

# Radboud Universiteit



Does firm size matter? How access to ICT influences the relationship between firm size and CSR engagement.

**Master Thesis**  
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12-7-2020  
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## Acknowledgements

Hereby I present to you my master thesis “Does firm size matter? How access to ICT influences the relationship between firm size and CSR engagement”. This thesis marks the ending of my student time, which represents a great period of my life.

The outbreak of COVID-19 presented quite some challenges during the process of writing my thesis. I had to miss out on the studying atmosphere of the library and especially the relieving coffee breaks I had there with my friends. Nevertheless, I succeeded in finishing it and I would like to thank a couple of people for this achievement.

Firstly, I would like to thank my supervisor dr. S. Schembera, who helped me reflect critically on the content of my thesis. Thank you for your valuable feedback. Secondly, I would like to thank my second supervisor, dr. B.R. Pas, for giving me constructive feedback on my thesis proposal.

I would also like to thank my family and boyfriend for their never-ending support. Special thanks for my father who gave me helpful feedback, my mother who always knows how to cheer me up and to my boyfriend Rens Kattenbelt, who did an extra grammar check on my thesis and even more important, always supported me. This support and feedback were incredibly valuable to me.

Last but not least, I want to thank Luca de Rijck and Jules Kastelijns, for having daily contact about the contents of our theses and for supporting each other every step along the way. I would also like to thank my roommates and especially Floor Manders. The way we stimulated each other really helped me with finishing this thesis.

## Abstract

It is expected that firms conducting business today act responsibly towards society, which is known as corporate social responsibility (CSR). Recent literature reveals effective CSR engagement at small- and medium-sized enterprises (SMEs), but quantitative research investigating the differences between these businesses and multinational enterprises (MNEs) is rare. This research, therefore, quantitatively tests the differences between SMEs and MNEs in CSR communication and CSR implementation, collectively understood as CSR engagement. Based on CSR literature, it is expected that firm size, measured by the number of employees, has a positive effect on the CSR engagement of a firm. Additionally, it is expected that access to high-quality information and communication technologies (ICT) tempers the effect of firm size on CSR engagement, whereby the differences between SMEs and MNEs in this engagement become smaller when the access to ICT is high. Based on data from 5815 firms in the Asset4/ESG database, the hypotheses are tested using various regression analyses. The results indicate that MNEs are better engaged in CSR than SMEs. The access to ICT tempers this effect of firm size on CSR communication. This outcome indicates that in countries with high access to ICT, SMEs will act more like MNEs regarding communication about CSR. Contrary to the expectation, the access to ICT does not temper the effect of firm size on CSR implementation. This study adds to the debate on the differences between MNEs and SMEs regarding CSR and provides insights into the affordances of good access to ICT for managers and institutions.

Key terms: CSR engagement, CSR communication, CSR implementation, firm size, affordances of ICT

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## Chapter 1 Introduction

In today's globalized world, expectations regarding the role of corporations has changed. The efforts that firms undertake to act responsibly towards society can be understood as corporate social responsibility (CSR). Research on CSR discusses several motives of firms to engage in CSR, for example, because of stakeholder pressure (Campbell, 2007), financial benefits (Husted and Salazar, 2006) and moral considerations of managers (Hemingway and Maclagan, 2004).

These motives seek to explain why firms engage in CSR. However, this CSR literature widely ignores the effect of firm size on CSR engagement (Wickert, Scherer and Spence, 2016). "While corporate social responsibility (CSR) is becoming a mainstream issue for many organizations, most of the research to date addresses CSR in multinational enterprises (MNEs) rather than in small- and medium-sized enterprises (SMEs), because it is too often considered a prerogative of large businesses only" (Perrini, Russo, & Tencati, 2007, p. 285). In contrast, SMEs represent 99% of all businesses in Europe (European Commission, 2020). SMEs are hereby defined as firms with fewer than 250 employees and MNEs as firms with 250 employees or more (European Commission, 2016, p. 3).

Because of this literature gap, Baumann-Pauly, Wickert, Spence and Scherer (2013) and Wickert et al. (2016) have drawn attention to the effect of firm size on CSR. Wickert et al. (2016) emphasize hereby that "research often assumes that larger firms are better positioned to engage in CSR, while there is lack of a clear differentiation between CSR walk and talk" (Wickert et al., 2016, p.1171). Because of this, they emphasize taking into account the distinction between CSR implementation (walk) and CSR communication (talk) when looking at the effect of firm size on CSR. The implementation of CSR can hereby be defined as the adoption of CSR strategies, structures and procedures in a firm, while CSR communication contains the externally facing documentation of CSR (Wickert et al., 2016). Collectively, these two could be understood as CSR engagement. Evidence has been offered that small firms are capable of effective CSR engagement (Baumann-Pauly et al., 2013; Wickert, 2014; Wickert et al., 2016). These findings are based on literature or qualitative research, but quantitative research is lacking. An exception is the research of Colucci, Tuan and Visentin (2020), but this research is limited to the fashion industry. Consequently, it would be interesting to test the effect of firm size on CSR engagement (implementation and communication) for a larger number of firms and industries in this research.

Wickert et al. (2016) expected that SMEs communicate less about their CSR activities than MNEs, primarily because of the cost. This makes them do it less, whereby SMEs go ‘somewhat under the radar’ (Schembera and Scherer, 2019). Besides this, Wickert et al. (2016) expected that implementation of CSR in SMEs is based on an informal process, trust and intuition. SMEs have fewer resources with which to implement formal CSR policies than MNEs do (Colucci et al., 2020). As a result, it is expected in this research that SMEs implement and communicate less formal CSR policies than MNEs do.

However, as business has become more complex in today’s globalized environment, implementation of CSR in SMEs based on informal process, trust and intuition alone is not enough. Schembera and Scherer (2019) emphasize the need for more formal CSR processes at SMEs. SMEs face more “novel and complex business conditions in an increasingly globalized economy”, which makes the reliance on informality and trust alone insufficient (Schembera and Scherer, 2019, p. 25). Additionally, as organizational deliberation and moral argumentation state, CSR communication works as an incentive to solve societal problems (Christensen, Morsing & Thyssen, 2017; Hauser & Schembera, 2019). This also makes it relevant for SMEs to formalize and publicize their CSR activities.

Prior studies of barriers for SMEs to develop CSR activities and policies identified the constraints of time and financial resources, as well as the diminished level of organizational and technical resources as barriers for implementing social responsibility policies (Lepoutre and Heene, 2006; Vo, 2011). Schembera and Hengevoss (2019) argued that positive connotations of ICT (information and communication technologies) seem crucial for alleviating several concerns of firms regarding the implementation of CSR, such as resource pressure, limited accessibility and availability of information. As mentioned earlier, SMEs face certain resource challenges regarding CSR compared to MNEs (Wickert et al., 2016; Colucci et al., 2020). As ICT offers affordances for the communication and implementation of CSR (Kaplan and Haenlein, 2010; Hasnaoui and Freeman, 2010), it is expected in this research that access to ICT might help SMEs to communicate and implement more CSR policies, whereby the differences between SMEs and MNEs will become smaller. For this reason, this research will consider the moderating effect of access to ICT when examining the relationship between firm size and CSR engagement. To my knowledge, this moderating effect has not been tested before. Since it could moderate the relationship between firm size and CSR engagement, this research will attempt to answer the following research question:

How does access to ICT influence the relationship between firm size and CSR engagement?

To determine whether firm size (measured by the number of employees) influences the CSR engagement (implementation and communication) of a firm and how access to ICT moderates this effect, the database Asset4/ESG will be used. This is a widely used database which “provides objective, relevant and systematic environmental, social and governance (ESG) information” (ESG data methodology, 2019, p. 3). Through the use of this database, the effect of firm size on CSR engagement and the moderating effect of access to ICT could be tested for a greater number of companies.

This research adds significantly to the current literature in three ways. Firstly, it determines various forms of a firm’s CSR engagement in relation to the firm size by comparing SMEs and MNEs in the same sample. Secondly, literature on the role of SMEs versus MNEs in managing CSR is scarce in general (Schembera & Scherer, 2019). Because the extant research widely ignores the influence of firm size on patterns of CSR engagement (e.g., Aguilera, Rupp, Williams and Ganapathi, 2007; Scherer and Palazzo, 2007; Scherer, Rasche and Palazzo, 2016), this research contributes by taking firm size into account. Thirdly, Baumann-Pauly et al. (2013) did some qualitative research regarding CSR engagement in MNEs and SMEs, but quantitative evidence is lacking. This makes it relevant to test the differences between MNEs and SMEs regarding CSR engagement in a quantitative way. Through this research, differences between SMEs and MNEs could be better understood. Additionally, access to ICT will be tested as a moderator variable, which will contribute to the research of firm size regarding CSR. As the dynamics of CSR engagement will be better understood, it could be a driver for SMEs to communicate more about their CSR activities and thereby implement more formal procedures that would serve as an incentive to solve societal problems (Christensen et al., 2017). Because it is expected that access to ICT tempers the effect of firm size, SMEs will ‘act more like large firms’ whereby they communicate more of their formal CSR policies. This is relevant, as in today’s globalized environment it is not enough to trust informal processes alone. This study could provide managers and institutions insights about the affordances of ICT, and thereby stimulate managers to communicate and implement more CSR activities.

The structure of the paper is as follows. The paper begins by reviewing the background literature on CSR engagement, including a discussion of firm size and CSR implementation and communication. Secondly, the moderating effect of access to ICT is explained. Hypotheses are discussed and, at the end of this chapter, a conceptual framework is presented. In Chapter 3, the methodology is discussed, which is followed by a presentation of

the results in Chapter 4. Finally, the discussion and implications are presented, along with advice for further research.



## Chapter 2 Theoretical Framework

Several theories and hypotheses are discussed in this chapter, starting with the definition of CSR, followed by the differences between SMEs and MNEs in CSR engagement in the form of walk (implementation) and talk (communication). Lastly, the influence of ICT on CSR engagement is discussed, and the expected moderating effect explained.

### 2.1 CSR engagement: CSR implementation versus CSR communication

Before entering into an analysis of CSR in SMEs and MNEs, the concept of CSR should be better clarified. Today, a number of companies are demonstrating their commitment to CSR. However, because there are several definitions of CSR, it is an operationally vague concept (Garriga & Mele, 2004). The EU Commission (2011) defines it as “the responsibility of enterprises for their impacts on society”, but in a general sense there are a number of different definitions and approaches.

Dahlsrud (2008) analyzed 37 various definitions of CSR. He concluded that the confusion is not a consequence of how CSR is defined but more about “how CSR is socially constructed in a specific context” (Dahlsrud, 2008, p.1). Further, he defined five commonly used dimensions of CSR: stakeholder, social, economic, voluntariness and environmental. There is a 97% chance that a random definition of CSR contains at least three of these five elements (Dahlsrud, 2008).

