (Table 12). Another measurement, which can be used to describe how well the data fit a curve or line, is the adjusted R square (adjusted R^2). In model 1, the adjusted R^2 is 30,9 % compared to 36,8 % in model 2.

Table 11 - Regression Model 1

		Standardized Beta	Sig.	Tolerance	VIF
(Constant)a			0,000		
Control variables					
ShrTypeInd/Fam/Indv		-0,004	0,958	0,668	1,497
ShrTypeSTA		0,091	0,260	0,712	1,405
ShrTypeMAN		0,093	0,186	0,953	1,049
Profit		-0,069	0,352	0,845	1,183
Size		0,545	0,000	0,836	1,196
Lev		-0,314	0,000	0,936	1,069
Observations	143				
R^2	0,336				
Adjusted R^2	0,309				

a. Dependent Variable: LinkedIn_HCDisc

Table 12 - Regression Model 2

		Standardized Beta	Sig.	Tolerance	VIF
(Constant)a			0,000		
Independent variable					
A02		-0,255	0,000	0,942	1,061
Control variables					
ShrTypeInd/Fam/Indv		0,021	0,792	0,663	1,508
ShrTypeSTA		0,115	0,139	0,707	1,415
ShrTypeMAN		0,131	0,054	0,932	1,073
Profit		-0,056	0,432	0,843	1,186
Size		0,535	0,000	0,835	1,198
Lev		-0,271	0,000	0,910	1,098
Observations	142				
R^2	0,398				
Adjusted R^2	0,368				

a. Dependent Variable: LinkedIn_HCDisc

4.4 Multicollinearity

In order to make the results from the regression models more reliable and avoid skewness, the variance inflation factors (VIF) were calculated to detect multicollinearity in both of the models. Multicollinearity occurs when different variables in a model correlates with other variables and not only the dependent variable (Andersson et al., 2014). According to Andersson et al. (2014) a VIF value above 10, can be problematic and can indicate high collinearity. The highest VIF value that occurs in model 1 is 1,497 and 1,508 in model 2 (Table 11 & 12).

Moreover, the Pearson correlation can be used to indicate a risk of multicollinearity, if the correlation has a value over 0,7 (Andersson et al., 2014). The highest value in the Pearson correlation table (Table 10) is -0,784, which is between the variables ShrTypeFIN and ShrTypeInd/Fam/Indv.

5. Analysis

In comparison to previous studies regarding IC or HC disclosure, this study finds that all companies disclosed at least one disclosure item (Bozzolan et al., 2003; Bukh, 2005; Firer & Williams, 2005; Pisano et al., 2017). Earlier studies have mainly had the focus on annual reports (Hay et al., 2018; Maji & Goswami, 2018), while this study has LinkedIn as the tool to gather the information. Annual reports usually have the same structure, and for example, in the European Union, a directive force companies to disclose different HC and IC information. This study, with LinkedIn as the tool to collect information, has another approach since companies use LinkedIn in different ways and therefore some items can be skewed compared to previous literature.

The findings of the individual disclosure items are in line with previous research regarding HC disclosure on LinkedIn by Pisano et al. (2017). This study shows a higher percentage disclosed items in five out of the nine investigated disclosure items. The outcome of the result can be due to the more digitalized environment in the Nordic countries, which the report by OECD (2018) concludes. Furthermore, the report by OECD (2018) can be used to argue that digitalization has an effect on HC disclosure, since this study shows a higher level of HC disclosure than Pisano et al. (2017). Three of the items were disclosed in under seven percentages of the firms, which can indicate that companies do not see those items as important to disclose on LinkedIn (Table 9). LinkedIn is a social media tool that focus on recruitment, however, *Recruitment* was just the second most disclosed item in this study (76 %); 100 % of the companies disclosed information regarding *Employee-related measurement.* This implies that companies use LinkedIn as a channel to communicate information about the company. This is in line with the previous study by Bonsón and Bednárová (2013), that the main purpose is to provide information about employees. However, this might be a false observation due to the classification of item recognition.

5.1 Ownership structure

Compared to the study made by Pisano et al. (2017), the mean of A02 is lower, 35,86 %, compared to 54,47 %, which means that the ownership is more diffused in Sweden and Norway compared to Italy, France and Germany. Fama and Jensen (1983) argues that

firms with dispersed ownership will disclose more information in order to mitigate the agency problem. This study shows more dispersed ownership concentration and higher HC disclosure on LinkedIn compared to Pisano et al. (2017), supporting the argumentation behind agency theory.

