Organisational Use of Social Media and Stakeholder Engagement

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I certify that all material in this thesis which is not my own work has been identified and that no material has previously been submitted and approved for the award of a degree by this or any other University.

Signature: ……

Abstract

This thesis consists of three empirical studies examining how social media are used by corporations, advocacy non-governmental organisations (A-NGOs) and hybrid organisations to engage with stakeholders and enhance stakeholder accountability.

The first study examines the use of social media by corporations to disclose CSR information and manage stakeholder perceptions. Drawing on organised hypocrisy and organisational theory and through the analysis of Facebook posts from S&P100 companies, this study finds that CSR actions disclosures attract both positive and negative stakeholder reactions. CSR talk and decisions disclosures generate positive reactions and reduce negative perceptions. It is also evident that the reputational façade in CSR disclosures is more likely to attract positive reactions and less likely to attract negative reactions than the rational façade. The progressive façade is more likely to attract positive reactions than the rational façade, and it is more likely to attract negative reactions than the reputational façade. Overall, the findings suggest that corporations employ various strategies in social media CSR disclosures to manage stakeholder perceptions and maintain legitimacy.

The second study examines the use of social media by A-NGOs to attract stakeholder engagement, and whether such engagement leads to large-scale stakeholder support outside social media platforms. This study draws on Castells' (2013) network-making power perspective and employs a unique dataset of Greenpeace signups (i.e. the proxy for stakeholder support) to the "Save the Artic" (STA) petition from over 236 countries and a sample of 8,336 Greenpeace Facebook messages related to the STA campaigns in 29 languages. The findings suggest that Greenpeace communicates advocacy information that appeals to logic and emotions to attract stakeholder engagement. In examining the social impacts of A-NGO social media engagement, the level of national stakeholder support is positively associated with the effectiveness of advocacy information in attracting stakeholder engagement at the Facebook account level. The level of global stakeholder support is positively associated with both the effectiveness and global dissemination of advocacy information at the Facebook network level. Overall,

this study affirms that social media can assist A-NGOs in engaging with stakeholders and obtaining their support on advocated issues on a large scale, thereby enhancing downward accountability.

The last study focuses on the use of social media by a type of hybrid organisation - B Corp - and examines the effect of its governance mechanisms on social media engagement activities. B Corp firms face a mission drift risk in which financial objectives may overshadow CSR considerations. This study posits that B Corp's legal responsibility, ethical standards and mission-alignment policies positively influence the extent and quality of its social media engagement. After analysing CSR-related tweets posted by 1,074 U.S. B Corp firms certified between 2014 and 2018 and those posted by stakeholders towards the firm, it is found that the quality of social media engagement is positively associated with B Corp's legal responsibility, ethical standards and mission-alignment policies. In addition, this study finds that the extent of social media engagement is positively associated with mission-alignment policies. Overall, the findings highlight the importance of B Corp's governance mechanisms in improving stakeholder accountability.

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1 Introduction

1.1 Background and Motivation

Social media have become an important domain for social interaction. With two billion active social media users globally, people are disseminating, interacting, discussing and reacting to information shared by both individuals and organisations (Investis, 2015; Kemp, 2017). The term “social media” is defined as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content” (Kaplan & Haenlein, 2010, p. 61). Social media have various forms, such as video and photo sharing (e.g. Instagram and Flicker), microblogs (Twitter and Weibo), and social networking (Facebook and LinkedIn), targeted at different user groups and supporting different types of media format.

Social media are well-known for three unique features that make them distinctive from traditional media outlets: (1) high interactivity, (2) high autonomy, and (3) wide dissemination (Brennan & Merkl-Davies, 2018; Castelló, Morsing, & Schultz, 2013; Castells, 2013; Etter, Ravasi, & Colleoni, 2019; Gómez-Carrasco, Guillamon-Saorin, & Garcia Osma, 2017; Gómez-Carrasco & Michelon, 2017; Manetti & Bellucci, 2016; Saxton & Waters, 2014). Interactivity means that social media allow two-way dialogic interactions between disseminators and their audiences. When an audience reads an update from a disseminator, s/he can express reactions towards that information through interactive functions such as clicking emoticons, re-posting, and commenting beneath the message (Miller & Skinner, 2015; Saxton,

Gomez, Ngoh, Lin, & Dietrich, 2019). Autonomy means that social media allow individuals and organisations with different motives to freely produce, disseminate, aggregate, debate, enrich and elaborate on information without being restricted by limitations of traditional media outlets (Etter et al., 2019). In other words, the information being discussed by users on social media represents an authentic picture of their opinions thereby creating an open dialogue with other parties (Illia, Romenti, Rodríguez-Cánovas, Murtarelli, & Carroll, 2015). Like all other websites, social media also have the advantage of disseminating and pushing information to a large number of audiences, so organisations are able to reach stakeholders at a relatively low cost (Blankespoor, Miller, & White, 2014; Unerman & Bennett, 2004).

The increasing popularity of social media has attracted attention from many accounting scholars (Lei, Li, & Luo, 2019). For example, studies to date have examined motives for adopting social media (Jung, Naughton, Tahoun, & Wang, 2018; Lee, Oh, & Kim, 2013; Lee, Hutton, & Shu, 2015; Zhou, Lei, Wang, Fan, & Wang, 2015), characteristics of corporate disclosure in social media (Blankespoor et al., 2014; Huang, Lu, & Su, 2016; Jung et al., 2018; Prokofieva, 2014), and the impacts of firm-generated and user-generated information on the capital market (Bartov, Faurel, & Mohanram, 2017; Blankespoor et al., 2014; Cade, 2018; Elliott, Grant, & Hodge, 2018; Hales, Moon, & Swenson, 2018; Lee et al., 2015; Zhou et al., 2015).

Due to their unique dialogic nature and the ability to communicate with a wide range of stakeholders, it is argued that social media provide an important platform for undertaking large-scale stakeholder engagement (Unerman & Bennett, 2004). While prior studies mainly focus on the use of social media in

a financial context (Bartov et al., 2017; Blankespoor et al., 2014; Cade, 2018; Elliott et al., 2018), studies examining their use in the context of corporate social responsibility are scarce (Bellucci & Manetti, 2017; Gómez-Carrasco et al., 2017; Gómez-Carrasco & Michelon, 2017; Manetti & Bellucci, 2016; Unerman & Bennett, 2004).

There is also a notable absence of studies examining the use of social media by alternative types of organisation such as advocacy non-governmental organisations (A-NGOs) and hybrid organisations. A-NGOs differ from commercial corporations in that their purpose is to advocate for social and environmental issues and to lobby for policy making that will protect and enhance the rights of marginalised groups in society (Agyemang, O'Dwyer, & Unerman, 2019; Unerman & O'Dwyer, 2006a). Since they have power to influence corporate and governmental policies that may affect the lives of numerous people, it is argued that A-NGOs have downward accountability to a wide range of stakeholders (Unerman & O'Dwyer, 2006b). As NGOs are following the trend to build a social media presence for public relation building and strategic communication (Lovejoy, Waters, & Saxton, 2012; Saxton & Guo, 2014; Xu & Saxton, 2018), it is important to gain a greater insight into how social media may promote A-NGO downward accountability.

Recent legislative and social innovations have also witnessed a new form of social enterprise called "Certified B Corporation" (B Corp) emerging in the market (Cao, Gehman, & Grimes, 2017; Santos, Pache, & Birkholz, 2015). B Corp is a certification status awarded to for-profit firms whose owners voluntarily pursue both financial and CSR objectives and have met rigorous standards regarding CSR policies and practices set out by B Lab, the certifying

body (Hiller, 2013; Romi, Cook, & Dixon-Fowler, 2018; Serafeim, Ward, & Lawrence, 2017). Due to the co-existence of financial and CSR objectives, B Corp firms face a mission drift risk whereby the pressure to maintain financial sustainability may overshadow their mission to generate CSR impacts. To mitigate such risk, B Lab requires B Corp firms to adopt a stakeholder-centric governance model in which stakeholder interests are considered during decision-making. Given the uniqueness of the B Corp governance model in promoting stakeholder accountability (Battilana & Lee, 2014; Brennan & Solomon, 2008; Cornforth, 2014; Ebrahim, Battilana, & Mair, 2014), it is important to understand the influence of its governance mechanisms in social media engagement activities.

Since stakeholder engagement is an important element in understanding stakeholder interests and enhancing transparency regarding organisational practices (Bebbington, Brown, Frame, & Thomson, 2007; Thomson & Bebbington, 2005; Unerman & Bennett, 2004), shedding more light on the organisational use of social media for stakeholder engagement can help us better understand the role social media play in enhancing stakeholder accountability. The need to understand these questions have become particularly important in recent years due to increasing calls for greater accountability to stakeholders (Carroll, 2008; Clarkson, 1995; Freeman, Harrison, Wicks, Parmar, & De Colle, 2010) and the exposure of several scandals that have involved the use of social media for non-public interested purposes (Flyverbom, Deibert, & Matten, 2019; Neu, Saxton, Everett, & Shiraz, 2018; Neu, Saxton, Rahaman, & Everett, 2019).

1.2 Research Aim and Objectives

Based on the preceding discussions, the aim of this thesis is to examine how social media are used by organisations to engage with stakeholders and enhance stakeholder accountability. More specifically, this thesis focuses on three different types of organisation, namely corporations, A-NGOs, and B Corp firms, and addresses the following research questions:

1. How do corporations use social media to engage with stakeholders regarding corporate social responsibility practices?
2. How do A-NGOs use social media to engage with stakeholders and enhance downward accountability?
3. What is the role of B Corp governance mechanisms in influencing social media engagement activities?

1.3 Main Findings

To address the first research question, the study examines stakeholder perceptions with regard to legitimation strategies employed in corporate CSR disclosures on Facebook. Using Python and R to retrieve and analyse S&P100 Facebook posts and their engagements activities covering periods between 24th February 2016 and 2nd March 2017, the results show that corporations employ hypocrisy and façade strategies in social media CSR disclosures to manage stakeholder perceptions. This study also finds that disengagement exists between companies and stakeholders who express concerns or criticism about corporate CSR practices.

To address the second research question, the study examines how A-NGOs communicate advocacy information to stakeholders in social media in

order to attract their engagement, and whether such engagement can obtain large-scale stakeholder support beyond social media platforms. This study uses Python and R to retrieve and analyse a sample of 8,336 Greenpeace Facebook messages which are related to the “Save the Arctic” (STA) campaign, and a unique dataset of Greenpeace signups (i.e. the proxy for stakeholder support) to the STA petition is also employed. The findings reveal that Greenpeace communicates advocacy information that appeals to logic and emotions to attract stakeholder engagement on social media. The findings also reveal that the effectiveness and global dissemination of advocacy information can help Greenpeace obtain large-scale stakeholder support beyond social media platforms.

To address the third research question, the study posits and examines the effect of B Corp legal responsibility, ethical standards and mission-alignment policies with regard to the extent and quality of social media engagement. Using Python and R to scrape and analyse CSR-related tweets posted by 1,074 U.S. B Corp firms certified between 2014 and 2018 and those posted by stakeholders towards the firm, the study shows that B Corp governance mechanisms positively influence social media engagement activities, thus enhancing stakeholder accountability.

1.4 Contributions

This thesis contributes to the relevant accounting and social media literature in four ways. Firstly, the whole thesis contributes to the accounting literature by providing evidence on how different types of organisation use social media to engage with stakeholders and enhance stakeholder

accountability. While prior studies mainly focus on the corporate use of social media in improving financial transparency and facilitating investor decision-making (Blankespoor, 2018; Lei et al., 2019), very few studies examine the potential of social media in promoting social and environmental transparency and accountability (Bellucci & Manetti, 2017; Gómez-Carrasco et al., 2017; Manetti & Bellucci, 2016; Neu et al., 2018). Therefore, this study explores the potential of social media in facilitating stakeholder engagement and helps us understand more about the different motives that organisations have towards stakeholders when using social media.

Secondly, by exploring the corporate use of social media for stakeholder engagement, this study contributes to the CSR literature by revealing how stakeholders perceive CSR hypocrisy and façade disclosures in a social media context, thus extending the findings in Cho, Laine, Roberts, and Rodrigue (2015). Through the utilisation of interactive functions on corporate Facebook accounts and the use of various stakeholder reactions on Facebook as a novel measure of legitimacy, this study illustrates how companies attempt to maintain legitimacy at a social media message level and provides a detailed account of stakeholder perceptions towards corporate CSR disclosures, which prior studies have only examined at a firm level (Aerts & Cormier, 2009; Bansal & Clelland, 2004; Cho & Patten, 2007; Deegan, 2014; Deegan, Rankin, & Tobin, 2002). By examining corporate disclosures, stakeholder reactions and firm subsequent replies, this study provides an overview of, and critical insights about, this dynamic engagement at a meso level (Bozzolan, Cho, & Michelon, 2015).

Thirdly, by exploring A-NGOs' use of social media, this study contributes to the NGO accounting and accountability literature by highlighting the potential of social media in enhancing A-NGOs downward accountability (O'Dwyer & Unerman, 2008; Unerman & O'Dwyer, 2006b). Employing Castells' (2011, 2012, 2013) network-making power theory and the unique data on Greenpeace online petition signups, this study examines how A-NGOs communicate specific and emotional advocacy information in Facebook messages to invite stakeholders' assessment of and opinions about advocacy activities. This study also documents evidence of how the effectiveness and global dissemination of advocacy information allows A-NGOs to obtain large-scale stakeholder support outside social media platforms; prior studies have only focussed on the effects of social media features such as hashtags, URLs or mentions within application platforms (Guo & Saxton, 2018; Lovejoy et al., 2012; Saxton & Waters, 2014; Xu & Saxton, 2018)

Lastly, this study adds to the B Corp governance and accountability literature by examining the influence of B Corp governance mechanisms on social media engagement activities. While prior studies mainly focus on the effect of governance characteristics on social media activities in a conventional corporation context (Huang et al., 2016; Lee et al., 2013; Saxton et al., 2019; Yang, Liu, & Zhou, 2016), their relationship in a hybrid organisation context remain under-explored (Battilana & Lee, 2014; Brennan & Solomon, 2008; Hall & O'Dwyer, 2017). Given the uniqueness of the B Corp governance model in accommodating both shareholder and stakeholder interests (André, 2012; Hiller, 2013; Munch, 2012), and the increasing academic interests regarding governance in alternative organisational forms (Battilana & Lee, 2014; Brennan

& Solomon, 2008; O'Dwyer & Unerman, 2016), this study provides timely evidence about the role of B Corp governance mechanisms in improving the extent and quality of social media engagement and promoting stakeholder accountability.

This thesis also makes several methodological contributions to the accounting and social media literature. Firstly, each of the first and second empirical studies develops a dictionary for computerized textual analysis that identifies social and environmental information. Prior studies often manually code social and environmental disclosures into different themes or categories (Deegan et al., 2002; Michelon, Pilonato, & Ricceri, 2015). However, scholars may face challenges in manually classifying texts from a large volume of unstructured data such as social media messages. By using computerized dictionary-based textual analysis, researchers may significantly extend the sample size and identify relevant information with both increased efficiency and effectiveness. Moreover, the use of a pre-determined dictionary increases the transparency and reliability of the coding process. This study therefore provides an empirical validation of a computerised content analysis on social and environmental information.

Secondly, the third empirical study further improves the computerised textual analysis method by employing a machine-learning approach. While machine-learning classification has been used in the analysis of financial reports (Huang, Zang, & Zheng, 2014; Li, 2010), very few studies apply this method in a social and environmental accounting context. Since machine learning classification does not require a dictionary to be determined beforehand, it offers more flexibility and higher accuracy when classifying

information with no consistent pattern or expression. Therefore, this study contributes to the social and environmental accounting literature by providing an empirical illustration of the use of machine learning algorithm in classifying big data.

Lastly, this study contributes to the stakeholder engagement literature by developing a social media engagement quality index. Employing the effective communication model proposed in Brennan & Merkl-Davies (2018), the third empirical study develops an index for measuring the quality of social media engagement on CSR-related issues and provides a detailed picture of how organisations engage with stakeholders in different quality dimensions. This quality index can be used for future relevant studies.

1.5 Thesis Structure

This thesis is structured as follows. Chapters 2, 3, and 4 present a major research study which focuses on each of the three research questions discussed in Section 1.2. Finally, Chapter 5 concludes the whole thesis, discusses the limitations of the study, and explores future research opportunities as well as implications for stakeholders and organisations.