Matten and Crane (2005) developed a clearer definition of CSR, known as corporate citizenship (CC). This concept especially captures the new political role of corporations in globalization (Matten and Crane, 2005). Global governance is no longer a job that is managed by the state alone. Instead, it is “the corporations as well as civil society groups that contribute to the formulation and implementation of rules in public policy areas” (Baumann-Pauly et al., 2013, p. 1). Consequently, companies must step in and take responsibility for their behaviour. Matten and Crane (2005, p. 172) described this as “the role of the corporation in administering citizenship rights, with corporations providing social rights, enabling civil rights and channelling political rights”.

Recent literature (Wickert et al., 2016) highlights the difference between CSR implementation (walk) and communication (talk), which collectively could be understood as CSR engagement. Wickert et al. (2016) emphasize taking into account the distinction between CSR implementation and CSR communication when looking at the effect of firm size on

CSR. Consequently, this definition of CSR will be used in this research and will be further explained.

CSR implementation, known as CSR walk, is about the implementation of a firm's socially responsible policies and actions. CSR walk describes "substantive actions within the firm, such as changing methods of production to reduce environmental impacts or changing labour relationships both within the firm and across the firm's value chain" (Aguilera et al., 2007, p. 836). Wickert et al. (2016, p. 1170) describe CSR walk as "substantive implementation of CSR policies, structures and documentation".

CSR communication, known as CSR talk, addresses the external communication tools used by an institution to inform stakeholders about environmental and social initiatives (Seele and Lock, 2015). Wickert et al. (2016, p.1170) describe CSR talk as "the primarily externally facing documentation of corporate responsibilities". Examples of CSR talk are CSR reports, advertising, product labelling and corporate websites. CSR communication tools are becoming increasingly popular (Tschopp and Huefner, 2015). Companies began disclosing CSR initiatives in annual reports in 1970, and today they have developed standalone CSR reports (Colucci et al., 2020). Websites also serve as an important CSR communication tool. This is especially relevant for SMEs, since websites offer a means of inexpensively disclosing CSR.

Some CSR literature sees CSR talk as an indication of "greenwashing" (Delmas & Burbano, 2011; Laufer, 2003), which refers to the subjectivity of companies' CSR communication. By contrast, organizational deliberation and moral argumentation regard CSR communication as a central element to gain legitimacy and as an incentive to solve societal problems (Christensen et al., 2017; Hauser & Schembera, 2019). Because of this, CSR talk could be seen as a legitimate and crucial element of CSR engagement.

## 2.2. CSR implementation of SMEs and MNEs

Existing research on the relationship between firm size and CSR implementation is rather controversial. On the one hand, Wickert et al. (2016) claim that SMEs implement more CSR than MNEs, while, on the other hand, scholars (Jenkins 2004; Schembera and Hengevoss, 2019; Colucci et al., 2020) claim that MNEs implement more CSR policies than SMEs. These divergent views are discussed in the following paragraph, and, based on this, a hypothesis is formulated.

Wickert et al. (2016) explain the differences between SMEs and MNEs in CSR implementation with regard to the costs involved. According to these researchers, it is relatively expensive for large firms to implement CSR-related policies. Since information must be transmitted across hierarchical levels, it becomes deformed the more often it is reproduced (Bartlett, 1932). This creates asymmetric information, which reduces the consistency and quality of the information presented. This can be managed through the use of costly control devices, which makes it relatively expensive for large CSR departments to implement their own CSR policies. To illustrate, the development of the CSR agenda and policies are mostly the responsibility of CSR managers. They must “reach out and literally ‘persuade’ a myriad of employees in functional positions that may have highly divergent interests in relation to the organization’s overall objectives” (Wickert et al., 2016, p. 1179). The managers must raise awareness among these employees, internally coordinate the CSR programme and provide information about the structure and procedures. As a consequence, the larger the organization, the more resources needed to accomplish this and the more costly it becomes. Wickert et al. (2016) call this the ‘implementation gap’ of MNEs, since these researchers report that it costs more money to implement CSR policies at MNEs compared to SMEs.

The control over behaviour of their employees is, according to Wickert et al. (2016), relatively less costly for SMEs. Because “owner-managers are unwilling to dilute their personal discretionary power and control over the organization”, fewer layers of administration or hierarchy are visible in small firms (Wickert et al., 2016, p. 1177). As a result, there is less information asymmetry, as it is less difficult to control the expected socially responsible behaviour among the employees. Additionally, owner-managers of SMEs who are committed to CSR are more likely to take personal responsibility for its implementation (Wickert et al., 2016).

Contradictory to that, Jenkins (2004) and Colucci et al. (2020) emphasize that MNEs have more resources to engage in CSR compared to SMEs, thereby creating a larger financial impact for SMEs that wish to be socially responsible. Furthermore, MNEs face more pressure from stakeholders, which leads MNEs to more frequently implement CSR.

The characteristics of SMEs are also different than MNEs. Large firms use more formal structures (Jenkins, 2004), while small firms are often founded more on informal structures and intuitive operation. This allows SMEs to generate dynamic capabilities (Schembera and Scherer, 2019), which are defined as “the firm’s ability to integrate, build and reconfigure internal and external competences to address the requirements of rapidly changing

environments” (Teece, Pisano, & Shuen, 1997, p. 516). These capabilities stimulate SMEs to employ their limited resources in innovative ways.

However, this trust in informality also can bring negative consequences. Schembera and Scherer (2019) explain this and argue that the legitimacy of SMEs is not tested, as these businesses do not receive much public attention. Consequently, Schembera and Scherer (2019) speak of a “taken-for-granted status” of SMEs, resulting in a lack of concern about their ethicality. Therefore, these researchers emphasize the negative consequences of the informalities of SMEs. They report that SMEs apply a set of rationalizations to stay “under the radar” of societal evaluation. Four of these rationalizations were revealed: “1. *We are too small to matter*, 2. *We are (like) a close family and trust each other*, 3. *If everybody else does it...*, 4. *Compliance is too costly*” (Schembera and Scherer, 2019, p. 16). SMEs apply these set of rationalizations “to maintain taken-for-granted legitimacy in order to avoid proactively managing corruption risks and exposing themselves to public scrutiny” (Schembera and Scherer, 2019, p. 2). Consequently, they deliberately decide to not expose themselves to societal evaluation, and thereby implement less formal CSR policies.

Additionally, research also acknowledged that small firms lack the resources necessary to implement CSR, face less economic pressure and lack economies of scale, all of which make it more difficult for them to engage in CSR (Jenkins, 2004; Colucci et al., 2020). Wickert et al. (2016, p. 1179) emphasized that “the typically informal coordination style, fewer hierarchical levels and low levels of bureaucracy most likely keep the internal coordination costs for implementing CSR in organizational processes relatively lower for SMEs” (Wickert et al., 2016, p. 1179). By contrast, MNEs have more resources to implement these CSR policies. Additionally, in this increasingly globalized economy, the reliance on informality and trust alone is not enough to engage in CSR (Schembera and Scherer, 2019). Based on the theories that SMEs have fewer resources available for the implementation of CSR, face less economic pressure and lack economies of scale, it is expected in this research that MNEs implement more CSR policies than SMEs do. Hypothesis 1 can be formulated:

Hypothesis 1: MNEs implement more CSR policies than SMEs do.

### 2.3. CSR communication of SMEs and MNEs

Differences between SMEs and MNEs in CSR communication in the literature have been discussed. There is evidence of the strong development of external communication in relation to CSR in large firms (Bowen, 2013; Delmas and Burbano, 2011). Additionally,

Wickert et al. (2016) describe these differences with regards to the cost to the organization. Since large firms generate a significant number of products and services, they are able to realize cost savings as well. Because “the goodwill generated from firm-level CSR-related advertising can be leveraged across a variety of the firm’s brands” (McWilliams and Siegel, 2001, p. 123), the external CSR communication costs for larger firms are lower, on average. Furthermore, larger firms have the resources “to offer different product lines and sophisticated product differentiation strategies through marketing or modifications” (Wickert et al., 2016, p. 1180). These resources make it easier for larger firms to communicate about CSR.

The visibility of MNEs and the external demands of stakeholders make CSR reporting a priority for many large firms (Castelló and Lozano, 2011). This reporting is important in order to be seen as legitimate by the stakeholders. These stakeholders often find it difficult to assess a firm’s true social performance (Siegel and Vitaliano, 2007). Wickert et al. (2016) state that large firms can construct a CSR façade with relative ease by establishing a CSR department that is responsible for formally reporting CSR activities and responding to public relations requests with information created with high production values. They can take advantage of the information asymmetry of stakeholders between internal processes (CSR walk) and externally projected images (CSR talk) (Wickert et al., 2016). In contrast to this, organizational deliberation and moral argumentation regard CSR communication as a crucial element to solve societal problems (Christensen et al., 2017; Hauser & Schembera, 2019). As a result, CSR communication could be seen as more than only “greenwashing”.

It is relatively costly for SMEs to communicate their CSR engagement in formal standards and guidelines to the public (Wickert et al., 2016). As a consequence, fewer SMEs than MNEs, for example, report their CSR activities, according to the Global Reporting Initiative. Additionally, information in small companies can be shared more easily among a small number of employees and a flat hierarchy, which makes the communication more informal. Often, the employees can interact directly with the owner-manager, who are likely to implement CSR practices out of conviction and their own direction, rather than for profit or instrumental reasons (Jenkins, 2004). Of course, MNEs also have non-economic motives for CSR, but because of the institutional requirement concerning shareholders at large firms, economic drivers are also important (Wickert et al., 2016). Milton Friedman (1970) acknowledges this, and observes that small firms go ‘somewhat under the radar’ and face less pressure from stakeholders to communicate about their CSR. Based on the outcomes of

studies, hypothesis 2 can be formulated:

Hypothesis 2: MNEs communicate more of their CSR activities than SMEs do.

#### 2.4 Affordances of information and communication technologies

Given that existing literature seems to highlight the role of costs as the reason why large firms engage more often in CSR, scholars must be concerned about how CSR engagement can be made more affordable for SMEs. ICT seems promising in this regard, because it has the potential to speed up external communication processes and CSR implementation at a low cost (Kaplan and Haenlein, 2010; Hasnaoui and Freeman, 2010; Kaplan and Haenlein, 2010). To formulate how ICT can facilitate the implementation and external communication of CSR policies, the ICT affordances of Conole and Dyke (2004) are first described. In this context affordances can be described as “the perceived and actual properties of a thing, primarily those functional properties that determine just how the thing could possibly be used” (Salomon, 1993, p. 51). Afterwards, the moderating effect of ICT between firm size and CSR engagement is discussed.