Companies need to incorporate external norms and rules from society in their operation in order to gain legitimacy (DiMaggio & Powell, 2000). Therefore, companies in the Nordic countries might need to disclose more information through social networks, since it is one of the main information channels for the population in more digitalized countries (Miller & Skinner, 2015). As previously stated, *Recruitment* was not the most disclosed item even though LinkedIn is mainly used for recruitment. A reason for this might be that companies continually disclose information to maintain their legitimacy (Suchman, 1995).

5.2   Correlation and regression analysis

The correlation between ownership structure and HC disclosure shows a significant correlation at 1 %, with a negative correlation of -0,268, which is in line with previous research (Pisano et al., 2017). This means that there is a negative correlation between ownership structure and HC disclosure, hence, if the ownership concentration increase, companies will disclose less HC information. Through voluntary disclosures, a company can mitigate the type 1 agency problem (Brammer & Pavelin, 2006; Chau & Gray, 2002; Cormier et al., 2005). The correlation also give support to the research hypothesis that a negative relationship exist between ownership concentration and the level of HC disclosure via LinkedIn and strengthens the previous research by Pisano et al. (2017). This might support earlier studies concluding that large shareholders collect the information they want compared to smaller shareholder, which can benefit more from increased disclosures by companies (Brammer & Pavelin, 2006; Chau & Gray, 2002; Cormier et al., 2005; Patelli & Prencipe, 2007).

By analysing the result from the regression models, the effect of the independent and control variables can be determined. Regression model 2 shows a higher adjusted R^2 than model 1, which means that model 2, with A02 included, better explains the dependent

variable. Additionally, the adjusted R^2 is higher than the study by Pisano et al. (2017), and might therefore be argued to be more trustworthy.

The results from the regression analysis shows that three variables are statistical significant, those variables are accumulated ownership, leverage and firm size. Accumulated ownership is negative and statistical significant at 1 % explaining HC disclosure, which is an expected outcome in accordance with the hypothesis. Hence, voluntary disclosure might mitigate the agency problem in companies with high concentrated ownership (Fama & Jensen, 1983). The level of the negative Beta for the accumulated ownership is consistent with previous studies regarding IC or HC disclosure, focusing on either LinkedIn (Pisano et al., 2017), or other disclosure media, such as annual reports (Firer & Williams, 2005; Li et al., 2008; Oliveira et al., 2006). In combination with previous research, it can be argued that companies with high ownership concentration systematically disclose less information than if the ownership was more diffused. Furthermore, this is in line with Fama and Jensen (1983), which states that firms with high ownership concentration have less conflict between principal and agent.

The other variables, leverage (Beta = -0,271) and firm size (Beta = 0,535) have a negative, respectively positive relation with HC disclosure. For firm size, the Beta is similar to the previous study by Pisano et al. (2017), which means that the size of a company has a positive correlation to HC disclosure on LinkedIn. A larger company might have the resources and capabilities to gain legitimation by disclosing more information (DiMaggio & Powell, 2000). The variable *Leverage* is negative and significant to HC disclosure, which is contradictable to the study by Pisano et al. (2017). Although the variable *Leverage* is significant, the negative relation to HC disclosure is, in opposition to Jensen and Mecklings (1973) argumentation, that firms with high leverage have incentives to disclose more, in order to reduce the agency cost. Previous research by Pisano et al. (2017), found the variable profitability to be statistically significant and positively related to HC disclosure. However, this study shows no significance for the variable profitability in the regression model. A reason for no significant profitability may be due to the sample selection and context. None of the investigated dummy variables (shareholder type) are significant, which means that shareholder identity does not affect companies level of disclosure.

5.3 Multicollinearity

The highest correlation value in the Pearson correlation table exists between ShrTypeFIN and ShrTypeInd/Fam/Indv. Since the correlation value between those variables is lower than 0,9, multicollinearity cannot be determined (Andersson et al., 2014). Moreover, as all other correlations have a multicollinearity below 0,9, it cannot be determined through the Pearson correlation table. The highest VIF value shown in either of the regression models is 1,508, which implies a low risk for multicollinearity (Table 11 & 12). Since none of the models shows an indication of multicollinearity, it can be argued that no problem with multicollinearity exist.