2 Managing Stakeholder Perceptions: Organised Hypocrisy and Organisational Façade in CSR reporting on Facebook[1]

2.1 Introduction

The aim of this empirical study is to examine how corporations use social media to engage with stakeholders regarding corporate social responsibility (CSR) practices. In the article titled: Organised hypocrisy, organisational façades, and sustainability reporting. *Accounting, Organisations and Society, 40*, 78-94, Cho, Laine, Roberts, and Rodrigue (2015) propose the use of organisational façade theory (Abrahamson & Baumard, 2008) and organised hypocrisy strategies (Brunsson, 1989, 2007) to analyse CSR reporting. Their approach differs from the two main competing explanations of CSR reporting – legitimacy and signalling theory – in that they argue that companies use hypocrisy talk, decisions and actions to erect rational, progressive and reputational façades in order to meet divergent and sometimes conflicting stakeholder interests. In this case, managers aim to "camouflage" corporate practices (Michelon, Pilonato, Ricceri, & Roberts, 2016) by supplying talk to one party, decisions to another, and actions to the third (Brunsson, 1989, p. 27). Cho et al. (2015) use annual reports from two oil companies and stand-alone CSR reports as empirical cases, and present evidence on the corporate use of façade and hypocrisy strategies in CSR discourses. Specifically, they argue

[1] The data from this chapter forms the basis of the article titled "Managing stakeholder perceptions: Organized hypocrisy in CSR disclosures on Facebook", co-authored with Giovanna Michelon. This paper was submitted to Critical Perspectives on Accounting and was accepted and published after two rounds of reviews in 2019.

that talk and decisions can be used to build façades which influence stakeholder assessments of CSR performance, and in turn, these shape positive perceptions towards corporate actions. However, their study focuses on the use of hypocrisy strategies to build façades from a corporate perspective, and assumes that these strategies can *affect* stakeholder perceptions. Whether and how stakeholder perceptions are influenced by façade and hypocrisy strategies remain open to question.

In recent years, corporations have increasingly adopted social media (such as Facebook, Twitter, etc.) as platforms to engage with stakeholders and disclose CSR information (Arnaboldi, Busco, & Cuganesan, 2017; Saxton et al., 2019; Zhou et al., 2015). By the end of 2015, 95% of FTSE100 and all S&P100 companies had created at least one social media account for corporate communications (Investis, 2015). While prior CSR research mainly focuses on corporate reporting strategies in annual reports (Deegan et al., 2002; Guthrie & Parker, 1989; Neu, Warsame, & Pedwell, 1998), stand-alone sustainability reports (Bebbington, Larrinaga, & Moneva, 2008; Diouf & Boiral, 2017; Michelon et al., 2015), and corporate websites (Cho, Phillips, Hageman, & Patten, 2009; Coupland, 2006; Wanderley, Lucian, Farache, & de Sousa Filho, 2008), only a few studies have looked at corporate CSR disclosures through social media (Castelló, Etter, & Nielsen, 2016; Colleoni, 2013; Gómez-Carrasco et al., 2017; Manetti & Bellucci, 2016; Saxton et al., 2019). Clearly, studies that examine dynamic corporate-stakeholder interactions remain scarce (Saxton et al., 2019).

Previous literature often implicitly assumes that, by employing various legitimation strategies (Cho, 2009; Dowling & Pfeffer, 1975; Lindblom, 1994;

O'Donovan, 2002), or increasing the level of biased disclosures (Cho, Guidry, Hageman, & Patten, 2012; Deegan et al., 2002; Michelon, 2011; Patten, 2002), can the perceptions of stakeholders be successfully managed (Deegan, 2002). However, insights into how stakeholders respond to corporate disclosure strategies are under-explored and the evidence is unclear (Merkl-Davies & Brennan, 2017). In studies which have attempted to explore these insights using a large-scale quantitative method, stakeholder perceptions are often indirectly measured by proxies such as media exposure (Aerts & Cormier, 2009), reputation scores (Cho et al., 2012) and the use of exogenous shocks such as legitimacy-threatening events (Patten, 1992). In studies whose aim is to assess direct stakeholder reactions towards corporate legitimation strategies, small sample experiments are often used (Milne & Patten, 2002) and very few use large sample archival data. In order to examine stakeholder reactions towards CSR façade and hypocrisy disclosure strategies directly, this chapter explores social media interactions between companies and their stakeholders at a Facebook message level. To shed more light on this area, this study asks two research questions: (1) how do stakeholders perceive the hypocrisy strategies utilised in corporate CSR reporting? And (2) how do stakeholders perceive the façades that companies erect?

Using programming languages such as Python and R, this study retrieves and analyses S&P100 Facebook posts and their engagement activities covering periods between 24th February 2016 and 2nd March 2017. Using both the Negative Binomial and Logit models and controlling for both message and account characteristics, this study finds that stakeholders react differently towards hypocrisy and façade strategies. With regard to hypocrisy

strategies, talk disclosures are more likely to attract positive reactions, but less likely to attract negative reactions and negative comments. It is more likely that decisions disclosures attract positive and negative reactions than non-CSR posts. Actions disclosures are generally associated with greater stakeholder general reactions, and they are more likely to attract positive and negative reactions than non-CSR posts and CSR talk and decisions disclosures. The findings on talk and decisions disclosures are consistent with organised hypocrisy theory in which corporate talk and decisions can partially satisfy conflicting stakeholder interests and reduce negative perceptions (Brunsson, 2007; Cho et al., 2015). However, the diversified stakeholder reactions to actions disclosure may reflect the divergent and sometimes conflicting stakeholder interests that companies face. Although talk and decisions disclosures can help satisfy stakeholder interests by mitigating their negative reactions, the intensity of stakeholder reactions is greater for actions disclosures than for talk and decisions disclosures, suggesting stakeholders place more value on corporate CSR actions-related information. In contrast to prior literature which asserts that hard information attracts firm legitimacy (Aerts & Cormier, 2009), actions disclosures are also more likely to attract negative reactions than talk and decisions disclosures, implying that corporate legitimacy is not driven by actions information *per se,* but also by the supply of talk and decisions information to meet divergent stakeholder interests.

In terms of the organisational façade strategies, reputational façade is more likely to attract positive reactions and less likely to attract negative reactions than rational façade. This finding indicates that stakeholders prefer to read corporate disclosures that promote a positive corporate image. The

progressive façade, however, is more likely than the rational façade to attract positive reactions, but at the same time, it is more likely to attract negative reactions than the reputational façade, suggesting that although some stakeholders may welcome the progression of companies towards their committed goals, others may still criticise the inadequacy of such efforts.

This study also conducts an additional analysis to explore subsequent company response to stakeholder comments. The findings reveal that companies may be engaging with stakeholders selectively as they are more likely to reply to positive stakeholder comments. However, such likelihood becomes negative in the presence of a high intensity of positive emotions. The results suggest that companies probably reinforce the creation of their hypocrisy and façade, and a disengagement exists between companies and stakeholders who have concerns or criticisms of corporate CSR practices (Gómez-Carrasco et al., 2017; Manetti & Bellucci, 2016).

This chapter contributes to the CSR literature in four respects. Firstly, it explores how stakeholders perceive CSR hypocrisy and façade disclosures in a social media context, thus extending the findings of Cho et al., (2015). Through the utilisation of interactive functions on corporate Facebook accounts, this study reveals the legitimacy-maintaining processes of companies at a social media message level, which prior studies have only been conducted at a firm level (Aerts & Cormier, 2009; Bansal & Clelland, 2004; Cho & Patten, 2007; Deegan, 2014; Deegan et al., 2002).

Secondly, instead of using indirect measures of corporate legitimacy, such as reputation rankings or media exposure, this study relies on stakeholder reactions to corporate disclosures on Facebook. Legitimacy is a concept

grounded in stakeholder perceptions (Suchman, 1995) which is typically difficult to measure accurately in an archival-type of study. Since social media allow stakeholders to directly express their opinions and emotional reactions towards corporate disclosures, stakeholder reactions in social media become a novel proxy for legitimacy, revealing rich and direct details of how stakeholders perceive firms' CSR disclosures.

In addition, this study also makes a methodological contribution as it develops a CSR dictionary for computerised textual analysis that identifies CSR-related information. Prior studies often manually code CSR disclosures into different themes or categories (Deegan et al., 2002; Michelon et al., 2015). However, scholars may face challenges in manually classifying CSR-related information from a large volume of unstructured data in social media. By using computerised dictionary-based textual analysis, researchers may significantly extend the sample size and identify relevant information with both increased efficiency and effectiveness (Lewis & Young, 2019). Moreover, the use of a pre-determined dictionary increases the transparency and reliability of the coding process. As a result, this study provides an empirical validation of a CSR dictionary and illustrates its use in a computerised content analysis.

Lastly, this study contributes to stakeholder engagement literature by revealing the dynamic interactions among firm disclosures, stakeholder reactions and firms' subsequent replies. Previous literature either focused on the content of disclosures in social media (Colleoni, 2013; Gómez-Carrasco et al., 2017; Saxton et al., 2019) or the engagement activities in comments *per se* (Bellucci & Manetti, 2017; Manetti & Bellucci, 2016). This study provides an overview of, and critical insights about, this dynamic engagement. The

generally positive reactions obtained from corporate posts suggest little opposition from stakeholders. In addition, the lack of firms' replies to negative comments points toward a selective engagement strategy. Hence, it appears that the use of hypocrisy and façade disclosure strategies in social media allows firms to manage stakeholder perceptions and maintain legitimacy.

This chapter consists of five sections. Section 2.2 discusses the relevant literature on legitimacy measures and provides an overview of corporate use of social media in recent years. Section 2.3 presents the theoretical framework and hypotheses. Section 2.4 discusses the research design. Section 2.5 presents the empirical findings. And lastly, Section 2.6 concludes the chapter by firstly exploring managerial implications, then discussing limitations and lastly providing recommendations for future research.

2.2 Literature Review

2.2.1 Legitimacy and Stakeholder Perceptions

Legitimacy is defined as the perception of society that an organisation will act consistently with societal norms and values (Suchman, 1995). Hence, legitimacy is based on how society perceives corporate actions rather than the actual activities that are undertaken (Nasi, Nasi, Phillips, & Zyglidopoulos, 1997). However, since "society" is a broad umbrella term, it is argued that corporate legitimacy is based on how stakeholders perceive the company (O'Donovan, 2002; Suchman, 1995). If a company's actions are perceived as being congruent with social expectations, this entity will be conferred the right to continue operating within society (O'Donovan, 2002). Otherwise, its legitimacy can also be withdrawn, so its survival is at risk. Consequently,

legitimacy is an important resource which companies seek in order to survive, and maintaining positive perceptions from stakeholders ensures the continued supply of this key resource (Deegan, 2002; Dowling & Pfeffer, 1975).

Because legitimacy is based on stakeholder perceptions, it is subject to manipulation through various legitimation and disclosure strategies (Cho, 2009). Extensive work in the social and environmental accounting literature has attempted to investigate the relationship between the effects of corporate legitimacy and CSR disclosure strategies through the use of various measures and methods (Deegan, 2002). After reviewing relevant studies in the accounting literature, the methods used are grouped into four categories: (1) legitimacy threatening events, (2) CSR ratings, (3) media exposures and (4) experiments.[2]

The first group of research uses legitimacy threatening events as an indication of a mismatch between social expectations and corporate operations. For example, Patten (1992) considers the Exxon Valdez oil spill in Alaska in 1989 and finds that environmental disclosures of oil companies increase after the event. Similarly, Vourvachis, Woodward, Woodward, and Patten (2016) use airline accidents as legitimacy threatening events and document a significant increase of airline companies' CSR disclosures after the accidents. Although the use of threatening events provides opportunities to study corporate responses when there is a need to repair legitimacy, these studies tend to focus on changes in disclosure volumes rather than effects of disclosure strategies on restoring legitimacy.

[2] There is also a group of research which focuses on the legitimacy effect of CSR disclosures on the capital market. For example, the commonly used measures as a result of legitimacy include unsystematic risks (Bansal & Clelland, 2004), the cost of capital (Dhaliwal, Li, Tsang, & Yang, 2014; El Ghoul, Guedhami, Kwok, & Mishra, 2011), and firm value (Plumlee, Brown, Hayes, & Marshall, 2015). However, the discussions on these measures are not included in this study.

The second group of research uses CSR ratings/rankings as a proxy of legitimacy. These ratings are constructed by third parties through the assessment of CSR reporting practices or interviews of relevant stakeholders, industry experts and corporate managers. Some rankings may cover a broad range of sustainability issues such as Fortune Most Admired Scores (Brown, Guidry, & Patten, 2009; Williams & Barrett, 2000), while others focus on a specific area, such as community (Toms, 2002) and environment (Cho et al., 2012). CSR ratings/rankings provide some insights into how stakeholders perceive companies after assessing CSR disclosures, but interviewees (namely industry experts or CEOs) may not represent the views of the broader stakeholder group. What is more, corporate reputation measures (such as *Newsweek*'s Green Rankings) also suffers from a "financial halo effect", whereby financial performance influences corporate reputations, making this a less reliable measure of social legitimacy (Guidry & Patten, 2010).

The third group of literature uses media exposure as a measure of legitimacy. It is argued that news media play a key role in directing public concerns and shaping stakeholder perceptions towards various topics (Deegan et al., 2002). Among these studies, the most common method is to count the number of press articles reported about an issue or a company (Brown & Deegan, 1998; Deegan et al., 2002). However, some scholars argue that using the total number of articles may not consider the imbalanced effects of positive and negative news on legitimacy. To mitigate this problem, Aerts and Cormier (2009) and Clarkson, Li, Richardson, and Vasvari (2008) use the Janis-Fadner coefficient (Janis & Fadner, 1943) to adjust the imbalanced effects of favourable and unfavourable news. These studies shed valuable light on how the tone of

media changes after the disclosure of specific information. Nevertheless, news media often set agendas which they deem to be of public concern (Brosius & Weimann, 1996). Thus, the use of press articles to measure legitimacy may only reflect agendas set by editors and media journalists (or companies themselves through press releases) rather than those of the stakeholders (Etter et al., 2019).

In summary, the studies outlined above employ various indirect proxies to measure legitimacy. However, most of these studies do not trace how legitimacy changes in response to the legitimation strategies used in CSR disclosures. In fact, prior studies often implicitly assume that by employing various legitimation strategies (Cho, 2009; Dowling & Pfeffer, 1975; Lindblom, 1994; O'Donovan, 2002), corporate legitimacy can be successfully gained, maintained or repaired. Insights into how stakeholders respond to disclosure strategies remain unclear (Merkl-Davies & Brennan, 2017). Since stakeholder perceptions are often reflected in stakeholder reactions towards CSR information, and such reactions can be both behavioural (e.g. buying rival products) and/or emotional (expressing sentiments), positive stakeholder reactions may indicate that corporate legitimacy has been obtained or maintained. Otherwise, if stakeholders perceive corporate activities are inconsistent with social expectations, they will show negative reactions, causing corporate legitimacy to be at risk.

In order to directly assess stakeholder reactions towards CSR disclosures, prior studies have used a variety of experiments. For example, experimental studies have been conducted to reveal stakeholder reactions through investment decisions (Milne & Patten, 2002; van der Laan Smith,

Adhikari, Tondkar, & Andrews, 2010), the level of trust and trust intentions towards companies (Cho et al., 2009), and stakeholders' responses after reading corporate communication (Elsbach, 1994). However, these experiments may suffer from problems such as the selection of participants not representing the actual stakeholder groups of companies and the use of monetary incentives (Libby, Bloomfield, & Nelson, 2002). Therefore, in order to directly analyse stakeholder reactions towards each type of disclosure made by companies, we need to consider a platform in which stakeholders can directly engage with corporate disclosures, and social media fit this purpose.

2.2.2 Social Media and Stakeholder Reactions

Social media are well-known for three unique features that offer a potential environment for stakeholder engagement: high interactivity, high autonomy and wide dissemination (Brennan & Merkl-Davies, 2018; Castelló et al., 2013; Castells, 2013; Gómez-Carrasco et al., 2017; Gómez-Carrasco & Michelon, 2017; Manetti & Bellucci, 2016; Saxton & Waters, 2014). Interactivity means that social media allow two-way dialogic interactions between disseminators and audiences. When an audience reads an update from a disseminator, s/he can express reactions towards that information through interactive functions such as clicking emoticons, re-posting and commenting under the message. Autonomy means that audiences can freely express reactions or disseminate information without being controlled or influenced by other parties. In other words, what is being discussed by stakeholders on social media is out of the reach of companies, providing an authentic picture of stakeholder opinions, so an open dialogue with corporations can be established

(Illia et al., 2015). Social media also allow corporate disclosures to reach a wide range of audiences, allowing the engagement of stakeholders with divergent interests (Unerman & Bennett, 2004).