The ICT field “includes technologies such as desktop and laptop computers, software, peripherals and connections to the internet that are intended to fulfil information processing and communications functions” (Statistics Canada, 2008). Accessibility is one of the affordances of ICT discussed by Conole and Dyke (2004). Through a variety of different mechanisms, the range of ICT now available offers relatively easy access to vast amounts of information (Conole and Dyke, 2004). This stimulates the potential for encouraging critique and reflection, as users are able to use material of earlier discussions and could engage in the discussion over a longer time frame compared to face-to-face discussions (Conole and Dyke, 2004). Perrini et al. (2007) state that ICT and the online reporting of CSR could encourage reflection, which helps to awaken organizations. Beside the accessibility of information and reflection, ICT also offers speed (of change), allowing immediate access to rapidly changing information, which is “enabling unprecedented speed of access to materials and world events as they happen” (Conole and Dyke, 2004, p. 116). This amount of information, and the ability to have access to rapidly changing information, makes ICT an important tool for the implementation of CSR policies (Hasnaoui and Freeman, 2010).

ICT offers access to a vast range of diverse experiences that can inform learning, such as “access to subject experts, overseas websites, or the use of simulations to replicate

challenging behaviour” (Conole and Dyke, 2004, p. 117). This makes it a key ingredient in effective learning, as ICT makes it possible to expose the experience of others. The last affordance of ICT discussed by Conole and Dyke (2004) is the ability to communicate and collaborate. In this way, SMEs and MNEs can gain more information about CSR policies and use this information for their own formal implementation. These capabilities also offer the potential for learning through engaging with others, for example, between the firm and their stakeholders, and in this way stimulate the implementation of CSR policies. ICT also makes the communication of CSR possible. Camilleri (2018) emphasises that social software facilitated the organizations’ interaction with stakeholders. Since ICT enables interactive communication, direct interaction and dialogue, it empowers the communication between businesses and stakeholders, and in this way the external communication of CSR and its implementation as well.

However, ICT could also have negative consequences for CSR. These negative effects may result from their intrinsic fragility, from monopolization or surveillance (Conole and Dyke, 2004). Another negative effect is the possibility of much easier and quicker dissemination of hate (Gröndahl, Pajola, Juuti, Conti, & Asokan, 2018). This literature found negative effects of ICT when it is used in unintended ways, but ICT could also have negative consequences if it is used in a socially desirable way. Schembera and Hengevoss (2019, p. 30) discovered that “ICTs weaken the impact of local sustainability stakeholder activities on the implementation of responsible governance structures”, as they may threaten the impact of face-to-face interactions. By contrast, other authors argue that technology is a vehicle for stakeholder engagement and responsible entrepreneurship practices (Camilleri, 2018). To conclude, there are positive and negative consequences of ICT. However, since the literature discussed mainly positive effects (Conole and Dyke, 2004; Camilleri, 2018; Schembera and Hengevoss, 2019), it is assumed that ICT positively influences the CSR engagement of SMEs and MNEs.

## 2.5 The moderating effect of ICT

Based on the literature, this research expects that SMEs implement CSR policies and communicate them to the public less frequently than MNEs. One of the main reasons for this difference could be the costs to the organization (Wickert et al., 2016), as it is, for example, more expensive for SMEs to implement and communicate formal CSR policies. Because access to ICT is crucial for SMEs for several reasons, such as resource pressure and information about CSR (Schembera and Hengevoss, 2019), it is interesting to determine

whether ICT could change this relationship between firm size and CSR engagement. In this way, SMEs can use ICT to implement and communicate more formal policies, which enable them to ‘act more like large firms’.

As discussed, ICT offers several affordances which positively influence the CSR implementation of a firm. Schembera and Hengevoss (2019), based on Conole and Dyke (2004), argue that positive connotations of ICT seem crucial for alleviating several concerns, such as time and resource pressure, limited accessibility and availability of information. Consequently, it could be expected that ICT has a positive impact on the implementation of responsible governance structures, by creating conditions that come closer to an optimal situation (Schembera and Hengevoss, 2019). The interaction with stakeholders through digital media provides the opportunity for reflection and more information about CSR at a low cost. Because SMEs face difficulties from, for example, resource pressure, limited accessibility and availability of information regarding CSR (Colucci et al., 2020), it is expected in this research that the affordances of ICT could be an enabler to narrow this implementation gap of SMEs. Based on these affordances of ICT, it is expected that access to ICT tempers the organizational cost to implement CSR policies, and, in this way, the impact of firm size on CSR implementation. Based on this, hypothesis 3 can be formulated:

Hypothesis 3: Access to ICT tempers the effect of firm size on CSR implementation.

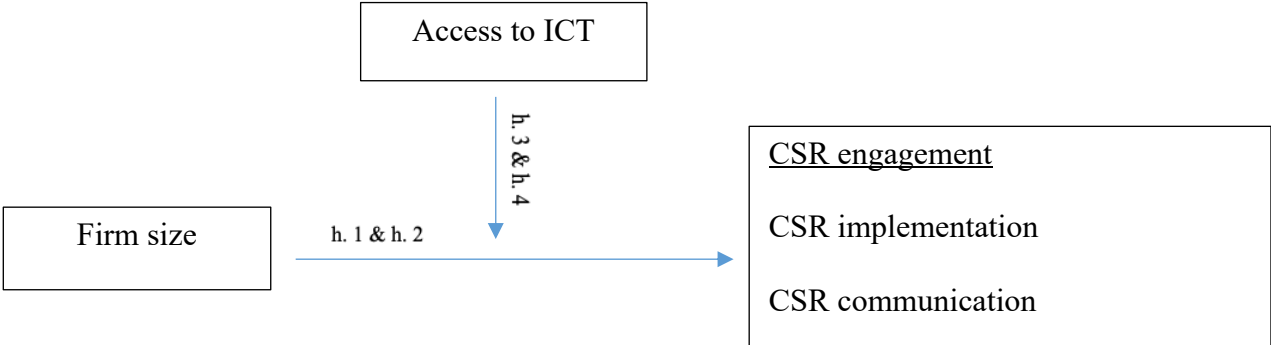
Manetti and Bellucci (2016, p.986) argue that “social media and social networks are powerful mechanisms for reaching and keeping in touch with a large number of stakeholders, thus guaranteeing an interactive dialogue with them at very low costs”. This makes access to ICT an enabler for CSR communication, whereby access to it tempers the organizational cost. Moreover, Camilleri and Costa (2018) found evidence that small businesses are increasingly using digital media to improve their communication about their responsible entrepreneurship issues. As ICT has a positive impact on the CSR communication, it is expected that access to ICT tempers the organizational cost to communicate about CSR and, in this way, the effect of firm size on CSR communication. Based on this, hypothesis 4 can be formulated:

Hypothesis 4: Access to ICT tempers the effect of firm size on CSR communication.



2.6 Conceptual model

Several hypotheses have been formulated, based on the literature. The following conceptual model is tested in this research:



## H.3 Methodology

This chapter discusses the methodology, first explaining the research design and then the dependent and independent variables. After this, the moderator effects and control variables are discussed, and an overview of the variables is provided (table 1). Subsequently, the research method, validity and reliability, and research ethics are discussed.

### 3.1 Research design

The hypotheses developed in this thesis argue about the impacts of one independent variable (firm size) on two dependent variables (CSR implementation, CSR communication), with the moderating effect of access to ICT. A quantitative research was conducted to test these hypotheses with the sample selected from the ASSET4/ESG database of Thomson Reuters. This database includes data from approximately 7000 listed companies doing business around the world. The data is collected from annual reports, company websites, non-governmental organizations' websites, stock exchange filings, CSR reports and news sources (ESG data methodology, 2019). The companies included in the database are scored on their performance in three categories: environmental, social and governance. The data is updated once a year and consists of yearly information. More than 150 content researchers are trained to collect this environmental, social and governance (ESG) data, and a combination of both algorithmic and human processes is employed to achieve as close to 100% data quality (ESG data methodology, 2019). The Asset4/ESG database is relevant for this study, as it contains CSR data of firms that are objectively compared and benchmarked towards each other. This makes it possible to allow a comparison between the size of companies in various industries. The Asset4/ESG database is a widely used database for research about the topic of CSR and purports to “provide objective, relevant and systematic environmental, social and governance information” (ESG data methodology, 2019, p. 3).

### 3.2 Research sample

Hair, Black, Babin and Anderson (2014) offered suggestions about the sample size. These researchers recommend that a regression analysis has a sample size with a ratio of 15 to 20 observations per independent variable. In this research, four independent variables are included in the model (including the control variables); therefore, at least 80 observations should be included in the model. Since a high number of observations grant the model

significant statistical power, a larger sample is preferred. One criterion used for the selection of the research sample is whether enough data is available from the company. Missing values could disturb the results, and therefore firms were included only if data on all indicators was available. After this, 5815 companies from the year 2018 were selected for the analyses. This year was chosen because it provided the most extensive and recent data. Since a wider timeframe resulted in more missing data and since the year 2018 provides enough data, it was decided not to focus on more years. This resulted in a valid dataset of 5815 companies located in 58 countries, whereby most firms are located in Europe or North America.

### 3.3 Variables

To measure CSR implementation and communication, the assessment tool of Baumann-Pauly and Scherer (2013) was used. Hauser and Schembera (2019) also matched their data with this tool to measure CSR, in order to contain content validity. Baumann-Pauly and Scherer (2013) developed an assessment tool that enables the revelation of the corporate citizenship embeddedness (e.g., CSR) in a particular organization. This tool allows researchers to determine whether the organizational procedures and structures are indeed designed in ways that enable a firm to systematically realize CSR (Baumann-Pauly and Scherer, 2013). Two dimensions defined by Baumann-Pauly and Scherer (2013) are conceptualized: the commitment dimension and the structural and procedural dimension. These dimensions will be matched with the variables in the database.

#### **Dependent variable: CSR communication**

CSR communication is defined in this research as “the primarily externally facing documentation of corporate responsibilities” (Wickert et al., 2016, p.1170). This definition of CSR communication can be connected with the commitment dimension of the corporate citizenship model. This dimension describes the willingness of a firm to conduct “business activities in line with international regulations or universally accepted rules such as human rights” (Baumann-Pauly & Scherer, 2013, p. 4). CSR should hereby feature in the firm’s strategic documents, for example, in their mission and communication. This conceptualization fits with the category score ‘CSR strategy score’ as noted in the Asset4/ ESG database. This score consists of eight indicators and measures “a company’s practices to communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes” (ESG data methodology, 2019, p. 16). It measures on a scale of

0–100 the CSR communication of a company relative to the other companies included in the Asset4/ESG database.