6. Conclusion

This study investigates HC disclosure via LinkedIn and its relationship with ownership concentration in the Swedish and Norwegian market. It also offers insight that highly digitalized companies can use disclosures to gain legitimacy and mitigate the agency problem. Research within IC and HC disclosure have been well studied by scholars, however, this study is the second study to investigate HC disclosure and ownership structure and no previous study has investigated the Nordic countries. The method used in this study consist of a content analysis with a disclosure index including the most common disclosure items found in earlier studies.

The findings show that most companies in Sweden and Norway disclose information connected to *human resource management practices*, which is in line with previous research, showing that companies mainly use LinkedIn as a communication channel. It appears like companies use LinkedIn to gain legitimacy and reduce the agency problem. The regression analysis confirms the research hypothesis that ownership concentration has a negative relation to HC disclosure. Furthermore, it supports Pisano et al. (2017), suggesting that large shareholders can acquire the information they need, hence, companies with high concentrated ownership experiences less pressure to disclose information than companies with low concentrated ownership.

This study contributes to existing literature, confirming the result from the previous study that investigates HC disclosure and ownership structure. Moreover, it gives an insight in how companies use LinkedIn to disclose information, to gain legitimacy and mitigate the agency problem. The result from this study appears to show that more digitalized countries overall disclose more information than countries with less digitalization, regardless of ownership structure. However, the information disclosed tends to be more company related rather than recruitment related. This indicates that companies use LinkedIn more as a tool to communicate with stakeholders, and not just a recruitment channel.

7. Discussion

The aim of this study was to investigate the relationship between HC disclosure and ownership structure by using a content analysis on LinkedIn as the tool to collect information. The findings reported in table 10 and 12, support the hypothesis for this study; a negative relationship exists between ownership concentration and the level of HC disclosure via LinkedIn. Comparing the largest companies in Sweden and Norway, companies in Sweden have a larger market capitalization. From the analysis, the outcome is in line with the agency theory, stating that higher dispersed ownership will lead to increased disclosure in order to mitigate agency problem or gain legitimacy. However, from the disclosure grid, Swedish companies disclose more information, this might be an indication that Swedish companies need more employees, hence create more value from LinkedIn in their recruiting process.

The confirmed hypothesis in this study shows that HC disclosure is affected by the ownership structure, which is in line with previous research. The reason for the same outcome as Pisano et al. (2017) can be that both studies investigate countries in the European Union. However, since the sample companies in this study are operating in a more digitalized environment, a slightly different outcome can be expected compared to the previous study.

Some of the variables in this study are not in line with previous research. The variable *Profitability* is significant in the previous study by Pisano et al. (2017), but is not found to be significant in this study. A reason for this might be the general stability and regulation on the Swedish and Norwegian stock markets, the larger companies usually show a stable profitability, only 19 of the 150 investigated companies had a negative profitability whereas it could be hard to draw a conclusion regarding profitability. The variable *Leverage* is not in line with the statement by Jensen and Meckling (1976). Reasons for this might be the selected sample; the investigated companies were the largest in Sweden and Norway and had a low debt ratio with mean of 20,02 % (Table 5). Because the mean was at that level, the result can be misleading. Smaller companies are in general financed with debt to a higher extent than larger companies are, therefore, if the sample instead had consisted of smaller companies the outcome may have been different.

In a social context, this study contribute to previous literature since communication with stakeholder has, in the last decade, moved toward a two-way interaction mostly occurring on social media. The move in this direction is still on-going, whereas LinkedIn has received more and more attention. Therefore, this study can be beneficial both for researchers and companies, to gain an understanding of items that are commonly disclosed and how and what type of information they need to improve, in order to gain legitimacy by the society. Furthermore, as this study examine companies disclosures, it can help society determine whether companies act accordingly to their disclosed ethics.

This study contributes to previous research since it gives an understanding on how countries with a higher level of digitalization use LinkedIn as a tool for HC disclosure. However, some limitations exist, this study had a limited sample of 150 companies and a study with wider sample might receive a result that better represent the whole population. Even though the content analysis in this study had coding rules and a reliability test for the content analysis, individual differences will always exist and affect the analysis. This study only investigates companies in two different countries and the previous study regarding this topic was as well investigating countries in the EU. In order to receive an even broader and better understanding it would be interesting to investigate how countries in other parts of the world use LinkedIn and compare it with studies in the EU. Other topics to further investigate would be a comparison over time regarding HC disclosure to understand the development regarding HC disclosure. Moreover, deeper comparison between LinkedIn, other social media, and traditional media would give a better understanding where companies put their attention to regarding HC disclosure. This study had a quantitative approach with a content analysis and a regression analysis. A qualitative approach, performing interviews with companies would give a different approach regarding how companies see themselves use LinkedIn as a communication tool with stakeholders.