Facebook is one the of most popular social media sites that are used by companies to engage with stakeholders (Bellucci & Manetti, 2017). It can also be seen as a public arena where divergent stakeholder interests are present and debated (Whelan, Moon, & Grant, 2013). Due to the presence of divergent interests, companies may employ legitimation strategies in the messages they disseminate to stakeholders. Unlike microblog sites such as Twitter, Facebook posts are not restricted to 140 characters, and its layout gives users a more intuitive outlook of people's reactions and comments than Twitter. Furthermore, on 24th February 2016, in addition to the "Like" button, Facebook introduced five additional emoticons: "Love", "Haha" "Wow", "Sad" and "Angry" (Facebook, 2016), making it an even more dynamic and interactive system for stakeholder engagement (Saxton & Waters, 2014).

The growing popularity of social media has also inspired the research community to investigate its impact on stakeholder reactions. For example, studies have examined market participants' reactions to corporate financial disclosures on social media (Blankespoor et al., 2014; Cade, 2018; Du & Jiang, 2015; Lee et al., 2015; Yang & Liu, 2017) and people's reactions to public relation strategies (Bortree & Seltzer, 2009; Guo & Saxton, 2018; Lovejoy et al., 2012; Rybalko & Seltzer, 2010). Some studies have also explored how social media affect stakeholder sentiments, but their analyses are conducted at the static firm level (Castelló et al., 2016; Eberle, Berens, & Li, 2013; Guo & Saxton, 2018; Lee et al., 2013; Vo, Xiao, & Ho, 2019). While the dynamism between

corporations and stakeholders occurring at a message level is still under-explored (Saxton et al., 2019; Saxton & Waters, 2014), it is also likely that this area can reveal more insights into how stakeholder perceptions change in response to corporate disclosures.

2.3 Theoretical Framework: Organisational Façade and Organised Hypocrisy

2.3.1 Organisational Façade

In their recently published article, Cho et al. (2015) suggest using organisational façade theory (Abrahamson & Baumard, 2008) and organised hypocrisy strategies (Brunsson, 1989, 2007) to explain CSR reporting. By moving beyond the usual focus of CSR reporting literature on signalling or legitimacy theory, they argue that companies use hypocrisy talk, decisions, and actions disclosures to erect rational, progressive, and reputational façades due to the presence of divergent and sometimes conflicting stakeholder interests. In order to gain and maintain corporate legitimacy within the society, managers have to “camouflage” corporate practices (Michelon et al., 2016) by supplying talk to one party, decisions to another, and actions to the third (Brunsson, 1989, p. 27).

Organisational façades are defined as “symbolic fronts erected by organisational participants designed to reassure their organisation’s stakeholders of the legitimacy of the organisations and its management” (Abrahamson & Baumard, 2008, p. 437). There are three façades which can be erected to meet divergent stakeholder expectations: rational, progressive, and reputational. A rational façade shows that organisational decision-making is the

result of rationality. It is accompanied by both qualitative and quantitative evidence to demonstrate that managerial decisions are the results of cost and benefit analysis, which is a fundamental behaviour required for modern organisations (Meyer & Rowan, 1977). Through the erection of a rational façade, managers can hide problems within the organisation, thus maintaining organisational legitimacy while also giving managers time to find better solutions (Abrahamson, 2002). Managers can also use the rational façade as a justification for their prior decisions or actions to convince stakeholders that the solutions produced are the optimal outcomes under the current state (Abrahamson & Baumard, 2008).

A progressive façade exhibits an organisation's progression towards its committed goals and objectives. It is often evidenced by the employment of future-oriented language and the demonstration of continuous improvements in practices. In the context of corporate social and environmental responsibility, progressive façade can play both symbolic and substantive roles (Abrahamson & Baumard, 2008). Managers can erect progressive façade to symbolically demonstrate the company's ongoing progress in solving sustainability challenges to stakeholders, for example, by implementing the state-of-the-art technologies, programmes and initiatives, while at the same time maintaining the status-quo without initiating any change to organisation practices (Cho et al., 2015). Nevertheless, for those managers who indeed want to tackle social and environmental problems, progressive façade can help managers meet stakeholder demands by relieving the urgency on an issue and lend managers extra time to experiment with various solutions.

A reputational façade often uses languages that reflect corporate visions and values and utilises various accounting and disclosure mechanisms to build a positive corporate image. For example, inclusion in the sustainability indices or receipt of an industry excellence award presents a façade towards stakeholders about companies' commitments to sustainability issues (Cho et al., 2015). Reputational façade can also be used as a shield to camouflage immoral actions. For example, oil companies may demonstrate their environmental commitments in sustainability reports while lobbying for the passage of Arctic National Wildlife Refuge (ANWR) Bill at the backstage (Cho, Laine, Roberts, & Rodrigue, 2016).

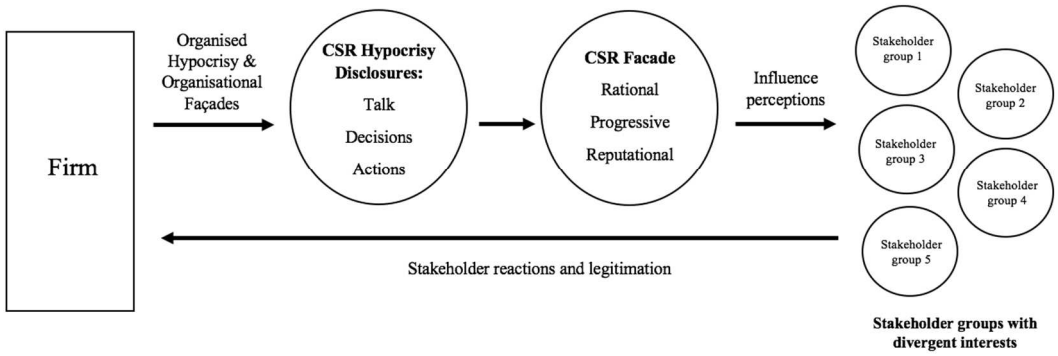
2.3.2 Organised Hypocrisy

To build façades, managers utilise talk, decisions, and actions as tools of legitimacy (Cho et al., 2015, p. 82). According to the traditional decision and administrative theory, people often assume a causal relationship among talk, decisions, and actions (Brunsson, 1993). Talk can directly or indirectly lead to corresponding actions. For example, managers can directly use talk to demonstrate corporate values, ethics, goals and objectives so that employees in the organisation can act consistently with such talk. Alternatively, management can make decisions in accordance with the previous talk, which will, in turn, increase the likelihood of corresponding actions (Brunsson, 2007, p. 112). However, Brunsson (2007) argues that the traditional model may not work well in a modern organisation as it often faces multiple stakeholder groups who have divergent, sometimes conflicting, values and interests. In this case, some interests may be common among many stakeholder groups, but some

may be incompatible. It is even possible that one stakeholder group's interest is completely opposed to the interests held by other stakeholder groups (Godfrey, 2005). Consequently, following the traditional decision and administrative model may lead to a situation where the interest of one group of stakeholder is completely satisfied but leaves all others dissatisfied (Brunsson, 2007, p. 116). One example will be the desire for maximising profits at the costs of significant environmental damages.

Brunsson (1993, 2007) argues that the organised hypocrisy model can handle divergent stakeholder interests because the unidirectional relation between talk, decisions and actions will assign a "related value" to talk and decisions. This means that the stronger the belief in talk and decisions controlling actions, the greater the relevance and value of talk and decisions. Consequently, the "related value" of talk and decisions can give managers an opportunity to manage divergent stakeholder perceptions without undergoing any costly actions. Through the use of talk and decisions to compensate for the inconsistent actions or vice versa, the relationship among the three becomes *counter-coupling* instead of decoupling (Lipson, 2007). Hypocrisy can, therefore, help maintain the legitimacy of companies and manage the perceptions of some stakeholder groups by only disclosing talk and decisions. Figure 1 illustrates the theoretical framework.

Figure 1. Theoretical Framework for Organised Hypocrisy and Organisational Façade in CSR Disclosures



Research to date have only focused on whether and how companies employ organised hypocrisy to erect organisational façade. For instance, Cho et al. (2015) use discourse analysis to study oil and gas companies' annual and sustainability reports, and they find that companies use talk, decisions and actions disclosures to erect different façades and manage conflicting stakeholder demands. In their subsequent study, by employing an innovative database of US political contributions, Cho et al. (2016) find that oil and gas companies act inconsistently with their talk disclosures, hence proving organisational use of hypocrisy strategies. Because both studies examine organised hypocrisy strategies from a corporation perspective and assume that the strategies can *affect* stakeholder perceptions, the questions on how stakeholders perceive hypocrisy strategies and the façades remain unexplored. Therefore, this chapter asks the following two research questions: (1) how do stakeholders perceive the hypocrisy strategies utilised in CSR reporting? And (2) how do stakeholders perceive the façades that companies erect?

2.3.3 Hypotheses Development for RQ1

The first research question relates to how stakeholders perceive the hypocrisy strategies utilised in CSR reporting. Prior studies suggest that talk and decisions disclosures may have positive effects on stakeholder perceptions. For example, Bansal and Clelland (2004) find that firms with low environmental legitimacy can reduce their unsystematic risks by expressing environmental commitments, suggesting financial stakeholders attach value to talk and decisions. Similarly, in an experimental setting, Milne and Patten (2002) document that, in the presence of mandatory negative environmental disclosures, the provision of additional, voluntary positive environmental disclosures, such as company commitments and forward-looking disclosures, positively affect investment allocation by investors who focus on long-term strategies and environmental issues. Using an archival approach, Cho et al. (2012) find a positive association between environmental disclosures and both environmental reputation scores and the membership in the Dow Jones Sustainability Index, even in the presence of poor environmental performance, suggesting that reputation appears to be driven more by what companies say than what they do.

While Brunsson (2007) argues that talk and decisions normally reach wider stakeholder groups than actions, whether and how stakeholders react to these disclosures is not theoretically clear. He notes that stakeholders can be “idealists” or “materialists” (Brunsson, 2007, p. 117). If stakeholders are “idealists”, they perceive the image that firms construct as a highly admirable standing. They believe that talk and decisions are important on their own, and their demands can be partially fulfilled by corporate talk and decisions. As a

result, talk and decisions may shape stakeholders' positive attitudes and/or mitigate their negative concerns. However, if stakeholders are "materialists", they are aware of possible discrepancies among talk, decisions and actions. In this case, if organizations make talk and decisions disclosures rather than actions disclosures, "materialist" stakeholders know that the likelihood of corresponding actions is significantly low since talk and decisions are seen as merely empty words (Brunsson, 2007). As a result, these stakeholders would ignore talk and decisions. Following this stream of argument, I develop the following hypothesis for CSR talk and decisions disclosures:

> ***H1a.*** *CSR talk and decisions disclosures are positively associated with positive stakeholder reactions.*

Traditionally, CSR literature assumes that stakeholders generally perceive corporate actions disclosures being more credible than corporate talk and decisions disclosures. Prior literature on the quality of CSR reporting documents that firms are more likely to report information on general expectations for the future than the results and outcomes of plans (Michelon et al., 2015), highlighting the scarce use of actions-disclosure by firms. Such a lack of focus on actions and outcomes mirrors a lack of comprehensiveness (Bouten, Everaert, Van Liedekerke, De Moor, & Christiaens, 2011), which conveys little substantive information for assessment. Because actions reflect activities that companies are doing and/or have undertaken, the information is verifiable and hence more credible. Given how much boilerplate information is disclosed in CSR reports (Michelon et al., 2015), stakeholders may react positively when they spot actions-related information. Some empirical studies also support such a view. For example, Aerts and Cormier (2009) find that

media legitimacy is only driven by quantitative instead of qualitative disclosures. Similarly, Brown et al. (2009) find that the relationship between sustainability report quality and corporate perceived reputation (measured using Fortune Most Admired Scores) is significant only for good performers, who are more likely to disclose hard, actions-related information. When actions are insufficient to meet or contrary to the expectations of stakeholders, managers simply choose not to disclose them (Neu et al., 1998). Consequently, actions disclosures are more likely to attract positive stakeholder reactions, which lead to the following hypothesis:

> ***H2a.*** *CSR actions disclosures are positively associated with positive stakeholder reactions.*

However, in Brunsson's (2007) hypocrisy model, firms can disclose actions to different stakeholder groups even though these actions may still be in progress or fall short of the expectations of some stakeholders. In this situation, because of the divergent and conflicting stakeholder demands that corporations face, the provision of actions disclosures to one group of stakeholders may attract negative reactions from another group. Along these lines, Groening and Kanuri (2013) document that, in the presence of positive social action for a group of stakeholders, investors do not reward the firm. Given the presence of different stakeholder groups in social media (Gómez-Carrasco & Michelon, 2017), the disclosure of actions information may also attract negative reactions from other stakeholder groups, hence the formulation of the following hypothesis:

> ***H2b.*** *CSR actions disclosures are positively associated with negative stakeholder reactions.*

Finally, the intensity of stakeholder reactions may be different for talk and decisions versus actions disclosures. Talk and decisions disclosures are related to corporate visions and intentions, which are normally qualitative and soft, while actions disclosures relate to results and outcomes, which are usually quantitative and hard (Michelon et al., 2015). On one hand, all talk, decisions and actions disclosures can affect stakeholder perceptions to a certain degree. For instance, Cho and Patten (2007) compare the level of monetary and non-monetary disclosures made by firms from environmentally sensitive and non-sensitive industries. They find that in non-environmentally sensitive industries, poorer environmental performers disclose more non-monetary environmental disclosures than their better-performing counterparts. However, in environmentally sensitive industries, the level of soft disclosure is similar both for poor and good performers. These findings suggest that stakeholders from non-sensitive industries are less demanding, therefore talk and decisions disclosures are sufficient in meeting their expectations. However, stakeholders in environmentally sensitive industries may not be satisfied with only talk and decisions disclosures: they need more concrete corporate actions (i.e. monetary information). On the other hand, if stakeholders attach importance to all talk, decisions actions and actions disclosures are in fact perceived as more credible because they use quantitative and verifiable information, then the disclosure of talk and decisions may affect stakeholder perceptions to a lesser extent than disclosure on actions. Prior empirical studies provide evidence supporting this expectation. For example, Toms (2002) documents that general rhetoric can significantly increase corporate reputation when firms change from non-disclosure to the disclosure of corporate commitments. However, extra talk

and decisions disclosure have no effect on reputation until firms start disclosing quantifiable statements regarding the implementation and the monitoring of policies and targets. Therefore, stakeholders perceive actions more positively than talk and decisions, but talk and decisions are also effective in managing stakeholder perceptions *per se*. Thus, the third hypothesis has been developed as follows:

> ***H3.*** *The intensity of stakeholder reactions is greater for CSR actions disclosures than CSR talk and decisions disclosures.*

2.3.4 Hypotheses Development for RQ2

The second research question relates to how stakeholders perceive the façades that companies try to construct. Because there is no prior empirical study that investigates how each façade influences legitimacy, this study relies on the following theoretical model to develop the hypotheses. Although Abrahamson and Baumard (2008) do not explicitly rank the effect of each façade on stakeholder perceptions, their framework appears to imply a pecking order of importance which is outlined below.

Firstly, a rational façade is essential in gaining market legitimacy, and this is a basic organisational behaviour expected by stakeholders (Cho et al., 2015). By incorporating rationalised elements into organisational structures, companies are able to gain legitimacy and increase their chance of survival (Meyer & Rowan, 1977). Since all modern corporations are expected to behave rationally, the extent to which the rational façade influences stakeholder perceptions is expected to be minimal among the three façades.

Secondly, a reputational façade is constructed by displaying symbols, mission statements and values to shape positive images about a company

(Abrahamson & Baumard, 2008; Cho et al., 2015). Compared to the rational façade which is constructed to show justification for a short-term managerial decision or action, the reputational façade demonstrates a company's long-term commitments to stakeholder demands, especially for those who are "idealists" and "spectators" since they attach importance to corporate values and commitments (Brunsson, 2007). Because the reputational façade helps companies to shape a positive image, it is expected that this attracts more positive reactions than the rational façade.