### **Dependent variable: CSR implementation**

CSR implementation is defined in this research as the “substantive implementation of CSR policies, structures and documentation” (Wickert et al., 2016, p. 1170). To ensure that the commitments are realized, CSR must be embedded on structural and procedural levels. The structural and procedural dimensions of the corporate citizenship embeddedness tool describe “the internal embeddedness of CSR in daily operations, which includes the alignment of specific policies, for example, in the area of human resources (recruitment, promotions, bonuses, training), the creating of complaints procedures, reporting and evaluation mechanisms” (Baumann-Pauly and Scherer, 2013, p. 4-5). This conceptualization fits with the category score ‘ESG management score’ of the Asset4/ESG database. This score derives from 34 indicators and measures of “a company’s commitment and effectiveness towards following best-practice corporate governance principles” (ESG data methodology, 2019, p. 16). This score measures the CSR implementation of a company relative to other companies included in the database, and is measured on a scale of 0–100.

### **Independent variable: Firm size**

For analytical distinction, MNEs versus SMEs are defined along a continuum “where size is defined as the number of individuals participating in the activity of the firm” (Camancho, 1991, p. 137). Since it is people who are organized, this measurement is generally assumed as the strongest determinant of the structure of an organization (Child, 1973, p. 170). Based on earlier research (e.g., Wickert et al., 2016), SMEs are defined as firms that have fewer than 250 employees and that typically have a low visibility. Large firms (MNEs) typically employ several thousand people, even tens of thousands, and commonly have a high visibility. Based on figures provided by the Organization for Economic Co-operation and Development (2005), companies with fewer than 250 employees are classified as small, and those with 250 or more employees are classified as large. The variable ‘employees’ to measure firm size is derived from the Thomson Reuters database and measures the number of employees in a company. To make a distinction, a dichotomous variable has been created. Organizations with fewer than 250 employees are defined as 1 in SPSS Statistics, and organisations with 250 employees or more are defined as 2.

## **Moderator variable**

As discussed in the theory chapter, it is assumed that access to ICT has a moderating effect between the size of a firm and CSR engagement. To determine whether this variable moderates the effect between firm size and CSR engagement, the direct effect of firm size on CSR engagement was tested first, followed by the independent effect of access to ICT on CSR engagement and finally the moderating effect of access to ICT between firm size and CSR engagement. These results are presented in Chapter 4.

### **Moderator variable: ICT**

To determine whether access to ICT is a moderating effect between firm size and CSR engagement, the data of the United Nations Online Service Index (OSI) was used. This was decided based on the research of Schembera and Hengevoss (2019), who also measure ICT with the OSI database. This OSI data provides data about the scope and quality of online services (Schembera and Hengevoss, 2019). It is part of the United Nations E-Government Survey and “has gained wide acceptance as a global authoritative measure of how public administrations provide electronic and mobile public services” (Schembera and Hengevoss, 2019, p. 21). It assesses the quality and scope of online services for 60 countries through means of a survey. “It assesses each country’s national website in the native language, including the national portal, e-services portal and e-participation portal, as well as the websites of the related ministries of education, labour, social services, health, finance and environment as applicable” (Schembera and Hengevoss, 2019, p. 21). The survey is conducted biannually, which means that it covers data over the years 2012, 2014, 2016 and 2018. For this research, the data for the year 2018 was used. The OSI score is a continuous variable with a scale of 0-1.

### **Control variables**

According to multiple studies, the industry in which a company is active influences whether a company engages in certain CSR activities or not (Dam & Scholtens, 2013; Habbash, 2015). These authors argue that industries face differences regarding public scrutiny and visibility, so it is important to control these effects. The most common way to control for the type of industry is by using industry codes (Barnea & Rubin, 2010). The industry code ‘WC07021’ was retrieved from the Thomas Reuters database. The variable ‘industry’ is divided into nine categories: agriculture, mining, construction, manufacturing,

transportation/communication, wholesale, retail trade, finance and services.

A given characteristic of successful CSR is that it reflects the expectations of a company's stakeholders (Trapp, 2014). Crisóstomo, Parente and Freire (2014) found evidence that the involvement of stakeholders influences a firm's CSR activity. These researchers found that the involvement of stakeholders in the company is associated with increased social action. The role of stakeholder involvement in implementing CSR strategy is crucial, and the interaction with stakeholders is a driver for CSR (Campbell, 2007). Furthermore, the stakeholder engagement of a firm influences its CSR reporting (Trapp, 2014) and influences the decision to prepare CSR reports (Greco, Sciulli and D'Onza, 2015). The involvement of stakeholders yields benefits such as having a better understanding of their expectations, which can be used to prepare better CRS reports. In summary, stakeholder engagement in the form of involvement has a positive influence on the CSR engagement (implementation and communication) of a company. The stakeholder engagement is measured by the variable 'stakeholder engagement' in the Asset4/ESG database. This variable measures how a firm engages with its stakeholders and whether it involves the stakeholders in its decision-making processes (ESG data methodology, 2019). Firms that engage with their stakeholders are defined as 1 and firms that do not mention this are defined as 0.

## Overview variables

Table 1 provides an overview of the variables.

Variables	Name in database	Explanation	Score	Database
<b>Dependent variables</b>				
CSR communication	CSR strategy score	This score reflects a company's practices to communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes (ESG data methodology, 2019, p. 16).	Continuous variable: 0-100	Asset4/ESG
CSR implementation	ESG Management score	This score measures a company's commitment and effectiveness towards following best practice corporate governance principles (ESG data methodology, 2019, p. 16).	Continuous variable: 0-100	Asset4/ESG
<b>Independent variable</b>				
Firm size	Employees	Number of employees.	Dichotomous variable: SME=1 MNE=2	Thomson Reuter
<b>Moderator</b>				
ICT	OSI	Score of the scope and quality of online services for each country.	Continuous variable: 0-1	UN E-Government Knowledgebase
<b>Control variables</b>				
Industry	Industry (DataStream code: WC07021)	1. Agriculture, 2. mining, 3. construction, 4. manufacturing, 5. transportation and communication, 6. wholesale, 7. retail trade, 8. finance and 9. services.	Category variable	Thomson Reuter
Stakeholder engagement	Stakeholder engagement	Information on how the company is engaging with its stakeholders; how it is involving the stakeholders in its decision-making process; what procedures are in place for engagement (ESG data methodology, 2019).	Dummy variable: Yes (1) No (0)	Asset4/ESG

### 3.4 Method of analysis

The aim of this research is to predict the effect of independent variables (main effect and moderating effect) on dependent variables. Because of this, regression analysis was selected as the method of analysis (Field, 2013). This is a popular and frequently used method to predict relationships between variables (Hair et al., 2014) and it is also appropriate to test moderating effects. Regarding the goal of this research to test the effect of firm size on CSR engagement and thereby the moderating effect of ICT, regression analysis seems an appropriate method for this research. Since not all of the assumptions for a regression analysis have been met for the dependent variable CSR communication, a logistic regression also was executed. This is further discussed in the results section.

### 3.5 Reliability and validity

The validity can be divided into internal and external validity, with the internal validity determining whether the research measures what it is intended to measure. Since the Asset 4/ESG database is used in several studies to measure CSR adoption, it can be seen as a prominent database for measuring CSR. Matching the corporate citizenship tool with the Asset4/ESG data is an attempt to increase the internal validity. The external validity describes the extent to which the results in this thesis are generalizable across populations, settings and time. Since only listed companies were used in this research, it is not possible to generalize the results for all companies.

Reliability is “the ability of the measure to produce the same results under the same conditions” (Field, 2013, p. 13). To assess the reliability, the same group must be tested twice. During the data collection, a combination of both algorithmic and human processes was used (ESG data methodology, 2019), which contributes to the reliability and quality of the data.

### 3.6 Research ethics

When performing a study, a number of ethical principles must be taken into account (American Psychological Association, 2017). These ethical principles emphasize that researchers need to act for the positive welfare of the beneficiaries and perform no misbehaviour. Since this is a study that deals with quantitative data, the main ethical concerns are in the way in which the data is processed. All of the results in this thesis are genuine, and no results are manipulated. The Asset4/ESG database used for this thesis was provided by the Radboud University. The organizations included in the database allow researchers to use their



data for research ends, and it is not mandatory to report the results of this thesis back to the organizations. Since the sample of this research includes 5815 firms, it was decided not to engage in this reporting. As the Radboud University entrusted me to work with the data responsibly, I have decided to report the results in a way that the anonymity of the companies is ensured.

## 4. Results

To determine whether hypotheses 1 to 4 should be accepted, several multiple regression analyses were performed. IBM SPSS Statistics software version 26 was used to analyze the data. In this chapter, first the descriptive statistics of the variables will be discussed, and the assumptions of multiple regression will be tested. Not all the assumptions can be met, so the choice for a logistic regression to test the CSR communication will be explained. Hereafter the hypotheses will be tested and discussed. First, the hypotheses of the dependent variable CSR implementation will be tested (hypothesis 1 and hypothesis 3), after this the hypotheses of the dependent variable CSR communication will be tested (hypothesis 2 and hypothesis 4).

### 4.1 Descriptive statistics

The descriptive statistics of the original variables included in the analysis are presented in table 2 and 3. From this table a few conclusions can be drawn. First, the mean of the management score is 51.3, which illustrates that firms score average regarding the CSR implementation. The mean of the strategy score is 31.7, which explains that on average firms score quite low on the CSR communication. For the division between small and large firms, 89.1 percent (N=5184) of the firms included in the analysis are large and 10,9 (N=631) are small. The mean of the ICT score is 0.84, which means that most firms included in the analysis are well developed in ICT. For the control variable 'industry', the manufacturing industry is the most represented in the analysis (industry 5, N=1982) and the agriculture industry has the smallest observations (industry 1, N=28). The reference group hereby is industry 10, the service industry. For the control variable 'stakeholder engagement', 39.1% (N=2279) of the firms engage with their stakeholders, while 60.9% (N=3536) of the firms do not engage with their stakeholders. So, more firms included in the analysis do not engage with their stakeholders. Furthermore, the variable 'employees' shows high levels of skewness or kurtosis. As 'employees' is transformed into a dichotomous variable, normal distribution for this variable isn't required. Of these variables none contain missing data, as the option 'exclude case listwise' has been used. What is remarkable is that the percentiles of the strategy score are not normally distributed. At least 25% of the companies score a 0 on the strategy score, which means that they do not communicate about their CSR at all. This occurrence will be further discussed by the evaluation of the assumptions.

Table 2. Number of firms, mean, standard deviation, skewness & kurtosis and the percentiles of the variables in the model.

Variable	N	Mean	SD	Skewness	Kurtosis	p. 25	p. 50	p. 75	p. 100
Management score	5815	51.33	28.81	-.05	-1.20	26.44	51.69	76.62	95.33
Strategy score	5815	31.67	33.53	-.57	-1.16	.00	20.19	61.68	92.86
Employees	5815	19622.29	48395.04	5.89	45.93	1110	4832	16015	87018
ICT	5815	0.84	0.24	-1.76	-1.96	.83	.97	.99	.99

Table 3. Frequency table of the recoded variables firm size and ICT groups.