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9. Appendix

Appendix 1 – List of sample companies

Sweden	Norway
Mycronic AB	Crayon Group Holding ASA
Vitrolife AB	Otello Corporation ASA
Swedish Orphan Biovitrum AB	Photocure ASA
Hennes & Mauritz AB	Flex Lng Ltd
Fenix Outdoor International Ag	Rec Silicon ASA
Axfood AB	Funcom N.V.
Jm AB	Atea ASA
Holmen AB	Nel ASA
Investment AB Latour	Af Gruppen ASA
Modern Times Group AB	Asetek ASA
Skanska AB	Hunter Group ASA
Evolution Gaming Group AB	P/F Bakkafrost
Ica Gruppen AB	Veidekke ASA
Wallenstam AB	Subsea 7 S.A.
Ncc AB	Medistim ASA
Svenska Cellulosa AB Sca	Magseis ASA
L E Lundbergforetagen AB	Kitron ASA
Boliden AB	Norsk Hydro ASA
AB Electrolux	Panoro Energy ASA
Addtech AB	Scatec Solar ASA
Hexpol AB	Spectrum ASA
PeAB AB	Salmar ASA
Lifco AB	Orkla ASA
Tieto Oyj	Polaris Media ASA
Hufvudstaden AB (Publ)	Multiconsult ASA
Indutrade AB	Nordic Semiconductor ASA
Telefonaktiebolaget Lm Ericsson	Team Tankers International Ltd.
Getinge AB	Norway Royal Salmon ASA
Billerudkorsnas AB	Nrc Group ASA
Bravida Holding AB	Aker Solutions ASA
Husqvarna AB	Self Storage Group ASA
Investor AB	Data Respons ASA
AF AB	Borregaard ASA
Aak AB	Xxl ASA
SaAB AB	Tomra Systems ASA
Betsson AB	Schibsted ASA
Sweco AB	Hexagon Composites ASA

Appendix 1 - List of sample companies

Sweden	Norway
Autoliv, Inc.	Yara International ASA
ABB Ltd	Kongsberg Gruppen ASA
Trelleborg AB	Elkem ASA
Bonava AB	Scottish Salmon Company Plc
Assa ABloy AB	Leroy Seafood Group ASA
Stora Enso Oyj	Grieg Seafood ASA
AB Volvo	Arcus ASA
Kindred Group Plc	Akastor ASA
SSAB AB	Austevoll Seafood ASA
SKF AB	Akva Group ASA
Atlas Copco AB	Equinor ASA
Alfa Laval AB	Mpc Container Ships ASA
Sandvik AB	Rak Petroleum Plc
Ahlstrom-Munksjo Oyj	Awilco Drilling Plc
Hexagon AB	Telenor ASA
Astrazeneca Plc	Dno ASA
Elekta AB	Aker ASA
Tele2 AB	Olav Thon Eiendomsselskap ASA
Loomis AB	Selvaag Bolig ASA
Securitas AB	Entra ASA
Nibe Industrier AB	Fjord1 ASA
FABege AB	Solon Eiendom ASA
Thule Group AB	Bw Offshore Limited
Dometic Group AB	Europris ASA
Essity Aktiebolag	Axactor Se
Fast Partner AB	Wallenius Wilhelmsen ASA
Hemfosa Fastigheter AB	Evry ASA
Telia Company AB	Odfjell Se
Millicom AB	Bw Lpg Ltd
Kungsleden AB	Norwegian Property ASA
Atrium Ljungberg AB	Odfjell Drilling Ltd.
Castellum AB	Frontline Limited
Pandox AB	Hoegh Lng Holdings Ltd.
Fastighets AB Balder	Ocean Yield ASA
Wihlborgs Fastigheter AB	Dof ASA
Intrum Justitia AB	Siem Offshore Inc.
Lundin Petroleum AB	Prosafe Se
Swedish Match AB	American Shipping Company ASA