Lastly, a progressive façade is constructed to demonstrate progression towards corporate long-term goals and objectives. Abrahamson and Baumard (2008) argue that the progressive façade not only contains the element of rationality but also reflects the status of progress. They suggest that the progressive façade can play three roles: (1) to camouflage the status quo; (2) to show progress symbolically; and (3) to facilitate substantive progression towards long-term commitments. Due to its potential for organisational change, stakeholders may perceive the progressive façade as more acceptable than the reputational façade because the reputational façade may be purely symbolic, while the progressive façade may accompany substantive achievements despite the size of significance (Christensen, Morsing, & Thyssen, 2013). Furthermore, the progressive façade may also play a role in bridging between the rational and reputational façades, thereby easing stakeholder dissatisfaction and winning their approval (Cho et al., 2015). Nevertheless, the possible symbolic use of the progressive façade may lead to negative reactions. Since some stakeholders have completely different interests and some may not know what is truly happening behind the façade, this might attract more

negative reactions and greater suspicion than the other two façades. In light of these arguments, the following hypotheses are stated below:

> ***H4a.*** *The intensity of stakeholder reactions is greater for the CSR reputational façade than the CSR rational façade.*
> ***H4b.*** *The intensity of stakeholder reactions is greater for the CSR progressive façade than CSR rational and reputational façades.*

2.4 Research Design

2.4.1 Sample and Data Collection

This study uses Facebook to examine the research questions because stakeholders' use of novel emoticons on this platform can reveal useful details about their perceptions towards organisations. This study assumes that subscribers who follow an organisation's Facebook page are company stakeholders as they voluntarily subscribe to corporate updates. S&P100 companies are selected as the sample because this index represents the most visible companies in the US. Being highly visible, they face more divergent stakeholder demands than smaller companies and have made significant investments in social media (Investis, 2015). The sample period covers 24th February 2016 to 2nd March 2017: the choice of the start date for this sample period is related to the introduction of new emoticons on Facebook.

The unit of analysis in this study is each Facebook post, which includes disclosures posted by companies during the sample period. To retrieve corporate posts, the Facebook link on corporate websites was firstly identified, and if unavailable, a search on Facebook for corporate pages was then conducted. Out of the S&P 100 companies, 16 companies either had no Facebook account or no content was posted during the sample period. A Python script was then used to download all historical post data from the

Facebook application programming interface (API). The retrieved data include the text of the published message, the publication date, the total number of shares, total number of emoticons (six emotions: 'like', 'love', 'haha', 'wow', 'sad' and 'angry'), the number of comments and the text of comments under each post.[3] Three companies were further excluded from the sample due to missing data, which leaves a total of 81 companies with an overall 21,166 observations in the final sample. Appendix A provides a list of companies included in the study.

Next, textual analysis was performed to identify CSR-related posts. Computerised textual analysis is gaining in popularity in the analysis of accounting narratives as it allows researchers to process a large amount of unstructured data with greater efficiency (Loughran & McDonald, 2016). Following a "bag of words" approach (Loughran & McDonald, 2011), a dictionary (Appendix B) from GRI reporting guidelines and (KLD, 2013) was then devised which categorise posts into CSR (N = 7,104) and non-CSR posts (N = 14,062). Posts were then manually checked to eliminate any misclassification. Finally, manual coding of CSR-related posts[4] was then carried out, classifying them into three hypocrisy strategies - talk, decisions and actions disclosures - and the three façades - rational, progressive and reputational - using the coding guideline provided in Appendix B.[5]

[3] Total comments retrieved were 1,525,955 firm-time observations. Comment data include post id, comment id, parent comment id, comment texts, identity of comment author, time published and the number of likes a comment received. However, due to the new EU General Data Protection Regulation coming into effect in May 2018, comment author identity will not be publicly available after February 2018.

[4] The coding procedures were conducted and repeated in April, June and August 2017 to ensure consistent outcomes.

[5] The Cronbach Alpha was computed to check the internal consistency for hypocrisy and façade coding over three different time periods (April, June and August 2017). The Cronbach Alpha for hypocrisy strategy coding is 0.9310 and the Cronbach Alpha for façade strategy coding is 0.9956.

2.4.2 Empirical Model

In order to test H1, H2a/b, the full sample (N = 21,166) is considered, and non-CSR disclosures are used as the baseline to capture the average level of stakeholder reactions when they read non-CSR disclosures. The model is specified as follows:

$$STAK\_REACTIONS = \beta_0 + \beta_1 ACTIONS + \beta_2 TALK + \beta_3 DECISIONS + \beta_4 SIZE + \beta_5 CHARACTER\_LOG + \beta_6 URL + \beta_7 HASHTAG + \beta_8 VISUALS + Firm\ Fixed\ Effect + \varepsilon \quad (2.1)$$

To test H3, the effects of CSR actions disclosures versus CSR talk and decisions disclosures are compared. The sample is therefore restricted to CSR-related posts (N = 7,104), and the model uses CSR talk and decision disclosures as the baseline to compare the effects of CSR actions disclosures on stakeholder reactions. The model for H3 is specified as:

$$STAK\_REACTIONS = \beta_0 + \beta_1 ACTIONS + \beta_2 SIZE + \beta_3 CHARACTER\_LOG + \beta_4 URL + \beta_5 HASHTAG + \beta_6 VISUALS + Firm\ Fixed\ Effect + \varepsilon \quad (2.2)$$

To test H4a/b and explore whether there is a pecking order among the three façades, the sample only considers CSR-related posts (N = 7,104). Rational façade posts are used as the baseline, and the effects of progressive and reputational façade posts relative to the baseline are compared. Therefore, the model for H4a/b is specified as follows:

$$STAK\_REACTIONS = \beta_0 + \beta_1 PROGRESSIVE + \beta_2 REPUTATIONAL + \beta_3 SIZE + \beta_4 CHARACTER\_LOG + \beta_5 URL + \beta_6 HASHTAG + \beta_7 VISUALS + Firm\ Fixed\ Effect + \varepsilon \quad (2.3)$$

For all three models, the Negative Binomial (NB) model is used when the dependent variables are stakeholder general reactions (discussed further below), and the Logit model is used when the dependent variables are stakeholder specific reactions. The reasons for using the NB model to analyse

general stakeholder reactions are firstly because the number of likes, shares, and comments are positive integers, therefore the Poisson and NB models are more appropriate in counting variables than the Ordinary Least Square (OLS) model (Saxton & Waters, 2014). Secondly, one of the assumptions for the Poisson regression model is that the conditional variance should be equal to the conditional mean (Wooldridge, 2010). Since the number of reactions, likes and comments on social media have a much higher variance than the mean (i.e. over-dispersion), NB regression is a more appropriate choice (Cameron & Trivedi, 1986; Saxton & Waters, 2014). The Logit model is also used because specific reactions are binary variables (Wooldridge, 2010).

2.4.3 Measurement of Dependent Variables

To examine stakeholder reactions, this study employs two groups of measures. The first group measures the intensity of stakeholder general reactions using the number of likes, shares and comments. The total number of likes (*LIKES*) captures general positive sentiments because this reaction represents a general positive stakeholder sentiment and also acts as a rough indicator of users' acknowledgement after reading a post (Saxton & Waters, 2014). The total number of shares (*SHARES*) reflects public resonance since the share reaction reflects how broadly a post is diffused among the public, and a high level of re-posting can increase message visibility and improve the perceptions of message quality and favourability leading to an enhancement of corporate CSR reputation (Saxton et al., 2019). The number of comments (*COMMENTS*) represents the level of engagements between stakeholders and

a corporate disclosure, thus the larger the number, the more engagements and debates are occurring in each post.

However, the magnitude of general reactions cannot distinguish specific emotions or attitudes that stakeholders express. Therefore, Facebook emoticons including, ‘love’, ‘wow’, ‘haha’, ‘sad’ and ‘angry’ can be used as measures for specific reactions. Because Facebook does not provide a separate button for newly introduced emoticons (users need to long-press the ‘like’ button on smartphones or hover over the ‘like’ button on the website to reveal these additional emoticons), there is a real difference between posts that receive at least one type of emoticon and those that do not. Therefore, a dummy variable is created for each of these five emoticons (*LOVE, WOW, HAHA, SAD* and *ANGRY*), which is equal to one if each emoticon received at least one click, and zero otherwise.

Furthermore, following the suggestion by Saxton and Waters (2014), this study also analyses the sentiment of comments (positive or negative) to reveal how stakeholders express their opinions towards firms’ disclosures. Consistent with specific emoticons, there is a real difference between people who are willing to write a comment under a post and those who write nothing. Unlike emoticons which consume less energy and time to react, people need more time to form their opinions and express them as comments. Thus, comments are more genuine representations of people’s attitudes towards firms’ CSR disclosures (Etter, Colleoni, Illia, Meggiorin, & D’Eugenio, 2018). Comments may also reflect the opinions of those who have direct experience with or those who may be directly affected by corporate CSR policies or practices. As a result, more authentic attitudes towards hypocrisy and façade strategies are reflected

when users write a positive or negative comment. Therefore, the sentiment of comments is measured using two dummy variables (*POSCOMMENT* and *NEGCOMMENT*). Both variables equate to one if a post received at least one positive comment or one negative comment, and zero otherwise. To compute these two variables, a computerised VADER sentiment analysis is firstly performed to calculate the net sentiment score of each individual comment (Gilbert & Hutto, 2014).[6] Dummy variables are created if there is at least one positive or negative comment under each post. Table 2.1 summarises the definitions of dependent variables.

Table 2.1 Dependent Variables Definitions

Variable Name	Definition
LIKES	The total number of likes for each Facebook message.
SHARES	The total number of shares for each Facebook message.
COMMENTS	The total number of comments for each Facebook message.
LOVE	Dummy variable equals to 1 if there is at least one love reaction to each Facebook message, and 0 otherwise.
WOW	Dummy variable equals to 1 if there is at least one wow reaction to each Facebook message, and 0 otherwise.
HAHA	Dummy variable equals to 1 if there is at least one haha reaction to each Facebook message, and 0 otherwise.
SAD	Dummy variable equals to 1 if there is at least one sad reaction to each Facebook message, and 0 otherwise.
ANGRY	Dummy variable equals to 1 if there is at least one angry reaction to each Facebook message, and 0 otherwise.
POSCOMMENT	Dummy variable equals to 1 if there is at least one positive comment to each Facebook message, and 0 otherwise.
NEGCOMMENT	Dummy variable equals to 1 if there is at least one negative comment to each Facebook message, and 0 otherwise.

[6] VADER sentiment analysis is conducted using programming language R. Firstly, the VADER lexicon is used to identity positive and negative words contained in a comment. Then the positive and negative score is computed by summing up values of each positive and negative word. Lastly, the net sentiment score of each comment is computed by taking the sum of overall positive and negative VADER scores.

2.4.4 Measurement of Independent and Control Variables

In Equations 2.1 and 2.2, the CSR actions disclosure variable (*ACTIONS*) is coded one if a post disclosed CSR actions information and zero otherwise. The CSR talk disclosure variable (*TALK*) is set to one if a post conveyed CSR talk information, and zero otherwise. Similarly, the CSR decisions disclosures variable (*DECISIONS*) is set to one if a post disclosed decisions information, and zero otherwise.

In Equation 2.3, the rational façade variable (*RATIONAL*) equates to one if a post constructed a CSR rational façade, and zero otherwise. The progressive façade variable (*PROGRESSIVE*) is coded one if a post erected a CSR progressive façade, and zero otherwise. Finally, the reputational façade variable (*REPUTATIONAL*) is coded one if a post constructed a CSR reputational façade, and zero otherwise.

This study uses several variables to control for message and firm level characteristics. Following the approach by Saxton et al. (2019), four message level control variables are included: the length of corporate disclosure, the inclusion of URL, the use of hashtags and the presence of photos and videos. Firstly, the logarithm transformation of the number of characters [7] (*CHARACTER_LOG*) within each post controls for the amount of information communicated with stakeholders since previous socio-psychology literature suggests that longer texts are more persuasive than shorter texts (Chaiken & Eagly, 1989). Next, a dummy variable is created for the inclusion of the URL (*URL*) in each post. Hyperlinks can take users to an external web page where more information regarding corporate CSR activities are available, hence

[7] Number of characters in each post is calculated without including space between words.

stakeholders can make more informed decisions on whether and how to react to a post. Hashtags can initiate public discussions on a topic and increase public responses (Saxton et al., 2019), therefore a dummy variable (*HASHTAG*) is included to control for the use of hashtags. Lastly, a dummy variable is created for the presence of photos and videos (*VISUALS*) since visual content can present stakeholders with a more immediate impression of CSR information (Saxton & Waters, 2014) and it also generates stronger framing effect on people's attitudes than texts (Powell, Boomgaarden, De Swert, & de Vreese, 2015; Vinnari & Laine, 2017).

The size of the firm is also controlled for firm-level characteristics. The logarithm transformation of company quarterly total assets is used as a proxy for firm size (*SIZE*). Size is included because larger firms have more exposure than smaller companies to external stakeholders, thereby attracting more divergent demands and reactions (Saxton et al., 2019). The quarterly total asset figures were retrieved from COMPUSTAT. Furthermore, to make the results more robust and to control for individual-specific effects on independent variables, the firm fixed effect is included in all models. Table 2.2 summarises the definitions of independent and control variables.

Table 2.2 Independent and Control Variable Definitions

Variable Name	Definition
Independent Variables	
ACTIONS	Hypocrisy actions disclosure. Dummy variable equals to 1 if the Facebook post discloses action information, and 0 otherwise.
TALK	Hypocrisy talk disclosure. Dummy variable equals to 1 if the post Facebook discloses talk information, and 0 otherwise.
DECISIONS	Hypocrisy decisions disclosure. Dummy variable equals to 1 if the Facebook post discloses decision information, and 0 otherwise.
RATIONAL	Rational façade disclosure. Dummy variable equals to 1 if the Facebook post erects rational façade, and 0 otherwise.
PROGRESSIVE	Progressive façade disclosure. Dummy variable equals to 1 if the Facebook post erects progressive façade, and 0 otherwise.
REPUTATIONAL	Reputational façade disclosure. Dummy variable equals to 1 if the Facebook post erects reputational façade, and 0 otherwise.
Control Variables	
CHARACTER_LOG	Length of the Facebook post. The log transformation of the number of characters (without space) in each post message.
URL	Use of hyperlinks. Dummy variable equals to 1 if the post contains a hyperlink (i.e. "http://*").
HASHTAG	Use of hashtags. Dummy variable equals to 1 if the post contains a hashtag followed by words (i.e. "#*").
VISUALS	Presence of photos and videos. Dummy variable equals to 1 if the post contains a photo or video.
SIZE	Firm size. The log transformation of firm's quarterly total assets.

2.5 Empirical Findings

2.5.1 Descriptive Statistics

Table 2.3 presents the descriptive statistics for dependent variables. Panel A displays the summary statistics for general stakeholder reactions, i.e. the number of likes, shares and comments. The evidence shows that the average number of likes for each post is approximately 1,184 (SD = 10,610), the average number of shares is about 181 (SD = 1604), and the average number of comments is 54 (SD = 423). High variance confirms the choice of the NB model instead of the Poisson model. The wide-spanning distributions of all three measures suggest that there is a significant difference between posts

that received few or none reactions and posts that received a high intensity of reactions.

Table 2.3 Descriptive Statistics - Dependent Variables

	N	Mean	SD	Min	P25	P50	P75	Max
Panel A. General reactions								
LIKES	21166	1183.67	10610.36	0	31	93	317	447450
SHARES	21166	181.23	1604.01	0	3	13	48	94787
COMMENTS	21166	53.84	422.59	0	1	5	20	35533
Panel B. Specific reactions								
LOVE	21166	0.67	0.47	0	0	1	1	1
WOW	21166	0.40	0.49	0	0	0	1	1
HAHA	21166	0.24	0.43	0	0	0	0	1
SAD	21166	0.13	0.33	0	0	0	0	1
ANGRY	21166	0.25	0.43	0	0	0	0	1
POSCOMMENT	21166	0.64	0.48	0	0	1	1	1
NEGCOMMENT	21166	0.44	0.50	0	0	0	1	1

Notes All variables are defined in Table 2.1.

Panel B presents the evidence of specific stakeholder reactions, including ‘love’, wow’, ‘haha’, ‘sad’, ‘angry’, positive comment and negative comment. The findings show that except for *LOVE*, most posts have a relatively low percentage of receiving an emoticon, with *SAD* being the lowest (13%), followed by *HAHA* (24%), *ANGRY* (25%) and *WOW* (40%). The distribution of each emoticon also shows that over half of the posts do not receive any *WOW*, *HAHA*, *SAD* or *ANGRY* reaction. With regard to the sentiment of comments, about 64% of posts receive at least one positive comment (*POSCOMMENT*) and 44% of posts receive at least one negative comment (*NEGCOMMENT*). Although positive comments are 20% more than negative comments, over 25% of the posts receive at least one negative comment, suggesting that people have diverse views on corporate disclosures and they comment critically on corporate information.