Variable	N	Percent	Cumulative
<b>Firm size:</b>			
Small (SMEs)	631	10.9%	10.6%
Large (MNEs)	5184	89.1%	100%
<b>ICT groups low-high:</b>			
ICT group 0	812	13,9%	13,9%
ICT group 1	542	9,4%	23,3%
ICT group 2	1231	21,2%	44,5%
ICT group 3	3230	55,5%	100%

## 4.2 Assumptions

By every analysis the assumptions for regression analyses were evaluated. The dependent variable strategy score, which measures the CSR communication, is not normally distributed at all, as more than 25% of the observations have a value of 0 and the other values between 0 and 100 are uniformly distributed. It is therefore not appropriate to conduct a linear regression. A transformation is in such a situation meaningless as the distribution always will remain skewed. Dichotomizing the strategy score and performing a logistic regression offers a solution in which it is still possible to work with the data. The variable strategy score is therefore transformed in a dichotomous variable. As the literature does not give any

information about a scale of the strategy score, there has been chosen to split the variable in 0-5 versus the rest of the values (values 0 to 5 means a low score and values 5 to 100 a high score). Of course, this is an arbitrary chosen boundary. In order to find out if this choice does not influence the final results too much, other boundaries (0 versus the rest of the values and 0-20 versus the rest of the values) also have been analyzed (sensitivity analysis).

For the dependent variable management score, which measures the CSR implementation, it is still appropriate to conduct multiple regression analyses. This is based on the evaluation of the assumptions, which will be discussed below. As not all the assumptions are perfectly met, it is still a little bit doubtful to perform a regression analysis. But, as the additional analysis of robust standard errors and a logistic regression (see discussion) show the same results, I do believe in the final conclusions from this regression analyses.

All of the variables included in the analysis were of interval level. The variable 'employees' is transformed into a dichotomous variable, whereby firms that have less than 250 employees are defined as small (1) and firms that have 250 employees or more are defined as large firms (2). A regression analysis with the actual number of employees has not been executed, as it is unrealistic to think that the CSR implementation score increases linear with the increase of the number of employees. Furthermore, through this transformation, the differences between SMEs and MNEs are better visible. Crosstabs have been made in order to see if there were signs of multicollinearity. These crosstabs revealed that there is some multicollinearity, but that this is not extreme and therefore non problematic. Additionally, the VIF and tolerance values have been checked to see if there are signs of multicollinearity. Field (2013) states that VIF values above 10 and tolerance values below 0.1 can be seen as problematic. In this research there is no sign of problematic multicollinearity (appendix 1), as the VIF values are below 10 and the tolerance values above 0.1. There also has been checked for outliers (appendix 2). One firm has been removed from the database. This firm had an extreme number of employees (2,2 million) compared to the other firms in the analysis, which biased the results. In order to test the assumption of independent errors, there has been looked at the Durbin-Watson test. To meet this assumption, the value must score between the 1.5 and 2.5 (Field, 2013). This assumption is met, as the value is 1.917. The histogram shows that the data is normally distributed (appendix 3). This distribution is not perfect, but due to the large sample size and central limit theorem this does not pose any problems. The scatterplot shows that the data is homoscedastic (appendix 4). The scatterplot also revealed that for the management score the lower predicted values are systematically predicted a bit too high. To try to solve this problem, the ICT variable has been changed from a continue variable into a

dummy variable. This is also done in order to make the results better interpretable. As the literature doesn't provide information about this, four groups have been made (0-0.5=ICT group 0, 0.5-0.7=ICT group 1, 0.7-0.9=ICT group 2, 0.9-1=ICT group 3). So, firms in ICT group 0 have the lowest access to ICT and firms in ICT group 3 have the highest access to ICT (table 2). To control for sensitivity, other boundaries also have been tested (0-0.6, 0.6-0.8, 0.8-0.95, 0.95-1). This division showed the same trends regarding the outcomes.

The transformation of the variable ICT showed some improvement. The residuals are still not perfectly evenly distributed over the predicted values. Field (2013) purposed a method to deal with this: the use of robust standard errors. To make sure that the results are not biased, this method will be used in the end to verify the results. Additionally, a logistic regression has been executed (see discussion) whereby the management score is divided in low-high (0-50 vs 50 >). As these confirm the results of the regression, I have confidence in the outcomes of the regression analyses.

### 4.3 Testing the hypotheses

As all the assumptions are met or controlled for, it is appropriate to conduct several analyses. Multiple regression analyses have been conducted, to exam the effects of the variables on CSR implementation. First, several tests for the effect of firm size on CSR implementation have been performed, followed by the moderator analysis of ICT (hypotheses 1 and 3). After this, logistic regression analyses have been performed to test the effect of firm size on CSR communication and hereby the moderating effect of ICT (hypotheses 2 and 4).

#### 4.3.1. Testing H. 1

To test the effect of firm size on CSR implementation (h. 1), several tests have been conducted. First, a t-test has been performed. In this way, the direct effect of firm size on CSR implementation could be tested, without the control variables. This test shows a significant result ( $F=16,260$ ,  $p < .001$ ), with a mean of 37.8 for small firms and a mean of 53.7 for large firms (table 3). As there are some doubts regarding the assumptions, a non-parametric Mann-Whitney test also has been executed. This test gives a significant result ( $p < .001$ ).

Table 4. Descriptive T test and Mann-Whitney of CSR implementation.

<b><u>T test</u></b>	<b>Small firms</b>		<b>Large firms</b>		<b>p</b>
	<b>Mean</b>	<b>SD</b>	<b>Mean</b>	<b>SD</b>	
Management score	34.08	26.27	53.43	28.40	.000
<b><u>Mann-Whitney test</u></b>	<b>p. 25</b>	<b>p. 50</b>	<b>p. 75</b>	<b>p</b>	
Management score	25.52	50.68	75.69	.000	

Additionally, a univariate analysis of variances has been conducted (table 5). Hereby the control variables also have been taken into account. The model is significant with an Adjusted R Squared of 0.097. This score is quite low, so the variables do not explain all the variance of the CSR implementation score. As the goal of this research is to look for associations instead of predictions, this is not a problem.

The control variables ‘industry’ and ‘stakeholder engagement’ are both significant ( $p < 0.001$ ). When firms do not engage with their stakeholders, they will score lower on the CSR implementation (mean CSR implementation -12.667). This result can also be illustrated by a histogram (appendix 5). The histogram confirms the results and shows that a firm implements more CSR when it does engage with stakeholders. For the industries, firms in industry 1 (agriculture) score the lowest on the CSR implementation ( $\beta = -8,133$ ) and firms in industry 7 (wholesale) score the highest on the CSR implementation ( $\beta = 9,217$ ). The dichotomous independent variable employee is significant ( $p < .001$ ), with a  $\beta$ -value of -15.9. This shows that *h.1, MNEs implement more CSR policies than SMEs do*, could be confirmed. When a firm is large (MNE), it scores 15.9 more on the CSR implementation score compared to a small firm (SME).

Table 5. Regression analysis showing the path b effect of the factors expected to predict CSR implementation.

Variable	<i>b</i>	SE <i>b</i>	<i>t</i>	<i>p</i>
Intercept	56.507	1.096	52.019	.000
<b>Employee dichotomous</b>				
Small (SMEs)	-15.869	1.209	-13.128	.000
Large (MNEs)	0			
<b>Stakeholder engagement</b>				
No	-12.667	.761	-16.648	.000
Yes	0			
<b>Industry</b>				
Agriculture	-8.133	5.258	-1.528	.000
Mining	5.177	1.737	2.980	.003
Construction	1.292	2.226	.580	.562
Manufacturing	3.528	1.120	3.149	.002
Transportation/communication	4.971	1.434	3.466	.001
Wholesale industry	9.217	2.512	3.669	.000
Retail Trade	8.907	1.777	5.013	.000
Finance	6.645	1.221	5.488	.000
Services	0			
R <sup>2</sup> = .097				

#### 4.3.2. Testing H. 3

To test if the access to ICT moderates the effect between firm size and the CSR implementation (hypothesis 3), multiple regression analyses have been conducted by the use of univariate analyses of variances. To research if ICT moderates the relationship, first the independent effects of firm size and ICT on CSR implementation have been tested.

The model is significant with an Adjusted R Squared of .113 (table 6). Both control variables 'industry' and 'stakeholder engagement' are significant ( $p < .001$ ). The effect of firm size on CSR implementation (h. 1) is still significant ( $p < .001$ ). In alignment with the previous results, it shows that the larger a firm, the more it implements formal CSR policies ( $\beta = -18.265$ ). The effect of ICT on CSR implementation is also significant ( $p < .05$ ). The Beta

values show that when a firm has less access to ICT, it implements less CSR policies. The estimated marginal means also confirm this, whereby firms that have a low access to ICT score lower on the CSR implementation score (ICT group 0 (low): mean small firms= 34.9, mean large firms=48,7) than large firms (ICT group 3 (high): mean small firms=39.8, mean large firms=58.0).

When adding the moderating effect to the model, the Adjusted R Squared does not change ( $R = .113$ ). The effect of employees\*ICTgroups on the CSR implementation score is not significant ( $p = .076$ ) (appendix 6). This means that *h.3, the access to ICT tempers the effect between firm size and CSR implementation*, cannot be confirmed. There is no interaction, so table 6 is presented without the interaction effects.



Table 6. Regression analysis showing the path b effect of the factors expected to predict CSR implementation.

Variable	<i>b</i>	SE <i>b</i>	<i>t</i>	<i>p</i>
Intercept	56.507	1.096	52.019	.000
<b>Employee dichotomous</b>				
Small (SMEs)	-18.265	1.389	-13.153	.000
Large (MNEs)	0			
<b>ICT groups</b>				
ICT group 0	-9.303	1.142	-8.145	.000
ICT group 1	-9.343	1.352	-6.908	.000
ICT group 2	-7.285	.992	-7.347	.000
ICT group 3	0			
<b>Stakeholder engagement</b>				
No	-15.398	.801	-19.231	.000
Yes	0			
<b>Industry</b>				
Agriculture	-5.360	5.222	-1.027	.305
Mining	5.985	1.741	3.438	.001
Construction	2.987	2.218	1.347	.178
Manufacturing	4.476	1.114	4.018	.000
Transportation/communication	6.314	1.428	4.421	.000
Wholesale industry	9.657	2.490	3.878	.000
Retail trade	9.290	1.762	5.272	.000
Finance	7.180	1.202	5.973	.000
Services	0			
R <sup>2</sup> = .113				

#### 4.3.3. Robustness check

As not all the assumptions were perfectly met, it could possibly bias the standard errors and the significance test (Field, 2013). To control for this, a robustness check has been executed. Results of this robustness check show that the control variables industry and stakeholder engagement are significant ( $p < .001$ ). The effect of firm size is also significant, whereby SMEs implement less CSR policies than MNEs ( $\beta = -18.265$ ). The moderating effect of ICT is not significant for the different ICT groups (ICT group 0,  $p = 0.441$ ; ICT group 1,  $p = 0.390$ ; ICT group 2,  $p = 0.139$ ). These results of the robustness check are in line with the multiple regression analyses and show the same results. Because of this, *h.1, MNEs implement more CSR policies than SMEs do*, could be confirmed and *h.4, the access to ICT moderates the effect between firm size and CSR implementation*, cannot be confirmed.

#### 4.3.4. Testing H. 2 and H. 4

To test if firm size influences the CSR communication of a firm, a logistic regression analysis has been executed in which the probability of a high CSR communication score (CSR score  $> 5$ , CSR score was dichotomized in low (0 to 5) and high (5 to 100)) was estimated as a function of 'firm size' (employee dichotomous: SMEs vs MNEs), 'ICT score' (4 classes), 'stakeholder engagement' (yes vs no), 'industry' (9 classes) and the interaction term between 'firm size' and 'ICT score'. Relations between independent variables and outcome are given as odds ratio estimates. If the odds ratio is one, it means that there is no change in odds on a high CSR score as the independent variable changes from one class to another. For each of the odds ratio estimates a 95% confidence interval has been calculated. If this interval includes a value of 1, the odd ratio is not statistically significant.

First, I made a model with the interaction term between 'firm size' and 'ICT score'. The interaction term appeared to be significant ( $p = .006$ ). So, the effect of firm size on the CSR communication score is different for the several ICT groups. Or to say it the other way around: the effect of the ICT groups on the CSR communication score is different for the two firm size groups. Because relationships are difficult to read in a model with an interaction term, I made, for the four different ICT groups separately a simpler model (without ICT groups as a predictor and without the interaction term: a logistic regression model that predicts the probability on a high CSR score as a function of 'firm size', 'stakeholder engagement' and 'industry'). So, the effect of the firm size can then be seen for each ICT group (table 7). For all ICT groups the firm size appeared to be a significant predictor

( $p < 0.05$ ), in the sense that SMEs have a lower probability on high CSR communication scores. In ICT group 0 the odds on a high CSR score is 0.201 times as large for small firms compared to large firms ( $OR_{ICT=0} = 0.201$ ). The following trend in OR's can be seen from ICT group 0 to 3:  $OR_{ICT=0} = 0.201$ ,  $OR_{ICT=1} = 0.201$ ,  $OR_{ICT=2} = 0.567$ ,  $OR_{ICT=3} = 0.599$ , see also table 7.

So, *h.2, MNEs communicate more of their CSR activities than SMEs do*, could be confirmed. Another trend that can be seen in these results, is the moderating effect of the access to ICT. When the access to ICT for a company gets higher, the odds for small firms compared to large firms to communicate about their CSR also rises. This shows a trend which confirms *h.4, the access to ICT tempers the effect between firm size and CSR communication*. We can see hereby a division between ICT group 0 and 1 versus ICT group 2 and 3, so the effect is not tempered in a continuous way.

Results from the logistic regression analysis also showed that both control variables, 'industry' and 'stakeholder engagement', are significant ( $p < .001$ ). When a firm engage with its stakeholder, there is a higher probability for CSR communication. As the literature sometimes considers stakeholder engagement the same as CSR communication, a histogram has been made (appendix 7). This histogram shows a positive relationship between the stakeholder engagement and the CSR communication. The control variable 'industry' also shows significant results, whereby the mining industry has the highest probability to communicate about CSR.

The results also have been tested without these control variables. The results of hypotheses 2 and 4 are still significant without the control variables and the same trends could be observed, so the control variables do not disturb the results. The only difference is that the moderating effect of the access to ICT is less strong without the control variables. Concluding, *h.2, MNEs communicate more of their CSR activities than SMEs do*, and *h.4, ICT tempers the effect between firm size and CSR communication*, could be confirmed.

Table 7. The model estimates the probability of a high CSR communication score (0-5 versus > 5).

Variable	B	Odds ratio	95% Confidence Interval	
			Lower	Upper
<b>ICT group 0</b>				
Small vs. Large	-1.603	.201	.071	.568
<b>ICT group 1</b>				
Small vs. Large	-1.603	.201	.071	.573
<b>ICT group 2</b>				
Small vs. Large	-.567	.567	.325	.990
<b>ICT group 3</b>				
Small vs. Large	-.512	.599	.461	.779

#### 4.3.5. Sensitivity analyses

The literature does not give any guidelines about a scale for the strategy score. Therefore, there has been chosen to split the variable into 0-5 versus the rest of the values. This gave significant results, but in order to control for sensitivity, other boundaries also have been tested. The division 0 versus the rest of the values and the division 0-20 versus the rest of the values show the same trend as seen before (appendix 8). The effect of ‘firm size’ is significant, whereby the odds to communicate about CSR is below 1 for small firms compared to large firms. As the access of ICT rises, the odds for small firms to communicate about CSR get closer to 1. This confirms *h.2: MNEs communicate more of their CSR activities than SMEs do*, and *h.4: The access to ICT tempers the effect between firm size and CSR communication*.

#### 4.3.6. Overview outcomes

In table 8, an overview is presented of all the hypotheses and their outcomes. The effect of firm size on CSR implementation is significant, whereby small firms implement fewer formal policies. The access to ICT does not moderate the effect between firm size and CSR implementation. Because of this, hypothesis 3 has been rejected. The effect of firm size on the communication is also significant, whereby small firms communicate less of their CSR activities than large firms. Hereby the access to ICT moderates the effect between firm size and CSR communication, whereby more access to ICT tempers the effect of firm size on CSR communication.

Hypothesized relationship	Outcomes
Hypothesis 1: MNEs implement more CSR policies than SMEs do.	Not rejected
Hypothesis 2: MNEs communicate more of their CSR activities than SMEs do.	Not rejected
Hypothesis 3: The access to ICT moderates the effect between firm size and CSR implementation.	Rejected
Hypothesis 4: The access to ICT moderates the effect between firm size and CSR communication.	Not rejected

## 5. Discussion

In this chapter the results of the previous chapter are presented and linked to the existing literature. The goal of this research was to investigate whether firm size, expressed in number of employees, matters for the implementation and communication of CSR policies at a company. Additionally, the moderating effect of access to ICT was tested. The outcomes of this research were partly in line with the expectations, and these hypotheses are discussed in this chapter. To begin, the main effect of firm size on CSR engagement is elaborated upon, whereby CSR implementation is discussed firstly, and CSR communication is examined secondly. After this, the moderating effect of access to ICT and the control variables are discussed. Thereafter, the theoretical and managerial implications and the limitations of the research are discussed. In the end, a conclusion is provided.

### 5.1 The main effect

To begin, the effect of firm size on CSR engagement is discussed. As described in the theoretical chapter, Wickert et al. (2016) argued that the difference between CSR talk and CSR walk should be considered when exploring the effect of firm size on CSR. Consequently, the effect of firm size on both CSR implementation and communication was tested. In this research it was hypothesized that firm size has a positive effect on CSR implementation and communication. Both hypotheses were supported by the results and can be explained by the literature.

Jenkins (2004) argued that small firms are based more on intuitive operation and informal structures. SMEs apply “these set of rationalizations to maintain taken-for-granted legitimacy in order to avoid proactively managing corruption risks and exposing themselves to public scrutiny” (Schembera and Scherer, 2019, p. 2). Therefore, SMEs deliberately decide to not expose themselves to societal evaluation, and thereby implement CSR strategies less formally. These intuitive operations and the fact that SMEs deliberately attempt to maintain a low-profile result in the reality that SMEs implement fewer CSR procedures. Following this line of reasoning, it seems appropriate that *h.1, MNEs implement more CSR policies than SMEs do*, was supported. This is in line with the results of Colucci et al. (2020), who also stated that MNEs have more resources to implement CSR. However, this result is contradictory to what Baumann-Pauly et al. (2013) and Wickert et al. (2016) expected. Wickert et al. (2016) expected that MNEs implement fewer CSR policies and activities because doing so costs them relatively more money than is the case for SMEs. A possible

explanation for this contradictory result is the fact that Wickert et al. (2016) also considered the informal CSR processes of firms. They have a quite informal understanding of CSR, whereby they also studied informal mechanisms in SMEs. On top of this, Wickert et al. (2016) based their model on the empirical findings of the research of Baumann-Pauly et al. (2013), which found that SMEs implement more CSR strategies than MNEs do. However, these empirical observations are based only on Swiss firms and only on firms in the textile industry. This industry has a long CSR history and is considered as a model industry for implementing its practices (Baumann-Pauly et al., 2013); therefore, this industry was already regarded as socially responsible. Additionally, Baumann-Pauly et al. (2013) looked only at companies that are relatively advanced in organizing CSR. These aspects could explain the different outcomes with respect to CSR implementation of Baumann-Pauly et al. (2013) and Wickert et al. (2016) compared to this research.

With regard to CSR communication, Wickert et al. (2016) emphasize that MNEs have more resources than SMEs, which ensures easier communications about CSR. Additionally, the external demands of stakeholders and the visibility of MNEs make CSR reporting a priority for them. Because SMEs go a bit “under the radar”, meaning they are less visible to the public, it was expected that they would spend less money on CSR communication. Additionally, SMEs have fewer resources to commit to communications about their CSR practices (Wickert et al., 2016). Following this line of reasoning, it seems appropriate that *h. 2, MNEs communicate more of their CSR activities than SMEs do*, was supported by the analyses in this research. This is in line with the expectations of Wickert et al. (2016).

## 5.2 The moderating effect

On the basis of the literature of Conole and Dyke (2004), different affordances of ICT have been described. Schembera and Hengevoss (2019) argue that positive connotations of ICT seem crucial for alleviating several concerns of firms, such as time and resource pressure, limited accessibility and the availability of information. Since small firms have fewer resources to implement formal CSR policies and communicate them to the public (Jenkins, 2004), it was expected in this research that access to ICT could temper the effect of firm size on CSR engagement. In this way ‘small firms will act more like large firms’ regarding CSR communication and implementation, whereby they will go less ‘under the radar’.

The outcomes of the analyses in this research partly confirm these expectations. In line with earlier research (Kaplan and Haenlein, 2010; Hasnaoui and Freeman, 2010), ICT has a

significant influence on CSR implementation and communication, whereby the effect of access to ICT has a positive effect on CSR implementation. The effect of ICT on CSR communication is also significant, but no clear trend can be observed. For the moderating effect of ICT, various outcomes can be observed for CSR communication compared to CSR implementation.