Table 2.4 Panel A presents the descriptive statistics for independent variables. In terms of the hypocrisy strategies used, the results show that the mean for *ACTIONS* is 0.08, which suggests that 8% of posts use hypocrisy actions strategies. The mean of *TALK* and *DECISIONS* is 0.22 and 0.03 respectively, indicating that about 22% of posts employ hypocrisy talk and 3% use hypocrisy decisions strategies. In terms of façade posts, the reputational façade is the most frequent (22%) that companies try to erect on social media, followed by the progressive façade (9%), and the least used is the rational façade (3%). These results are consistent with prior findings in which a rational façade is more likely to be constructed in annual reports, while the other two façades are more likely to be found in CSR-related documents (Cho et al., 2015). Given the nature of social media and different stakeholder groups that companies hope to engage with, firms are more likely to employ a reputational façade than progressive and rational façades in order to convey a positive image towards stakeholders.[8] The distribution of data shows wide dispersions among hypocrisy and façade disclosures. More than 65% of posts do not employ either CSR hypocrisy or façades strategies. The reason for this positive skew is because the sample of corporate Facebook accounts include both voluntary CSR disclosures and other types of disclosure such as marketing, financial and general corporate information.

[8] Appendix D illustrates some examples of hypocrisy and façades disclosures that are identified in companies' Facebook posts.

Table 2.4 Descriptive Statistics - Independent and Control Variables

	N	Mean	SD	Min	P25	P50	P75	Max
Panel A. Independent variables								
ACTIONS	21166	0.08	0.28	0	0	0	0	1
TALK	21166	0.22	0.42	0	0	0	0	1
DECISIONS	21166	0.03	0.17	0	0	0	0	1
RATIONAL	21166	0.03	0.16	0	0	0	0	1
PROGRESSIVE	21166	0.09	0.29	0	0	0	0	1
REPUTATIONAL	21166	0.22	0.41	0	0	0	0	1
Panel B. Control variables								
CHARACTER_LOG	21166	4.84	1.09	0	4.69	5.00	5.34	8.72
VISUALS	21166	0.70	0.46	0	0	1	1	1
URL	21166	0.47	0.50	0	0	0	1	1
HASHTAG	21166	0.36	0.48	0	0	0	1	1
SIZE	21166	11.44	1.13	9.44	10.54	11.42	12.00	14.75

Notes All variables are defined in Table 2.2.

Table 2.4 Panel B presents the descriptive statistics for control variables. The mean of *CHARACTER_LOG* is 4.84 (SD = 1.09), suggesting that the average length of a post is approximately 126 characters. As mentioned above, Facebook has no restrictions on message length: the mean length is similar to the Twitter threshold (140 characters), suggesting that companies probably post identical information on both platforms. The results show that 70% of posts attach visual content such as photos or videos (*VISUALS*) and 47% of posts contain a hyperlink (*URL*). In addition, the results suggest that only 36% of posts include a hashtag (*HASHTAG*). These findings differ slightly from those found in Saxton et al. (2019) as Facebook disclosures are more multi-media based unlike Twitter which makes far more use of hashtags than photos. With regard to firm characteristics, the mean size of the sample is 11.44 ($92,967,000), reflecting the fact that the sample companies represent the largest publicly traded firms in the US.

2.5.2 Correlation Analysis

Pearson correlation analysis was performed to assess the association between stakeholder reactions and hypocrisy and façade disclosures, and the presence of multicollinearity issues. Table 2.5 presents the Pearson correlations-matrix results between various stakeholder reactions and independent variables. The results show that most of the stakeholder reactions are significantly correlated with the focused independent variables. In terms of multicollinearity, no strong correlation is found between independent variables and control variables as none of the correlation coefficients exceeds ±0.5. To further test the possible existence of multicollinearity, a VIF test is performed, and the results (un-tabulated) show that the highest VIF is 1.18, which is well below the 'rule of thumb' threshold (Michelon, 2011). Therefore, multicollinearity is of no concern in this study.

Table 2.5 Correlation Table

		1	2	3	4	5	6	7	8	9	10	11
1	LIKES	1										
2	SHARES	0.33***	1									
3	COMMENTS	0.26***	0.61***	1								
4	LOVE	0.08***	0.08***	0.08***	1							
5	WOW	0.13***	0.13***	0.13***	0.44***	1						
6	HAHA	0.17***	0.16***	0.18***	0.34***	0.44***	1					
7	SAD	0.22***	0.20***	0.22***	0.23***	0.35***	0.43***	1				
8	ANGRY	0.14***	0.13***	0.17***	0.25***	0.27***	0.39***	0.38***	1			
9	POSCOMMENT	0.08***	0.08***	0.09***	0.44***	0.41***	0.35***	0.24***	0.32***	1		
10	NEGCOMMENT	0.11***	0.11***	0.13***	0.33***	0.38***	0.43***	0.33***	0.45***	0.52***	1	
11	ACTIONS	0.03***	-0.01	-0.01	0.03***	0.03***	0	0.03***	0	0.01	-0.01	1
12	TALK	-0.04***	-0.04***	-0.05***	-0.07***	-0.14***	-0.15***	-0.09***	-0.13***	-0.13***	-0.17***	-0.16***
13	DECISIONS	0.01	-0.01	-0.01*	-0.03***	-0.04***	-0.04***	-0.02**	-0.02**	-0.04***	-0.04***	-0.05***
14	RATIONAL	-0.01*	-0.01	-0.02*	-0.06***	-0.05***	-0.05***	-0.03***	-0.03***	-0.04***	-0.04***	0.06***
15	PROGRESSIVE	0.02*	-0.02**	-0.03***	-0.02*	-0.02**	-0.07***	-0.02*	-0.04***	-0.06***	-0.06***	0.29***
16	REPUTATIONAL	-0.02**	-0.03***	-0.04***	-0.03***	-0.11***	-0.10***	-0.05***	-0.09***	-0.09***	-0.14***	0.26***
17	CHARACTER_LOG	0.01	-0.02**	-0.01	-0.06***	-0.03***	-0.05***	-0.02***	-0.08***	-0.04***	-0.05***	0.14***
18	VISUALS	0.04***	0.05***	0.05***	0.14***	0.13***	0.11***	0.06***	0.05***	0.13***	0.11***	0.02***
19	URL	0.01	-0.03***	-0.03***	-0.08***	-0.04***	-0.07***	-0.06***	-0.12***	-0.08***	-0.11***	-0.02***
20	HASHTAG	0.02**	0.01	0.01	-0.07***	-0.09***	-0.03***	-0.01*	-0.03***	-0.09***	-0.07***	0.04***
21	SIZE	0.03***	-0.02**	0	0.09***	0	0.04***	0.01	0.12***	0.16***	0.13***	0.01

Correlation Table (Continued)

		12	13	14	15	16	17	18	19	20	21
1	LIKES										
2	SHARES										
3	COMMENTS										
4	LOVE										
5	WOW										
6	HAHA										
7	SAD										
8	ANGRY										
9	POSCOMMENT										
10	NEGCOMMENT										
11	ACTIONS										
12	TALK	1									
13	DECISIONS	-0.10***	1								
14	RATIONAL	0.17***	0.12***	1							
15	PROGRESSIVE	0.24***	0.21***	-0.05***	1						
16	REPUTATIONAL	0.63***	0.10***	-0.09***	-0.17***	1					
17	CHARACTER_LOG	0.17***	0.08***	0.05***	0.13***	0.18***	1				
18	VISUALS	-0.06***	-0.04***	-0.07***	-0.05***	0	-0.01*	1			
19	URL	0	0.02*	0.02***	0.02***	-0.03***	0.25***	0.06***	1		
20	HASHTAG	0.08***	0.02**	-0.01*	0.01	0.11***	0.15***	0.10***	0	1	
21	SIZE	0	0.02**	0.01	0.05***	-0.03***	0	0.07***	-0.07***	-0.02**	1

Notes All variables are defined in Table 2.1 and 2.2. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

2.5.3 Multivariate Analysis

2.5.3.1 Stakeholder Reactions and CSR Hypocrisy Disclosures

Table 2.6 presents the results regarding stakeholder reactions to CSR hypocrisy disclosures. Panel A presents the results which examine general stakeholder reactions to CSR actions, talk and decisions disclosures using the NB regressions model.[9] When analysing the number of likes (Column 1) generated by stakeholders, *ACTIONS* is the only variable that shows a significant and positive association (β = 0.824, p < .01). Neither *TALK* nor *DECISIONS* has a significant effect on *LIKES*, suggesting that stakeholders may only give acknowledgement or general approval of actions disclosures. To interpret the impact of hypocrisy disclosures on *LIKES*, it is suggested that the coefficient is converted into an incidence rate ratio (IRR)[10], which is interpreted as the factor change in the dependent variable for one unit change in the explanatory variables (Saxton & Waters, 2014). From the results, *ACTIONS* has an IRR of 2.28, suggesting that the number of likes in response to a CSR actions disclosure will be 2.28 times more than the number of likes in response to a non-CSR post.

[9] Standard errors in all models in this study are robust.
[10] IRR results was obtained by running the command: *nbreg, irr* after running each negative binomial regression model in STATA

Table 2.6 Stakeholder Reactions to CSR Hypocrisy Disclosures

Panel A. Negative binomial regression between general reactions and CSR hypocrisy talk, decisions and actions disclosures

	Dependent Variable: STAK_REACTIONS		
	LIKES	SHARES	COMMENTS
	(1)	(2)	(3)
ACTIONS	**0.824*** **	**0.535*** **	**0.449*** **
	(0.101)	**(0.086)**	**(0.074)**
TALK	-0.089	**-0.120***	**-0.270*** **
	(0.067)	**(0.067)**	**(0.064)**
DECISIONS	-0.113	-0.038	**-0.267** **
	(0.116)	(0.106)	**(0.107)**
CHARACTER_LOG	0.061***	0.213***	0.122***
	(0.018)	(0.028)	(0.018)
VISUALS	0.394***	0.404***	0.491***
	(0.056)	(0.054)	(0.048)
URL	-0.076	-0.299***	-0.245***
	(0.064)	(0.061)	(0.052)
HASHTAG	0.097	0.029	0.174***
	(0.060)	(0.065)	(0.058)
SIZE	0.737	0.316	0.189
	(0.543)	(0.647)	(0.566)
CONSTANT	-6.687	-3.894	-4.562
	(6.025)	(7.199)	(6.298)
Firm FE	YES	YES	YES
Observations	21,166	21,166	21,166
pseudo-R^2	0.0735	0.0858	0.113
Log-Likelihood	-139365	-97906	-75711

Panel B. Logit regression between specific reactions and CSR hypocrisy talk, decisions and actions disclosures

	Dependent Variable: STAK_REACTIONS						
	LOVE	WOW	HAHA	SAD	ANGRY	POSCOMMENT	NEGCOMMENT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ACTIONS	**1.136*** **	**0.739*** **	**0.427*** **	**0.691*** **	**0.627*** **	**0.653*** **	**0.369*** **
	(0.077)	**(0.071)**	**(0.076)**	**(0.087)**	**(0.081)**	**(0.070)**	**(0.071)**
TALK	**0.363*** **	**-0.242*** **	**-0.393*** **	**-0.233*** **	**-0.156** **	0.081	**-0.276*** **
	(0.052)	**(0.052)**	**(0.062)**	**(0.076)**	**(0.063)**	(0.050)	**(0.053)**
DECISIONS	**0.280*** **	-0.082	-0.180	-0.132	**0.265** **	0.057	-0.120
	(0.106)	(0.108)	(0.131)	(0.155)	**(0.130)**	(0.099)	(0.113)
CHARACTER_LOG	-0.071***	0.051***	0.030	0.030	-0.041*	0.061***	0.064***
	(0.020)	(0.019)	(0.020)	(0.025)	(0.021)	(0.019)	(0.019)
VISUALS	0.430***	0.352***	0.402***	0.138**	0.123**	0.262***	0.184***
	(0.047)	(0.045)	(0.052)	(0.062)	(0.054)	(0.044)	(0.046)
URL	-0.284***	-0.133***	-0.192***	-0.107*	-0.064	-0.186***	-0.120**
	(0.049)	(0.046)	(0.050)	(0.059)	(0.052)	(0.047)	(0.048)
HASHTAG	0.140***	0.011	0.123***	0.087	-0.013	-0.004	0.008
	(0.043)	(0.042)	(0.046)	(0.056)	(0.048)	(0.041)	(0.044)
SIZE	3.154***	2.499***	3.047***	2.935***	5.229***	-0.017	1.255***
	(0.438)	(0.367)	(0.423)	(0.472)	(0.472)	(0.386)	(0.451)
CONSTANT	-36.70***	-32.15***	-40.39***	-40.37***	-66.76***	-2.67	-15.75***
	(4.872)	(4.678)	(5.392)	(6.018)	(6.018)	(4.308)	(5.748)
Firm FE	YES	YES	YES	YES	YES	YES	YES
Observations[(1)]	20,705	20,620	20,658	20,396	20,730	20,450	20,938
pseudo-R^2	0.331	0.276	0.254	0.202	0.335	0.296	0.337
Log-Likelihood	-8823	-10073	-8616	-6270	-7701	-9526	-9494

[(1)] I lose some observations when regressing each type of specific reactions because STATA automatically omits observations that predict failure perfectly.

Notes Table 2.6 reports the results analysing stakeholder reactions to CSR hypocrisy disclosures used in Facebook posts. Panel A presents the results from regressing the number of likes (Column 1), the number of shares (Column 2), and the number of comments (Column 3) for each post on the CSR hypocrisy disclosure strategy (talk, decisions, or actions) used in the post. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors. Panel B presents the results from regressing the likelihood of receiving at least one 'love' emoticon (Column 1), a 'wow' emoticon (column 2), a 'haha' emoticon (Column 3), a 'sad' emoticon (Column 4), an 'angry' emoticon (Column 5), a positive comment (Column 6), or a negative comment (Column 7) in each post on the organised hypocrisy disclosure strategy (talk, decision, or action) used in the post. The table reports logistic coefficient estimates and (in brackets) robust standard errors. All variables are defined in Table 1.1. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

When analysing how stakeholders respond by sharing posts (Column 2), the results show that *ACTIONS* attracts more shares than the baseline (β = 0.535, p < .01). *TALK*, however, shows a significant negative association (β = -0.120, p < .10) with an IRR of 0.89, suggesting CSR talk disclosures attract 0.89 times fewer shares than the baseline. No significant association is found between *SHARES* and *DECISIONS*.

Column 3 examines how stakeholders reacted with written comments. Consistent with the results in the previous two columns, *ACTIONS* attracts more comments from stakeholders than the baseline (β = 0.449, p < .01), suggesting that stakeholders are more willing to debate and discuss on corporate CSR actions disclosures. In contrast, *TALK* and *DECISIONS* are negatively and significantly associated with *COMMENTS*, where *TALK* has a coefficient of - 0.270 (IRR = 0.76, p < .01), and *DECISIONS* has a coefficient of - 0.267 (IRR = 0.77, p < .05). The significant negative effects of *TALK* and *DECISIONS* on the number of comments may suggest two possibilities: (1) stakeholders think CSR talk and decisions disclosures are symbolic and convey little information about decision-making. Therefore, stakeholders are less willing to comment on them; or (2) corporate CSR talk and decisions disclosures are normally consistent with social norms. Because people tend to live in a “culture of hope” (Brunsson, 2006, p. 185), they often agree with prosocial values and goals that are desirable and worthy of pursuit. Consequently, people are less likely to criticise a goal that everyone is hoping to achieve. In this case, if stakeholders perceive that corporate CSR commitments and decisions are congruent with societal expectations, there is a lower likelihood of receiving negative comments. These two possibilities will be tested in later analyses.

In terms of the control variables, the length of disclosures and the presence of visual contents in a post have significant impacts on all three general reaction measures. The significant association between *CHARACTER_LOG* and general reactions confirms "the length implies strength" hypothesis (Chaiken & Eagly, 1989). The strong effect of *VISUALS* on reactions are consistent with findings in Saxton and Waters (2014) where visual content is also informative. Visual content can also create a stronger framing effect on opinions and behaviours than text (Powell et al., 2015; Vinnari & Laine, 2017). A significant and positive association is found between *COMMENTS* and *HASHTAGS*, which is consistent with the expectation that hashtags are used in social media to initiate discussions (Saxton et al., 2019).

2.5.3.2 Stakeholder Specific Reactions on CSR Hypocrisy Disclosures

Table 2.6 Panel B presents the Logit regression results for testing H1 and H2. Columns 1 to 3 report the relationships between CSR hypocrisy disclosures and positive emoticons (i.e. *LOVE*, *HAHA* and *WOW*). In Column 1, *ACTIONS, TALK* and *DECISIONS* show significant and positive effects on *LOVE*. Specifically, the odds of *ACTIONS* receiving *LOVE* is 3.117[11] (β = 1.136, p < .01) suggesting that whenever a company posts a CSR actions disclosure, the odds that stakeholders respond with a 'love' emoticon is 211.7% higher than responding to a non-actions disclosure. In Columns 2 and 3, *ACTIONS* still shows a significant and positive effect on *WOW* and *HAHA*. The odds of *ACTIONS* receiving *WOW* is 2.096 (β = 0.739) and receiving *HAHA* is 1.533 (β = 0.427), suggesting that people are impressed with corporate CSR actions disclosures. However, the effects of *TALK* on *WOW* and *HAHA* become

[11] The odds ratio of logit regression is computed as the exponential of the coefficients.

negative and significant at the 1% level, while the effect of *DECISIONS* on these two emoticons are no longer significant, suggesting that stakeholders are less impressed with what companies say and the decisions they make regarding CSR commitments.