The moderating effect of access to ICT between firm size and CSR implementation is not significant (hypothesis 3). Therefore, it seems that access to ICT does not temper the effect of firm size on CSR implementation. This could potentially be explained by the reason that SMEs have different motivations for implementing CSR policies than MNEs do. The ownership of small firms is often the responsibility of one person (Richbell, Watts and Wardle, 2006), but large firms tend to be governed by a separated manager-owner structure. As a result, managers in MNEs have arguably less autonomy to implement personal beliefs and values than managers in SMEs do (Jenkins, 2006). In SMEs, the implementation of CSR is often linked to the personal beliefs, choices and values of the managers (Thomsen & Nielsen, 2009). The lack of information or the pressure of few resources, which could be moderated by access to ICT, are possibly less important determinants for managers of SMEs as they decide whether to implement CSR policies. Wickert (2014, p. 798) confirms this, and state that ethical behaviour in SMEs “is most likely to be guided by the owner-manager’s and the employees’ personal integrity and moral beliefs”. It is important to mention that the moderating effect of access to ICT is not significant with a p value of .076. As this is quite close to a 0.05, it is not unreasonable to think that there might be a moderating effect of access to ICT between the firm size and CSR implementation score. Because of this, future research with more data is recommended.

The moderating effect of ICT between firm size and CSR communication is significant, whereby access to ICT tempers the effect of firm size on CSR communication (hypothesis 4). This supports the expectation that access to ICT makes the differences between SMEs and MNEs regarding CSR communication smaller. SMEs ‘act more like large firms’ when access to ICT is higher. This is in line with the theory that the positive connotations of ICT seem valuable for alleviating several concerns of SMEs, such as time and resource pressure, limited accessibility and lack of availability of information (Vives, 2006; Wickert et al., 2016). Following this reasoning, it seems appropriate that *h.4, Access to ICT tempers the effect between firm size and CSR communication*, was supported by the results. Additionally, the effect of *h.2 MNEs communicate more of their CSR activities than SMEs do*, remains valid, as MNEs still communicate more of their CSR activities.



### 5.3 The control variables

The control variables “industry” and “stakeholder engagement” were incorporated in this research to provide additional insights into the expected relationships. The industry in which a firm operates has a significant influence on both CSR implementation and communication. The mining industry scores the highest on the CSR implementation score. This is in line with the expectations of Wickert et al. (2016), who expected that heavily regulated industries, such as oil exploration or mining industries, are more inclined to engage in CSR walk (implementation). They do this to avoid the cost of regulatory penalties (Wickert et al., 2016). The wholesale industry scores the highest for CSR communication. This could be because of their visibility in society. The other control variable, stakeholder engagement, has a significant positive influence on both CSR implementation and CSR communication of firms. This confirms the expectation that the involvement of stakeholders in the decision process has a positive influence on the CSR engagement of firms.

### 5.4 The theoretical and managerial implications

Based on the results of this research, some theoretical implications with regard to the existing theory can be identified. To begin, the results add to the debate over the differences between MNEs and SMEs regarding CSR. Baumann-Pauly et al. (2013) and Wickert et al. (2016) made arguments based on literature and qualitative research, but quantitative research of this is lacking. By analyzing 5815 firms operating in almost 60 different countries, this study gathered more generalizable evidence to confirm the differences between small and large firms concerning CSR engagement, with consideration applied to the differences between CSR implementation and CSR communication. This study provides evidence for the hypotheses that MNEs communicate and implement more of their CSR activities and policies than SMEs do. This is partly in line with the expectations of Wickert et al. (2016). Moreover, the moderating effect of access to ICT has, to my knowledge, not yet been studied, and the findings of this research add to the debate over firm size and CSR engagement. Since this research reveals significant results of the moderating effect of access to ICT between firm size and CSR communication, it could be seen as an interesting factor in the debate.

The managerial implications are twofold. Firstly, by understanding the effect of firm size on CSR engagement, the differences in CSR between small and large firms could be better understood for managers. This research provides insight into the differences between SMEs and MNEs regarding CSR engagement. Secondly, this research demonstrates that

access to ICT significantly influences the relationship between firm size and CSR communication. CSR communication is a central element to gain legitimacy, and it works as an incentive to solve societal problems (Christensen et al., 2017; Hauser & Schembera, 2019). Access to ICT makes ‘SMEs act more like MNEs’ regarding the communication of CSR. This indicates that in countries with high access to ICT, SMEs will act more like large firms, whereby they will not seek a low public profile and will communicate more of their CSR activities. Furthermore, the independent effect of access to ICT on CSR implementation demonstrates that firms with low access to ICT score lower on the CSR implementation. Because of these results, it is advisable for institutions to provide firms with high access to ICT, thereby stimulating their CSR engagement. Moreover, this research provides managers insights about the affordances of ICT, which could be used for further insights, for example, for stimulating ICT trainings, processes and accessibility for SMEs.

### 5.5 Limitations and future research

Some limitations of this research warrant discussion because they offer avenues for future research. The limitations regard (1) the measurement of access to ICT; (2) potential subjectivity of the CSR implementation; (3) the sample, which includes only listed firms; (4) the number of control variables and (5) the assumptions of the dependent variable management score.

The first limitation of this research relates to the measurement of access to ICT. Access to ICT is a score that is measured for each country, which means that it is assumed that all companies in the same country have similar access to ICT. This is doubtful, as large firms are faster to adopt new ICT (Harteis, 2018). Therefore, the results should be treated with caution. I would have preferred to measure this differently, but access to this information was not available. Therefore, for future research it is recommended to measure the ICT for each company separately. Additionally, it would be interesting to go deeper into this variable, to determine which specific affordances of ICT contribute to the implementation and communication of CSR and thereby moderate the effect between firm size and CSR engagement. A potential model that could be used for this is the technology acceptance model of Davis (1989). Another limitation regarding the ICT variable was the relative lack of prior research on the moderating effect of access to ICT, which complicated the reliance on scientific literature.

The second limitation regards the measurement of CSR implementation. Because the Asset4/ESG data is based on public documents and websites, it is difficult to guarantee the objectivity of the CSR implementation, which is measured with the management score of the Asset4/ESG database. Some firms might implement CSR policies but do not communicate about them in their documents or on their websites. Other firms might communicate that they implement CSR policies, but this could be different in reality. As a result, some scholars are sceptical regarding the published CSR reports of firms (Lin, 2010). Terms that are often used to describe this phenomenon are “window dressing” and “greenwashing”, which refer to the subjectivity of companies’ CSR communication (Delmas & Burbano, 2011). This subjectivity also applies to the variable of stakeholder engagement, whereby it is assumed that a firm does not engage with its stakeholders if it does not mention it in its documents or on its website. For future research, it would be preferable if the results of this research would be additionally tested with qualitative research. In this way it is possible to determine whether there is no “window dressing” or “greenwashing” of the firm.

The third limitation is the fact that the sample includes only listed firms. Crisóstomo et al. (2014, p. 146) state that “listed firms are more intense in their external social responsibility”. Listed firms have more reputation and visibility concerns, which makes them more interested in external communication. Additionally, listed firms tend to be larger, older and have a more significant operational scale, which makes them more able to undertake CSR activities (Crisóstomo et al., 2014). Consequently, it is important to consider this when interpreting the results. For future research, it is advisable to also include non-listed firms. In this way, the results will be more generalizable.

Usually quantitative research on the topic of CSR incorporates more control variables (e.g., ownership type, firm age, leverage) in the model (e.g., Campbell, 2007; Schembera and Hengevoss, 2019). Due to accessibility, this research only looked at two control variables; ‘industry’ and ‘stakeholder engagement’. For future research it is recommended and interesting to incorporate more control variables in the model, as this will lead to a better internal validity and might give new insights.

The fifth limitation regards the assumptions of the regression analyses. As the assumptions are not perfectly met, it could possibly bias the results (Field, 2013). To control for this, the results of the dependent variable are also tested with the use of logistic regression analyses, whereby 0–50 was defined as low CSR implementation and > 50 was defined as high CSR implementation. As these analyses confirm the results of the regression analyses, I have sufficient trust in the results of the regression analyses.

## 5.6 Conclusion

The papers of Baumann-Pauly et al. (2013) and Wickert et al. (2016) provided CSR literature with insights about the differences between SMEs and MNEs regarding CSR. However, these insights lack quantitative evidence. It is hereby assumed that SMEs implement less formal CSR policies and communicate less about their CSR activities. Additionally, literature provided evidence of the positive effect of ICT for the implementation and communication of CSR. As SMEs face certain challenges compared to MNEs regarding the resources to implement and communicate CSR policies, it is expected in this research that ICT could possibly offer a solution, whereby SMEs will behave more like MNEs. With these mentioned gaps in the literature, this research attempted to find an answer to the following research question:

How does access to ICT influence the relationship between firm size and CSR engagement?

This research uses of the Asset4/ESG database to answer the research question. This database consists of information about listed firms that are ranked based on their environmental, social and governance performance. The total sample consists of 5815 randomly sampled firms in the year 2018, which operate in almost 60 different countries. As expected, the results indicate that firm size, measured by the number of employees, has a positive effect on the implementation and communication of CSR. Results have indicated that MNEs communicate more of their CSR activities than SMEs do, which is in line with earlier research of Wickert et al. (2016). MNEs also implement more CSR policies than SMEs do, which is contradictory to what Wickert et al. (2016) expected, but is in line with the expectations of Colucci et al. (2020). Additionally, the moderating effect of access to ICT was tested and was found to be not significant in relationship to firm size and CSR implementation. However, an alternative explanation for this could be provided based on existing literature (Thomsen & Nielsen, 2009). Access to ICT influences the relationship between firm size and CSR communication. When there is more access to ICT, ‘SMEs will act more like MNEs’ regarding CSR communication. This is in line with the expectations, whereby ICT offers affordances (Conole and Dyke, 2004) that provide SMEs the opportunities to act more like large firms on the subject of CSR communication. This study provides insights for the debate on the differences between SMEs and MNEs regarding CSR and could provide insights to institutions about the affordances of good access to ICT.