Columns 4 and 5 report the effects of CSR hypocrisy disclosures on negative emoticons (i.e. *SAD* and *ANGRY*). In both columns, it is highly likely that *ACTIONS* receives *SAD* (β = 0.691, p < .01) and *ANGRY* (β = 0.627, p < .01), indicating that there are diverse stakeholder emotions expressed towards CSR actions disclosures, and some stakeholders even feel disappointed or dissatisfied with what companies have done. However, *TALK* is less likely to receive both *SAD* (β = -0.233, p < .01) and *ANGRY* (β = -0.156, p < .05), while *DECISIONS* is more likely to receive *ANGRY* (β = 0.27, p < .05), but not *SAD*. The negative effect of *TALK* on negative emoticons is consistent with the findings on *LOVE*, suggesting that stakeholders welcome corporate CSR talk disclosures. However, the consistent sign between *DECISION*S and *ACTIONS* on *ANGRY* may imply that stakeholders who believe the causality between decisions and actions may think decisions disclosures increase the likelihood of corresponding actions, hence exhibiting strong opposition towards decisions disclosures.

Columns 6 and 7 report the effects of hypocrisy disclosures on the likelihood of receiving positive and negative comments. In both columns, it is likely that *ACTIONS* receive both a positive comment (*POSCOMMENT*) and a negative comment (*NEGCOMMENT*): these are both positive and significant at the 1% level. Consistent with the results found in emoticons, the likelihood of *ACTIONS* receiving a positive comment is also higher than receiving a negative

comment, suggesting that, although stakeholders have divergent opinions on corporate CSR actions disclosures, people tend to compliment what companies have done rather than criticise them. In addition, *TALK* is significantly and negatively associated with *NEGCOMMENT* ($p < .01$), but not significantly related with *POSCOMMENT*. *DECISIONS* is not related to either *POSCOMMENT* or *NEGCOMMENT*. Overall, the findings suggest that there is an association between stakeholder reactions and CSR talk and decisions disclosures, which implies that talk and decisions disclosures can satisfy stakeholder demands as they are more likely to attract positive reactions. The lower likelihood of receiving negative comments confirms the previous speculation in which the lower number of comments received by *TALK* is mainly driven by a decrease in negative comments. Overall, the results support both H1 and H2a/b.

2.5.3.3 CSR Actions Disclosures versus CSR Talk and Decisions Disclosures

Equation 2.2 was used to test H3 as to whether the intensity of stakeholder reactions on CSR actions disclosures is greater than CSR talk and decision disclosures. The model only considers CSR-related posts and uses *TALK* and *DECISIONS* as the baseline to examine the effects of *ACTIONS* on both general and specific stakeholder reactions.

Table 2.7 Panel A presents the effects of *ACTIONS* on stakeholder general reactions. In all three columns, *ACTIONS* shows a significant and positive association with each of the general reactions, suggesting *ACTIONS* receives more likes, shares and comments than *TALK* and *DECISIONS*. These results confirm H3 and indicate that the intensity of stakeholder general reactions on CSR actions disclosure is greater than those on CSR talk and

decisions disclosures. The findings suggest that stakeholders tend to have more general approvals and higher resonance towards what companies have done. Because corporate CSR actions may meet some stakeholder demands while compromising others, CSR actions disclosures tend to attract more debates and discussions among stakeholders.

In terms of control variables, only *VISUALS* has a significant effect on all three general reactions (all at 1% level), suggesting that the presence of photos and videos can influence stakeholder perceptions towards corporate CSR disclosures. The significant effects of *HASHTAGS* on *SHARES* and *COMMENTS* suggest that when a company post includes a hashtag, the topic becomes more explicit and the information has better quality in meeting stakeholder information needs (Saxton et al., 2019). As a result, people are more likely to share this high-quality information and to participate in the discussions.

Panel B presents the Logit regression results examining stakeholder specific reactions to CSR actions disclosures. In accordance with H3, *ACTIONS* has stronger effects on all specific reactions than *TALK* and *DECISIONS*. Among these emoticons, the odds of receiving *LOVE* and *HAHA* are similar, but the odds of receiving *WOW* is 2.729 (β = 1.004, p < .01). The high likelihood of receiving *WOW* suggests that stakeholders are more impressed when reading what companies have done rather than what they are saying or decisions made on CSR issues. In terms of negative emotions, *ACTIONS* is also more likely to attract negative emoticons than *TALK* and *DECISIONS*, suggesting *ACTIONS* may not be able to meet divergent stakeholder demands completely as there is a high likelihood that certain

stakeholders will feel disappointed or dissatisfied. With regards to the sentiment of comments, although *ACTIONS* has a higher likelihood of receiving both *POSCOMMENT* (β = 0.588, $p < .01$) and *NEGCOMMENT* (β = 0.707, $p < .01$) than *TALK* and *DECISIONS*, the likelihood of receiving a *NEGCOMMENT* is higher than receiving a *POSCOMMENT*. This finding suggests that stakeholders are more likely to write negative comments under CSR actions disclosures than under CSR talk or decisions disclosures, further confirming the mitigation effect of CSR talk and decisions disclosures on negative stakeholder concerns.

With regard to the control variables, *SIZE* increases the likelihood of receiving both positive (*LOVE* and *WOW*) and negative emoticons (*SAD* and *ANGRY*), implying that larger firms tend to face more divergent, and sometimes conflicting, stakeholder interests. Overall, these results support H3 and suggest that the intensity of stakeholder reactions is greater for actions disclosures than talk and decisions disclosures.

Table 2.7 Intensity of Stakeholder Reaction on CSR Hypocrisy Disclosures

Panel A. Negative binomial regressions between general reactions and CSR actions disclosures

	Dependent Variable: STAK_REACTIONS		
	LIKES	SHARES	COMMENTS
	(1)	(2)	(3)
ACTIONS	**0.941*** **	**0.777*** **	**0.791*** **
	(0.065)	**(0.060)**	**(0.059)**
CHARACTER_LOG	0.008	-0.009	0.080
	(0.046)	(0.053)	(0.054)
VISUALS	0.136**	0.199***	0.300***
	(0.057)	(0.065)	(0.059)
URL	-0.089	-0.093	-0.006
	(0.056)	(0.058)	(0.061)
HASHTAG	0.038	0.123*	0.168***
	(0.058)	(0.064)	(0.062)
SIZE	0.750	0.312	0.386
	(0.494)	(0.510)	(0.510)
CONSTANT	-6.479	-2.938	-6.744
	(5.516)	(5.657)	(5.680)
Firm FE	YES	YES	YES
Observations	7,104	7,104	7,104
pseudo-R^2	0.110	0.097	0.125
Log-Likelihood	-43650	-30306	-20795

Panel B. Logit regressions between specific reactions and CSR hypocrisy actions disclosures

	Dependent Variable: STAK_REACTIONS						
	LOVE	WOW	HAHA	SAD	ANGRY	POSCOMMENT	NEGCOMMENT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ACTIONS	**0.864*** **	**1.004*** **	**0.858*** **	**0.964*** **	**0.790*** **	**0.588*** **	**0.707*** **
	(0.079)	**(0.071)**	**(0.083)**	**(0.098)**	**(0.087)**	**(0.070)**	**(0.073)**
CHARACTER_LOG	-0.064	0.001	-0.060	0.142	-0.227**	0.172**	0.055
	(0.071)	(0.071)	(0.089)	(0.103)	(0.095)	(0.070)	(0.077)
VISUALS	0.301***	0.267***	0.078	-0.056	0.036	0.154**	0.092
	(0.077)	(0.074)	(0.094)	(0.109)	(0.094)	(0.070)	(0.076)
URL	-0.222***	-0.033	-0.101	0.001	0.173*	-0.157**	0.098
	(0.078)	(0.076)	(0.097)	(0.107)	(0.092)	(0.072)	(0.079)
HASHTAG	0.044	-0.090	0.157*	0.093	-0.070	-0.032	0.006
	(0.071)	(0.071)	(0.094)	(0.113)	(0.092)	(0.066)	(0.077)
SIZE	1.875***	1.777***	0.932	1.890**	3.281***	0.200	0.773
	(0.620)	(0.536)	(0.652)	(0.804)	(0.780)	(0.524)	(0.645)
CONSTANT	-22.01***	-22.96***	-12.91	-27.47***	-41.18***	-5.42	-9.95
	(6.893)	(6.849)	(8.318)	(10.242)	(9.923)	(5.848)	(8.220)
Firm FE	YES	YES	YES	YES	YES	YES	YES
Observations[(1)]	6,929	6,888	6,693	6,554	6,574	6,876	6,878
pseudo-R^2	0.289	0.227	0.229	0.204	0.289	0.233	0.284
Log-Likelihood	-3247	-3351	-2283	-1714	-2258	-3640	-3013

[(1)] I lose some observations when regressing each type of specific reactions because STATA automatically omits observations that predict failure perfectly.

Notes Table 2.7 reports the results for the intensity of stakeholder reactions to actions disclosures in CSR posts. Panel A presents the results from regressing the number of likes (Column 1), the number of shares (Column 2), and the number of comments (Column 3) in each CSR post on the hypocrisy action strategy used in the post. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors, where the baseline effect is the effect of hypocrisy talk and decisions disclosure strategies on each stakeholder general reaction. Panel B presents the results from regressing the likelihood of receiving a 'love' emoticon (column 1), a 'wow' emoticon (Column 2), a 'haha' emoticon (Column 3), a 'sad' emoticon (Column 4), an 'angry' emoticon (Column 5), a positive comment (Column 6), and a negative comment (Column 7) in each post on the hypocrisy action strategy used in the post. The table reports logistic coefficient estimates and (in brackets) robust standard errors, where the baseline effect is the effect of hypocrisy talk and decisions disclosure strategies on each stakeholder specific reaction. All variables are defined in Table 1.1 and 1.2. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

2.5.3.4 Stakeholder General Reactions and Façade Disclosures

Equation 2.3 was used to test H4 and ascertains whether there is a pecking order effect of the three façades on stakeholder reactions. The model only considers CSR-related posts and uses rational façade disclosures as the baseline.

Table 2.8 Panel A presents the NB regression results examining general stakeholder reactions to CSR progressive and reputational façade disclosures. The results show that *PROGRESSIVE* is only positively and significantly associated with *LIKES.* Its effects on *SHARES* and *COMMENTS* are positive but insignificant. The effects of *REPUTATIONAL* on all three general reactions are negative but insignificant. These two findings suggest that the effects of reputational façade disclosures on likes, shares and comments are similar to those in rational façade disclosures, but progressive façade disclosures receive more likes than the other two. When comparing the effects between *PROGRESSIVE* and *REPUTATIONAL*, the differences between two coefficients on all three reactions are significant, suggesting that although *PROGRESSIVE* and *REPUTATIONAL* may not have much difference in receiving the number of shares and comments comparing to *RATIONAL*, there is a clear pecking order on the number of likes between the two.

Table 2.8 Intensity of Stakeholder Reaction on CSR Façade Disclosures

Panel A. Negative binomial regressions between general reactions and CSR progressive and reputational façade disclosures

	Dependent Variable: STAK_REACTIONS		
	LIKES	SHARES	COMMENTS
	(1)	(2)	(3)
PROGRESSIVE	**0.190****	0.098	0.109
	(0.092)	(0.098)	(0.098)
REPUTATIONAL	0.050	-0.064	-0.084
	(0.094)	(0.095)	(0.090)
CHARACTER_LOG	0.124**	0.077	0.180***
	(0.049)	(0.053)	(0.056)
VISUALS	0.223***	0.259***	0.398***
	(0.062)	(0.066)	(0.063)
URL	-0.150**	-0.141**	-0.051
	(0.064)	(0.060)	(0.062)
HASHTAG	0.062	0.147**	0.201***
	(0.062)	(0.066)	(0.067)
SIZE	0.652	0.675	0.476
	(0.502)	(0.536)	(0.552)
CONSTANT	-5.937	-7.252	-8.085
	(5.632)	(5.959)	(6.140)
Firm FE	YES	YES	YES
Observations	7,104	7,104	7,104
pseudo-R^2	0.102	0.0923	0.117
Log-Likelihood	-44040	-30516	-20987
Within Regression F Test			
PROGRESSIVE = REPUTATIONAL	4.89**	6.26**	9.34***

Panel B. Logit regressions between specific reactions and CSR progressive and reputational façade disclosures

	Dependent Variable: STAK_REACTIONS						
	LOVE (1)	WOW (2)	HAHA (3)	SAD (4)	ANGRY (5)	POSCOMMENT (6)	NEGCOMMENT (7)
PROGRESSIVE	**0.366*** **	**0.281** **	-0.0162	0.199	0.0124	-0.154	-0.0255
	(0.129)	**(0.133)**	(0.177)	(0.223)	(0.156)	(0.117)	(0.127)
REPUTATIONAL	**0.348*** **	-0.0728	-0.0622	-0.104	**-0.436*** **	-0.173	**-0.389*** **
	(0.122)	(0.129)	(0.173)	(0.219)	**(0.150)**	(0.110)	**(0.122)**
CHARACTER_LOG	0.0354	0.106	0.0408	0.247**	-0.111	0.247***	0.131*
	(0.0706)	(0.0700)	(0.0852)	(0.0973)	(0.0928)	(0.0688)	(0.0757)
VISUALS	0.342***	0.352***	0.142	0.0280	0.123	0.195***	0.163**
	(0.0765)	(0.0736)	(0.0920)	(0.107)	(0.0927)	(0.0693)	(0.0757)
URL	-0.270***	-0.128*	-0.157*	-0.0885	0.0723	-0.201***	0.0261
	(0.0771)	(0.0750)	(0.0954)	(0.105)	(0.0910)	(0.0723)	(0.0796)
HASHTAG	0.0267	-0.0817	0.146	0.0920	-0.0424	-0.0339	0.0287
	(0.0698)	(0.0705)	(0.0934)	(0.113)	(0.0916)	(0.0657)	(0.0763)
SIZE	1.900***	1.797***	0.986	1.897**	3.241***	0.218	0.750
	(0.620)	(0.532)	(0.651)	(0.814)	(0.772)	(0.528)	(0.644)
CONSTANT	-22.90***	-23.49***	-13.77*	-27.73***	-40.85***	-5.665	-9.673
	(6.893)	(6.798)	(8.311)	(10.38)	(9.823)	(5.890)	(8.205)
Firm FE	YES	YES	YES	YES	YES	YES	YES
Observations(1)	6,929	6,888	6,693	6,554	6,574	6,876	6,878
pseudo-R^2	0.276	0.207	0.212	0.184	0.280	0.226	0.277
Log-Likelihood	-3306	-3440	-2334	-1758	-2286	-3675	-3045
Within Regression F Test							
PROGRESSIVE = *REPUTATIONAL*	0.06	24.86***	0.26	8.28***	25.18***	0.08	22.84***

(1) I lose some observations when regressing each type of specific reactions because STATA automatically omits observations that predict failure perfectly.

Notes Table 2.8 reports the results for the intensity of stakeholder reactions to progressive and reputational façade in CSR posts. Panel A presents the results from regressing the number of likes (Column 1), the number of shares (Column 2), and the number of comments (Column 3) in each CSR post on the progressive and reputational façade used in the post. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors, where the baseline effect is the effect of rational façade strategy on each stakeholder general reaction. Panel B presents the results from regressing the likelihood of receiving a 'love' emoticon (Column 1), a 'wow' emoticon (Column 2), a 'haha' emoticon (Column 3), a 'sad' emoticon (Column 4), an 'angry' emoticon (Column 5), a positive comment (Column 6), and a negative comment (Column 7) in each post on the progressive and reputational façade used in the post. The table reports logistic coefficient estimates and (in brackets) robust standard errors, where the baseline effect is the effect of rational façade strategy on each stakeholder specific reaction. All variables are defined in Table 1.1 and 1.2. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

Panel B shows the Logit regression results examining stakeholder specific reactions to CSR progressive and reputational façade disclosures. The results show that the likelihood of receiving *LOVE* is significant for both *PROGRESSIVE* and *REPUTATIONAL*, indicating that, compared to CSR rational façade disclosures, stakeholders are more likely to react with a 'love' towards CSR progressive and reputational façade disclosures. However, there is no significant difference between *PROGRESSIVE* and *REPUTATIONAL*, suggesting that stakeholders react similarly to these two façade disclosures. In Column 2*, PROGRESSIVE* is more likely to receive *WOW* compared to both *REPUTATIONAL* and *RATIONAL* with an odds ratio of 1.324 (β = 0.281, p < .05). In Columns 3 and 6, *PROGRESSIVE* and *REPUTATIONAL* have no significant effect on *HAHA* and *POSCOMMENT*.

In Column 4, although *PROGRESSIVE* has no significant effect on *SAD* comparing to *RATIONAL*, it is more likely to receive *SAD* than *REPUTATIONAL*. This may be due to the fact that reputational façade disclosures are used to construct positive corporate images, so they are less likely to provoke negative stakeholder reactions. The mitigation effect of reputational façade disclosures on negative reactions is also observed in *ANGRY* (Column 5) and *NEGCOMMENT* (Column 7). Although *PROGRESSIVE* does not show a significant effect on *ANGRY* and *NEGCOMMENT* compared to *RATIONAL*, *REPUTATIONAL* has the least likelihood of receiving both negative reactions among the three. Combining this mitigation effect with its positive effect on *LOVE*, *REPUTATIONAL* has a stronger effect in reducing stakeholder negative reactions. In contrast, although *PROGRESSIVE* has a stronger effect on the number of likes and the likelihood

of receiving ‘wow’ comparing to the other two, it is also more likely to attract negative reactions from stakeholders than *REPUTATIONAL*, suggesting the progressive façade may share the effects of both reputational and rational façades on stakeholder reactions.

Overall, H4a is partially supported as reputational façade disclosures are more likely than rational façade disclosures to attract positive emoticons and less likely to attract negative ones. H4b is also partially supported as progressive façade disclosures exhibit the strongest effect on the number of likes and the likelihood of receiving ‘wow’ reactions.

2.5.4 Additional Analyses

2.5.4.1 Firm Responses to Stakeholder Reactions

Thus far, the study has examined how stakeholders perceive hypocrisy and façade disclosures on Facebook, and the results show that actions disclosures and progressive façade disclosures attract diverse reactions, especially more negative responses than other types of disclosure. Since stakeholders are able to write comments and express their opinions under a post, it is also interesting to look at the dynamism occurring between stakeholder comments and company replies as this can reflect a company’s approach towards stakeholder engagement. As a result, a post hoc research question has been added which examines how stakeholder reactions trigger subsequent corporate responses. To answer this question, the study focusses on CSR-related posts, the sample being grouped according to the following disclosure types: (1) actions disclosures, (2) talk or decisions disclosures, (3) progressive façade disclosures, and (4) rational or reputational façade

disclosures. Corporations tend not to reply to comments in most cases, but when they do, there is a significant difference between a post that receives a reply and a post that does not. As a result, a dummy variable (*REPLY*) is created to measure the likelihood that a company replies to at least one comment under a post. The Logit model is used to analyse company replies to stakeholder reactions following each type of disclosure, and is specified as follows:

$$REPLY = \beta_0 + \beta_1 EMOTION\_SENTIMENT + \beta_2 COMMENT\_SENTIMENT + \beta_3 EMOTIONS\_LOG + \beta_4 COMMENTS\_LOG + Firm\ Fixed\ Effect + Week\ Fixed\ Effect + \varepsilon \quad (2.4)$$

REPLY is a dummy variable which is set to one if a post has at least one firm reply and zero otherwise. *EMOTION_SENTIMENT* measures the level of stakeholder specific reactions after reading a post. The variable is computed using the Janis-Fadner coefficient of imbalance (Aerts & Cormier, 2009; Bansal & Clelland, 2004; Janis & Fadner, 1943). *EMOTION_SENTIMENT* ranges from -1 to +1 and a higher coefficient, suggesting the presence of more positive specific reactions (the sum of the number of ‘love’, ‘haha’, and ‘wow’ reactions) than negative ones (the sum of the number of ‘sad’ and ‘angry’ reactions). The number of likes is not included because stakeholders may simply click a ‘like’ to show their acknowledgements of the content, which may not reflect their true sentiment. The coefficient is calculated as follows:

Janis-Fadner coefficient =

$$\begin{cases} \frac{(e^2-ec)}{t^2} & \text{if } e > c \\ \frac{(ec-e^2)}{t^2} & \text{if } e < c \\ 0 & \text{if } e = c \end{cases}$$

COMMENT_SENTIMENT measures the sentiment of stakeholder comments after reading a post. It is also calculated using the Janis-Fadner coefficient between the number of positive and negative comments. The logarithm transformation of the number of reactions (*EMOTIONS_LOG*[12]) is used to capture the intensity of stakeholder reactions (the sum of 'likes', 'loves', 'hahas', 'wows', 'sads', and 'angrys'). The logarithm transformation of the number of comments (*COMMENTS_LOG*[13]) is created to control for the intensity of comments. Firm fixed effect is included to control for unobservable firm characteristics. Week fixed effect is also included to capture events that may affect stakeholder sentiments and firm responses during a week.

Table 2.9 presents the results examining corporate post-disclosure responses to stakeholder reactions. Each column presents the effect of sentiment and the intensity of stakeholder emoticons as well as comments on the likelihood to reply. Overall, the results show that the sentiment and intensity of comments have a positive and significant effect on the likelihood to reply, but post-actions disclosures have the smallest effect. This finding suggests that when stakeholders make more comments and especially more positive comments, firms are more likely to reply. The positive effects may imply a

[12] Winsorised at 1% level.
[13] Winsorised at 2% level.

selective stakeholder engagement approach as companies tend to ignore negative comments. This positive effect on the intensity of comments is contrary to expectations because firms are more likely to reply when there are fewer comments as social media officers are less overwhelmed by an explosion of comments and should have more time to communicate with stakeholders. However, the opposite tendency suggests that corporate reply policy serves to manage reputational risk as more comments increase the risks of exposing corporate hypocrisy practices (Bebbington et al., 2008).

In terms of the sentiment and intensity of stakeholder emoticons, *EMOTION_SENTIMENT* has little effect on the likelihood to reply except for post-talk and decision disclosures in which a positive effect is found. Such a result is consistent with the results found in *COMMENT_SENTIMENT*, suggesting that companies only respond to positive reactions. With regard to the intensity of stakeholder emotions, this generally has a negative effect on the likelihood to reply and is only significant after companies post talk or decisions disclosures, and rational or reputational façade disclosures. The negative effect is mainly driven by the intensity of positive emoticons, suggesting that corporations closely monitor stakeholders' positive emotions. Once a large number of stakeholders demonstrates a sufficient amount of positive sentiments, there is no need to respond to comments.

Overall, the results suggest that companies selectively engage with stakeholders. The positive effect of comment sentiments on the likelihood to reply indicates that companies only respond to stakeholders who are complimentary towards companies, while neglecting those who are critical or express concern about corporate CSR practices. Both the intensity of

emoticons and the intensity of comments have a significant effect on corporate responses: this suggests that companies monitor stakeholder perceptions on Facebook for reputational risk and legitimacy purposes rather than using the platform for stakeholder engagement, which is consistent with the results found in Gómez-Carrasco et al. (2017) and Manetti and Bellucci (2016).

Table 2.9 Firm Post-Disclosure Responses to Stakeholder Reactions

	ACTION DISCLOSURE	***TALK & DECISION DISCLOSURE***	***PROGRESSIVE FAÇADE***	***RATIONAL AND REPUTATIONAL FAÇADE***
	Dependent Variable: REPLY			
	(1)	(2)	(3)	(4)
EMOTION_SENTIMENT	-0.130	**0.241***	0.178	0.175
	(0.270)	**(0.132)**	(0.225)	(0.134)
COMMENT_SENTIMENT	**0.417***	**0.358*****	**0.627*****	**0.268****
	(0.221)	**(0.121)**	**(0.202)**	**(0.127)**
EMOTIONS_LOG	-0.022	**-0.202*****	-0.073	**-0.253*****
	(0.137)	**(0.070)**	(0.132)	**(0.069)**
COMMENTS_LOG	**0.962*****	**1.180*****	**0.992*****	**1.259*****
	(0.146)	**(0.080)**	**(0.137)**	**(0.082)**
CONSTANT	-5.964***	-4.931***	-4.252***	-4.821***
	(1.566)	(0.992)	(1.044)	(1.485)
Firm FE	YES	YES	YES	YES
Week FE	YES	YES	YES	YES
Observations	1,316	4,611	1,590	4,341
pseudo-R^2	0.441	0.387	0.350	0.423
Log-Likelihood	-430.8	-1289	-486.9	-1237

Notes Table 2.9 reports the results for the firm replies to the sentiment and intensity of comments and emoticons after posting each type of disclosure. *EMOTION_SENTIMENT* is measured by computing the Janis-Fadner coefficient between the number of positive emoticons (love, haha, and wow) and negative emoticons (sad and angry). *COMMENT_SENTIMENT* is measured by computing the Janis-Fadner coefficient between the number of positive comments and negative ones. *EMOTION_LOG* is the logarithm transformation of the total number of emoticons (like, love, haha, wow, sad, and angry). *COMMENTS_LOG* is the logarithm transformation of the total number of comments. The regression model includes both firm and week fixed effect. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

2.5.4.2 Stakeholder Reactions between Consumer- and Non-Consumer-Facing Industries

It is also possible that the impact of hypocrisy and façade strategies on stakeholder reactions are driven by the types of business and the main stakeholder groups they are dealing with on Facebook. Since retailers and consumer-facing industries are more likely to engage with individual consumers, while business-to-business companies are more likely to deal with stakeholders other than individual consumers on Facebook, it also becomes important to understand how different groups of stakeholders react to corporate CSR hypocrisy and façade disclosures. To perform this analysis, the sample was separated into consumer-facing and non-consumer-facing industries, and then stakeholder reactions to CSR actions disclosures and CSR progressive and reputational façade disclosures are regressed within both industry groups.[14] Table 2.10 presents the results examining stakeholder reactions towards CSR actions disclosures. Panel A shows stakeholder reactions to CSR actions disclosures in consumer-facing industries, while Panel B shows stakeholder reactions in non-consumer facing industries. As per the main results, actions disclosures receive more likes, shares and comments than talk

[14] Consumer facing industries include multi-line insurance, property and casualty insurance, internet and direct marketing retail, consumer finance, diversified banks, pharmaceuticals, cable and satellite, hypermarkets and super centres, drug retail, movies and entertainment, electric utilities, automobile manufacturers, internet software and services, air freight and logistics, home improvement retail, packaged foods and meats, soft drinks, data processing and outsourced services, life and health insurance, consumer oriented system software, footwear, restaurants, retail REITs, integrated telecommunication services, general merchandise stores and managed healthcare.
Non-consumer facing industries include biotechnology, healthcare equipment, IT consulting and other services, aerospace and defence, asset management custody banks, construction machinery and heavy trucks, oil and gas exploration and production, communication equipment, integrated oil and gas, diversified chemicals, electrical components and equipment, industrial conglomerates, investment banking and brokerage, oil and gas equipment and services, semiconductors, oil and gas storage and transportation, fertilizers and agricultural chemicals, business oriented systems software and railroads.

and decisions disclosures within both industries. Similarly, CSR actions disclosures are more likely than talk and decisions disclosures to receive all types of specific reactions from both consumer-facing and non-consumer facing industries. These results suggest that stakeholders tend to have divergent views on actions disclosures regardless of industry types.

Table 2.10 Stakeholder Reactions on CSR Hypocrisy Disclosures between Consumer and Non-Consumer Facing Industries

Panel A. Stakeholder Reactions on CSR Hypocrisy Actions Disclosures from Consumer Facing Industries

	Dependent Variable: STAK_REACTIONS									
	LIKES	SHARES	COMMENTS	LOVE	WOW	HAHA	SAD	ANGRY	POSCOMMENT	NEGCOMMENT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ACTIONS	**1.033*** **	**0.803*** **	**0.714*** **	**1.020*** **	**0.926*** **	**0.946*** **	**0.785*** **	**0.667*** **	**0.530*** **	**0.630*** **
	(0.093)	**(0.082)**	**(0.082)**	**(0.121)**	**(0.105)**	**(0.120)**	**(0.131)**	**(0.125)**	**(0.107)**	**(0.104)**
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations[(1)]	3,212	3,212	3,212	2,957	2,975	2,947	2,906	2,919	2,904	2,965
pseudo-R^2	0.120	0.105	0.119	0.311	0.223	0.269	0.197	0.310	0.246	0.276
Log-Likelihood	-20164	-14240	-10658	-1311	-1466	-1041	-936.2	-1104	-1502	-1424

Panel B. Stakeholder Reactions on CSR Hypocrisy Actions Disclosures from Non-Consumer Facing Industries

	LIKES	SHARES	COMMENTS	LOVE	WOW	HAHA	SAD	ANGRY	POSCOMMENT	NEGCOMMENT
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ACTIONS	**0.859*** **	**0.735*** **	**0.850*** **	**0.751*** **	**1.074*** **	**0.771*** **	**1.168*** **	**0.905*** **	**0.658*** **	**0.774*** **
	(0.086)	**(0.085)**	**(0.085)**	**(0.106)**	**(0.099)**	**(0.116)**	**(0.150)**	**(0.124)**	**(0.093)**	**(0.105)**
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations[(1)]	3,892	3,892	3,892	3,892	3,833	3,666	3,568	3,575	3,892	3,833
pseudo-R^2	0.0761	0.0934	0.110	0.282	0.238	0.190	0.193	0.264	0.226	0.276
Log-Likelihood	-23443	-16012	-10119	-1870	-1827	-1222	-755.8	-1084	-2087	-1543

[(1)] I lose some observations when regressing each type of specific reactions because STATA automatically omits observations that predict failure perfectly.

Notes Table 2.10 reports the results on stakeholder reactions on CSR hypocrisy disclosures used in Facebook posts between consumer and non-consumer facing industries. Consumer facing industries include multi-line insurance, property and casualty insurance, internet and direct marketing retail, consumer finance, diversified banks, pharmaceuticals, cable and satellite, hypermarkets and super centres, drug retail, movies and entertainment, electric utilities, automobile manufacturers, internet software and services, air freight and logistics, home improvement retail, packaged foods and meats, soft drinks, data processing and outsourced services, life and health insurance, system software, footwear, restaurants, retail REITs, integrated telecommunication services, general merchandise stores, and managed healthcare. Panel A/B presents the results from regressing the number of likes (Column 1), the number of shares (Column 2), and the number of comments (Column 3) for each post on the CSR hypocrisy actions disclosure strategy in the post from consumer facing/non-consumer facing industries. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors. Panel A also presents the results from regressing the likelihood of receiving at least one 'love' emoticon (Column 1), a 'wow' emoticon (Column 2), a 'haha' emoticon (Column 3), a 'sad' emoticon (Column 4), an 'angry' emoticon (Column 5), a positive comment (Column 6), or a negative comment (Column 7) in each post on the organised hypocrisy actions disclosure strategy used in the post. The table reports logistic coefficient estimates and (in brackets) robust standard errors. Control variables are omitted for brevity and are the same as in Table 7. All variables are defined in Table 1.1 and 1.2. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

Table 2.11 presents the results examining stakeholder reactions towards CSR progressive and reputational façade disclosures. Panel A shows stakeholder reactions to CSR progressive and reputational façade disclosures in consumer-facing industries, while Panel B shows stakeholder reactions in non-consumer facing industries. The effects of *REPUTATIONAL* on stakeholder reactions are consistent with the main findings wherein the reputational façade is more likely to attract the 'love' emoticon than rational façade disclosures, and less likely to attract an 'angry' reaction and negative comments than both rational and progressive façade disclosures. This suggests that stakeholder groups from different industries tend to have similar reactions towards reputational façade disclosures. In addition, the results show that reputational façade disclosures receive fewer comments in consumer-facing industries, suggesting individual consumers tend to react with emoticons instead of commenting under the posts.

In terms of progressive façade disclosures, the results show that *PROGRESSIVE* attracts more general and specific reactions from stakeholders in non-consumer-facing industries, while such effects, except 'love' reactions, are not significant in consumer-facing industries. This may imply that different types of stakeholder, possibly employees, investors, activists and institutional clients engage with companies on social media, indicating that social media is a place where divergent stakeholder interests are present.