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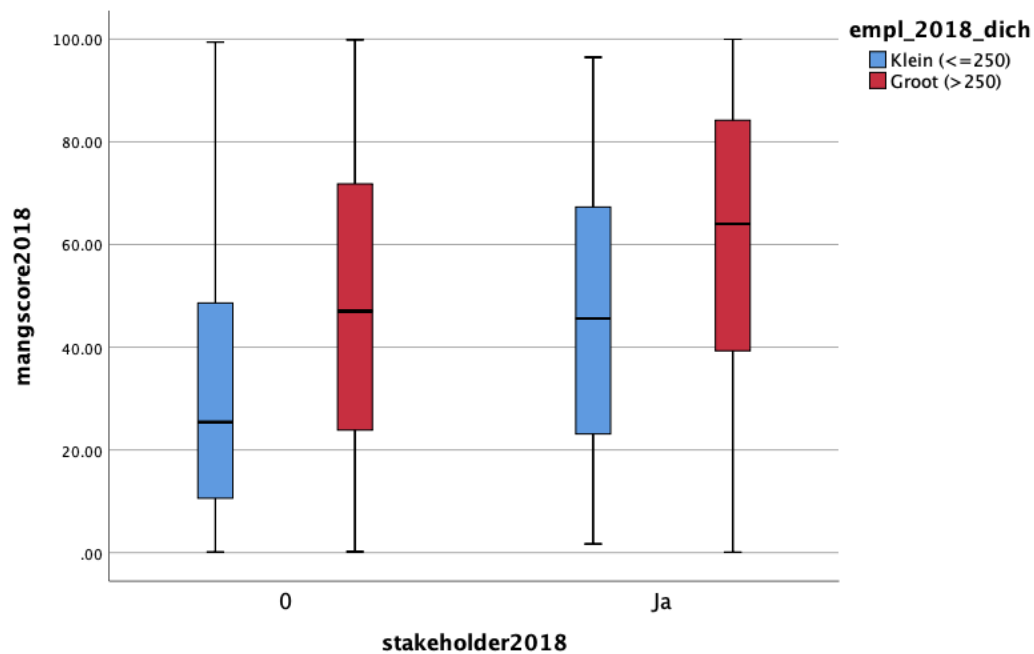
## Appendix

### Appendix 1: VIF and Tolerance values

Variable	B	Sig	Tolerance	VIF
ICT group 0	-8.809	.000	.854	1.171
ICT group 1	-8.400	.000	.881	1.136
ICT group 2	-6.620	.000	.860	1.162
ICT group 3	0			
Firm size: large	16.320	.000	.958	1.044
Firm size: small	0			
Stakeholder engagement: Yes	15.710	.000	.844	1.185
Stakeholder engagement: No	0			

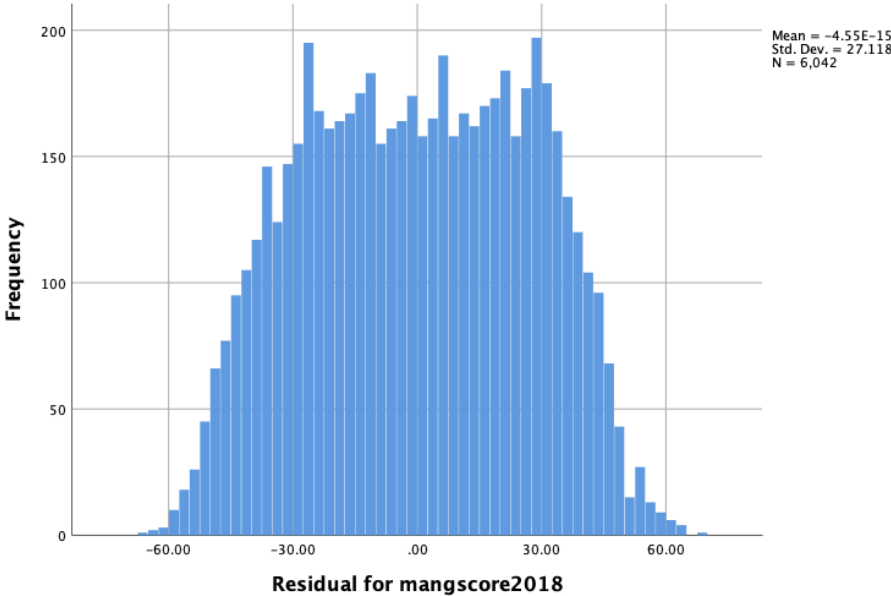
### Appendix 2: Boxplots Management score

#### mangscore2018



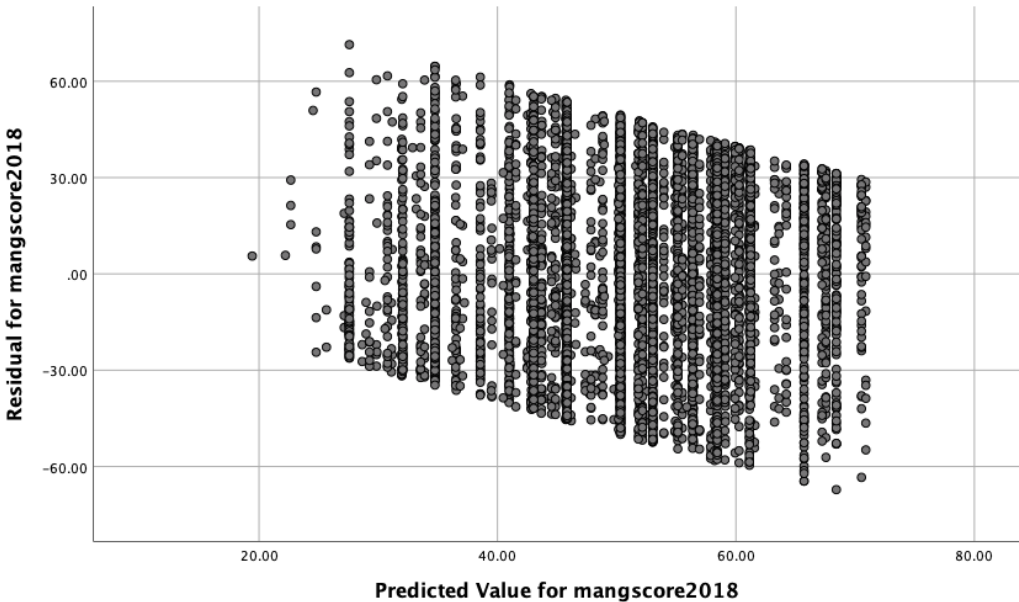
Appendix 3: Histogram Management score

Graph



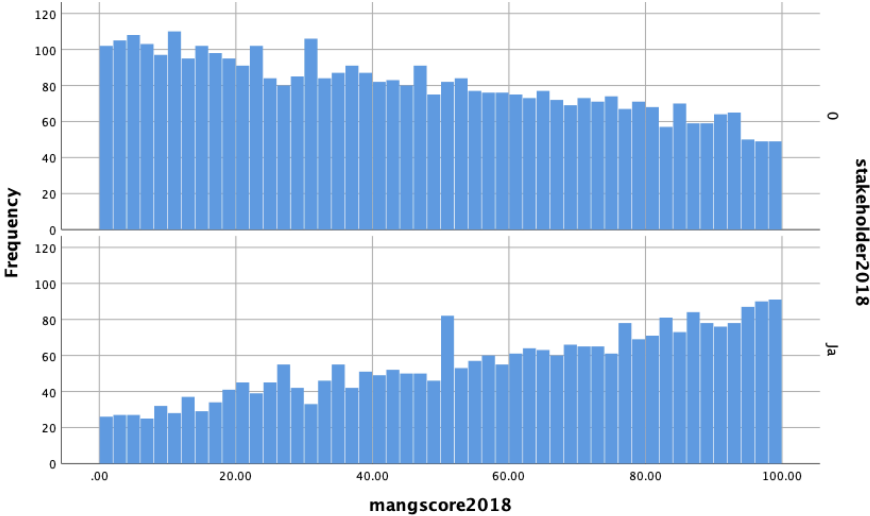
Appendix 4: Scatterplot Management score

Graph



Appendix 5: Histogram Management score and stakeholder engagement

Graph

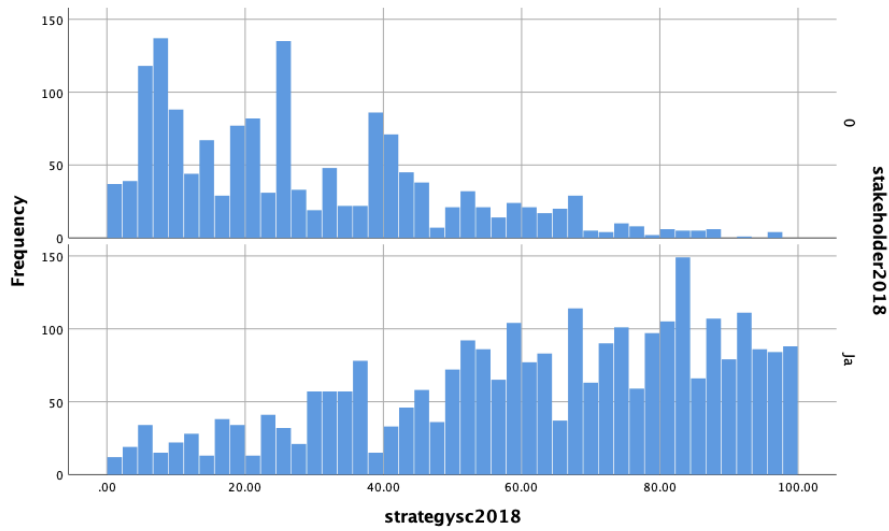


Appendix 6: Regression analysis with the moderator effect employees\*ICTgroups

Variable	<i>b</i>	SE <i>b</i>	<i>t</i>	<i>p</i>
Intercept	56.507	1.096	52.019	.000
Dummy Employee Small	-15.869	1.209	-13.128	.000
ICT group 0	-9.303	1.142	-8.145	.000
ICT group 1	-9.343	1.352	-6.908	.000
ICT group 2	-7.285	.992	-7.347	.000
Employees*ICT group 0	4.395	5.164	.851	.395
Employees*ICT group 1	11.663	5.136	2.271	.023
Employees*ICT group 2	4.500	3.179	1.416	.157
Agriculture	-5.360	5.222	-1.027	.305
Mining	5.985	1.741	3.438	.001
Construction	2.987	2.218	1.347	.178
Manufacturing	4.476	1.114	4.018	.000
Transportation/communication	6.314	1.428	4.421	.000
Wholesale industry	9.657	2.490	3.878	.000
Retail trade	9.290	1.762	5.272	.000
Finance	7.180	1.202	5.973	.000

R<sup>2</sup> = .113

## Appendix 7: Histogram Strategy score and stakeholder engagement



## Appendix 8: Sensitivity analysis

The model estimates the probability of a large CSR communication score (0 versus > 0)

Variable	B	Odds ratio	95% Confidence Interval	
			Lower	Upper
<b>ICT group 0</b>				
Small vs. Large	-1.640	.194	.092	.409
<b>ICT group 1</b>				
Small vs. Large	-1.259	.284	.125	.647
<b>ICT group 2</b>				
Small vs. Large	-.963	.382	.249	.586
<b>ICT group 3</b>				
Small vs. Large	-1.009	.365	.292	.455