Table 2.11 Stakeholder Reactions on CSR Façade Disclosures between Consumer and Non-Consumer Facing Industries

Panel A. Stakeholder Reactions on CSR Progressive and Reputational Façade Disclosures from Consumer Facing Industries

	Dependent Variable: STAK_REACTIONS									
	LIKES	SHARES	COMMENTS	LOVE	WOW	HAHA	SAD	ANGRY	POSCOMMENT	NEGCOMMENT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
PROGRESSIVE	0.060	-0.124	-0.123	**0.413***	0.190	0.038	-0.443	-0.007	-0.210	-0.045
	(0.177)	(0.118)	(0.143)	**(0.215)**	(0.233)	(0.330)	(0.325)	(0.272)	(0.194)	(0.201)
REPUTATIONAL	-0.105	-0.085	**-0.267****	**0.467****	-0.076	-0.061	**-0.698****	**-0.647****	**-0.369****	**-0.328***
	(0.189)	(0.114)	**(0.130)**	**(0.206)**	(0.226)	(0.319)	**(0.310)**	**(0.261)**	**(0.185)**	**(0.192)**
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations[(1)]	3,212	3,212	3,212	3,037	3,055	3,027	2,986	2,999	2,984	3,045
pseudo-R^2	0.111	0.0978	0.113	0.288	0.198	0.249	0.186	0.301	0.238	0.265
Log-Likelihood	-20372	-14356	-10734	-1390	-1552	-1085	-962.9	-1157	-1555	-1478
Within Regression F Test *(Progressive = Reputational)*	4.02**	0.24	2.34	0.26	6.12**	0.53	3.03*	25.07***	2.4	6.66***

Panel B. Stakeholder Reactions on CSR Progressive and Reputational Façade Disclosures from Non-Consumer Facing Industries

	LIKES	SHARES	COMMENTS	LOVE	WOW	HAHA	SAD	ANGRY	POSCOMMENT	NEGCOMMENT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
PROGRESSIVE	**0.290*****	**0.273****	**0.267****	**0.358****	**0.345****	-0.042	**0.743****	-0.046	-0.131	-0.002
	(0.092)	**(0.136)**	**(0.130)**	**(0.164)**	**(0.163)**	(0.209)	**(0.324)**	(0.193)	(0.147)	(0.166)
REPUTATIONAL	**0.174****	-0.029	0.032	**0.287***	-0.073	-0.052	0.401	**-0.324***	-0.036	**-0.441*****
	(0.082)	(0.134)	(0.121)	**(0.154)**	(0.157)	(0.207)	(0.322)	**(0.186)**	(0.137)	**(0.159)**
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations[(1)]	3,892	3,892	3,892	3,892	3,833	3,666	3,568	3,575	3,892	3,833
pseudo-R^2	0.0689	0.0886	0.100	0.273	0.217	0.175	0.165	0.248	0.217	0.268
Log-Likelihood	-23625	-16097	-10232	-1895	-1878	-1243	-782.2	-1107	-2112	-1560
Within Regression F Test *(Progressive = Reputational)*	1.64	10.71***	7.94***	0.53	19.44***	0.01	5.02**	4.7**	1.04	17.25***

[(1)] I lose some observations when regressing each type of specific reactions because STATA automatically omits observations that predict failure perfectly.

Notes Table 2.11 reports the results on stakeholder reactions on CSR façade disclosures used in Facebook posts between consumer and non-consumer facing industries. Panel A/B presents the results from regressing the number of likes (Column 1), the number of shares (Column 2), and the number of comments (Column 3) for each post on the CSR progressive and reputational façade disclosure strategy in the post from consumer facing/non-consumer facing industries. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors. Panel A also presents the results from regressing the likelihood of receiving at least one 'love' emoticon (Column 1), a 'wow' emoticon (Column 2), a 'haha' emoticon (Column 3), a 'sad' emoticon (Column 4), an 'angry' emoticon (Column 5), a positive comment (Column 6), or a negative comment (Column 7) in each post on progressive and reputational façade used in the post. The table reports logistic coefficient estimates and (in brackets) robust standard errors. Within regression F test is performed by testing the difference between progressive and reputational coefficients. Control variables are omitted for brevity and are the same as in Table 8. All variables are defined in Table 1.1 and 1.2. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

2.5.4.3 Robustness Test

To eliminate the possibility that some days may have more significant effects on stakeholder reactions, additional robustness tests to control for day characteristics are conducted. The results shown in Table 2.12 are largely consistent with the main analysis, as the coefficients of independent variables changed only slightly and none of the directions is reversed. This leads to the conclusion that the day characteristic has no impact on findings.

To eliminate the possibility that the findings were driven by model specification (NB and Logit model), OLS was also used to verify the results. In the OLS model, the logarithm transformation of stakeholder reactions were used as the dependent variables due to its heavily positive skew. Overall, the results shown in Table 2.13 are largely consistent with the ones in the main analyses. Therefore, the findings are not affected by model specifications.

Table 2.12 Robustness Test on Stakeholder Reactions and CSR Hypocrisy and Façade Disclosures with Day Fixed Effect

Panel A. Stakeholder Reactions and CSR Hypocrisy Disclosures with Day Fixed Effect

	Dependent Variable: STAK_REACTIONS									
	LIKES	SHARES	COMMENTS	LOVE	WOW	HAHA	SAD	ANGRY	POSCOMMENT	NEGCOMMENT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ACTIONS	0.750***	0.562***	0.479***	1.140***	0.717***	0.408***	0.676***	0.614***	0.675***	0.352***
	(0.0534)	(0.0525)	(0.0519)	(0.0804)	(0.0728)	(0.0783)	(0.0914)	(0.0841)	(0.0723)	(0.0734)
TALK	-0.0649*	-0.107***	-0.192***	0.367***	-0.238***	-0.387***	-0.233***	-0.134**	0.0808	-0.289***
	(0.0375)	(0.0401)	(0.0404)	(0.0543)	(0.0537)	(0.0641)	(0.0795)	(0.0670)	(0.0512)	(0.0548)
DECISIONS	-0.00815	0.101	-0.182**	0.265**	-0.111	-0.193	-0.163	0.242*	0.0628	-0.158
	(0.0829)	(0.0834)	(0.0782)	(0.111)	(0.112)	(0.135)	(0.158)	(0.137)	(0.102)	(0.117)
CHARACTER_LOG	0.0527***	0.199***	0.126***	-0.0776***	0.0481**	0.0338	0.0297	-0.0402*	0.0674***	0.0704***
	(0.0131)	(0.0221)	(0.0141)	(0.0213)	(0.0194)	(0.0208)	(0.0262)	(0.0217)	(0.0198)	(0.0199)
VISUALS	0.320***	0.361***	0.486***	0.471***	0.391***	0.439***	0.165**	0.150***	0.275***	0.216***
	(0.0342)	(0.0346)	(0.0326)	(0.0488)	(0.0463)	(0.0542)	(0.0644)	(0.0559)	(0.0450)	(0.0471)
URL	-0.155***	-0.259***	-0.257***	-0.305***	-0.149***	-0.178***	-0.102*	-0.0405	-0.195***	-0.139***
	(0.0375)	(0.0388)	(0.0355)	(0.0518)	(0.0475)	(0.0521)	(0.0615)	(0.0553)	(0.0486)	(0.0492)
HASHTAG	0.0983***	0.107***	0.120***	0.197***	0.0283	0.149***	0.122**	0.0182	-0.00413	0.0278
	(0.0349)	(0.0351)	(0.0338)	(0.0454)	(0.0439)	(0.0482)	(0.0588)	(0.0509)	(0.0428)	(0.0450)
SIZE	1.001***	0.888**	0.684**	0.308	0.935**	1.453***	1.631***	3.155***	-0.690*	0.224
	(0.306)	(0.352)	(0.344)	(0.448)	(0.390)	(0.475)	(0.542)	(0.528)	(0.419)	(0.494)
CONSTANT	-8.699**	-8.671**	-8.524**	-5.051	-12.91**	-20.31***	-20.90***	-40.10***	6.242	0.410
	(3.386)	(3.934)	(3.826)	(5.026)	(5.037)	(6.093)	(6.922)	(6.805)	(4.713)	(6.323)
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Date FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations[(1)]	21,166	21,166	21,166	20,702	20,614	20,646	20,219	20,721	20,449	20,933
pseudo-R2	0.0835	0.0964	0.125	0.362	0.297	0.277	0.230	0.364	0.313	0.352
Log-Likelihood	-137849	-96773	-74700	-8409	-9772	-8349	-6031	-7367	-9295	-9278

[(1)] I lose some observations when regressing each type of specific reactions because STATA automatically omits observations that predict failure perfectly.

Notes Table 2.12 reports the results on stakeholder reactions to CSR hypocrisy disclosure used in Facebook posts with day fixed effect. Panel A presents the results from regressing the number of likes (Column 1), the number of shares (Column 2), and the number of comments (Column 3) for each post on the CSR hypocrisy disclosure strategy (talk, decisions, or actions) used in the post. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors. Panel A also presents the results from regressing the likelihood of receiving at least one 'love' emoticon (Column 1), a 'wow' emoticon (Column 2), a 'haha' emoticon (Column 3), a 'sad' emoticon (Column 4), an 'angry' emoticon (Column 5), a positive comment (Column 6), or a negative comment (Column 7) in each post on the organised hypocrisy disclosure strategy (talk, decision, or action) used in the post. The table reports logistic coefficient estimates and (in brackets) robust standard errors. All variables are defined in Table 1.1 and 1.2. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

Panel B. Stakeholder Reactions and CSR Façade Disclosures with Day Fixed Effect

	Dependent Variable: STAK_REACTIONS									
	LIKES	SHARES	COMMENTS	LOVE	WOW	HAHA	SAD	ANGRY	POSCOMMENT	NEGCOMMENT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
PROGRESSIVE	0.114*	0.0315	0.0107	0.365***	0.289**	-0.124	0.151	-0.0627	-0.111	-0.0492
	(0.0586)	(0.0735)	(0.0808)	(0.137)	(0.143)	(0.193)	(0.232)	(0.167)	(0.125)	(0.137)
REPUTATIONAL	-0.0460	-0.185***	-0.176**	0.335**	-0.0985	-0.161	-0.144	-0.523***	-0.125	-0.482***
	(0.0555)	(0.0705)	(0.0759)	(0.130)	(0.139)	(0.191)	(0.226)	(0.160)	(0.118)	(0.133)
CHARACTER_LOG	0.143***	0.0757*	0.175***	0.00717	0.106	0.0764	0.242**	-0.143	0.267***	0.136
	(0.0350)	(0.0415)	(0.0422)	(0.0776)	(0.0764)	(0.0946)	(0.113)	(0.105)	(0.0731)	(0.0832)
VISUALS	0.213***	0.273***	0.337***	0.305***	0.398***	0.120	0.0305	0.0982	0.203***	0.211**
	(0.0382)	(0.0434)	(0.0452)	(0.0849)	(0.0808)	(0.102)	(0.117)	(0.101)	(0.0746)	(0.0823)
URL	-0.205***	-0.150***	-0.0960**	-0.381***	-0.190**	-0.197*	-0.0327	0.0898	-0.249***	-0.0457
	(0.0386)	(0.0440)	(0.0449)	(0.0869)	(0.0816)	(0.106)	(0.120)	(0.103)	(0.0777)	(0.0871)
HASHTAG	0.0251	0.150***	0.140***	0.108	-0.101	0.192*	0.166	0.00600	-0.00785	0.0785
	(0.0384)	(0.0436)	(0.0462)	(0.0771)	(0.0765)	(0.103)	(0.123)	(0.102)	(0.0706)	(0.0824)
SIZE	0.0550	-0.105	-0.0903	0.472	0.590	-0.0739	0.419	3.031***	0.127	0.165
	(0.298)	(0.357)	(0.408)	(0.661)	(0.593)	(0.800)	(1.088)	(0.985)	(0.572)	(0.762)
CONSTANT	1.590	3.410	0.0331	-6.894	-8.356	0.694	-6.253	-35.86***	-5.457	-2.196
	(3.301)	(3.983)	(4.515)	(7.366)	(7.605)	(10.22)	(13.77)	(12.60)	(6.491)	(9.731)
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Date FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	7,104	7,104	7,104	6,766	6,791	6,347	5,700	6,278	6,833	6,758
pseudo-R2	0.121	0.112	0.141	0.331	0.261	0.274	0.254	0.343	0.264	0.323
Log-Likelihood	-43137	-29849	-20414	-3001	-3173	-2104	-1529	-2041	-3472	-2818

(1) I lose some observations when regressing each type of specific reactions because STATA automatically omits observations that predict failure perfectly.

Panel B presents the results from regressing the number of likes (Column 1), the number of shares (Column 2), and the number of comments (Column 3) in each CSR post on the progressive and reputational façade used in the post with day fixed effect. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors, where the baseline effect is the effect of rational façade strategy on each stakeholder general reaction. Panel B presents the results from regressing the likelihood of receiving a 'love' emoticon (Column 1), a 'wow' emoticon (Column 2), a 'haha' emoticon (Column 3), a 'sad' emoticon (Column 4), an 'angry' emoticon (Column 5), a positive comment (Column 6), and a negative comment (Column 7) in each post on the progressive and reputational façade used in the post. The table reports logistic coefficient estimates and (in brackets) robust standard errors, where the baseline effect is the effect of rational façade strategy on each stakeholder specific reaction. All variables are defined in Table 1.1 and 1.2. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

Table 2.13 OLS Robustness Test

Panel A. OLS regression between stakeholder reactions and hypocrisy disclosures

	Dependent Variable: STAK_REACTIONS									
	LN_LIKES (1)	LN_SHARES (2)	LN_COMMENTS (3)	LN_LOVE (4)	LN_WOW (5)	LN_HAHA (6)	LN_SAD (7)	LN_ANGRY (8)	LN_POSCOMMENT (9)	LN_NEGCOMMENT (10)
ACT	0.751***	0.518***	0.346***	0.639***	0.258***	0.054***	0.114***	0.112***	0.361***	0.136***
	(0.035)	(0.037)	(0.031)	(0.032)	(0.030)	(0.019)	(0.018)	(0.016)	(0.031)	(0.025)
TALK	0.014	-0.068***	-0.115***	0.082***	-0.187***	-0.106***	-0.006	-0.023**	-0.058***	-0.104***
	(0.023)	(0.025)	(0.020)	(0.021)	(0.017)	(0.012)	(0.010)	(0.010)	(0.019)	(0.015)
DECISION	-0.000	0.069	-0.061	0.047	-0.090**	-0.085***	0.001	0.037*	-0.029	-0.060**
	(0.049)	(0.050)	(0.040)	(0.040)	(0.035)	(0.021)	(0.019)	(0.021)	(0.039)	(0.030)
CHARACTER_LOG	0.033***	0.273***	0.064***	0.001	0.044***	0.000	0.004	-0.001	0.058***	0.038***
	(0.009)	(0.012)	(0.008)	(0.008)	(0.007)	(0.005)	(0.004)	(0.004)	(0.008)	(0.006)
VISUALS	0.216***	0.175***	0.238***	0.297***	0.119***	0.116***	0.018**	0.016*	0.196***	0.069***
	(0.021)	(0.023)	(0.018)	(0.019)	(0.016)	(0.011)	(0.009)	(0.009)	(0.018)	(0.014)
URL	-0.143***	-0.058**	-0.117***	-0.180***	-0.063***	-0.057***	-0.027***	-0.027***	-0.119***	-0.044***
	(0.022)	(0.024)	(0.020)	(0.021)	(0.018)	(0.015)	(0.009)	(0.010)	(0.020)	(0.016)
HASHTAG	0.060***	0.119***	0.060***	0.059***	0.027*	0.044***	0.002	-0.012	0.018	-0.003
	(0.021)	(0.022)	(0.018)	(0.019)	(0.016)	(0.013)	(0.009)	(0.009)	(0.018)	(0.014)
SIZE	2.169***	0.834***	1.087***	2.343***	1.234***	1.355***	0.347***	0.850***	1.158***	1.104***
	(0.187)	(0.209)	(0.174)	(0.177)	(0.143)	(0.144)	(0.069)	(0.081)	(0.169)	(0.131)
CONSTANT	-22.625***	-10.031***	-12.343***	-26.093***	-13.889***	-15.031***	-3.883***	-9.425***	-13.153***	-12.413***
	(2.072)	(2.318)	(1.927)	(1.968)	(1.593)	(1.597)	(0.770)	(0.901)	(1.873)	(1.454)
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	21,166	21,166	21,166	21,166	21,166	21,166	21,166	21,166	21,166	21,166
R-squared	0.591	0.504	0.598	0.526	0.364	0.312	0.143	0.470	0.532	0.545
Adjusted R^2	0.589	0.502	0.597	0.525	0.361	0.309	0.139	0.468	0.530	0.543

Panel B. OLS regression between stakeholder reactions and progressive and reputational façade disclosures

	Dependent Variable: STAK_REACTIONS									
	LN_LIKES (1)	LN_SHARES (2)	LN_COMMENTS (3)	LN_LOVE (4)	LN_WOW (5)	LN_HAHA (6)	LN_SAD (7)	LN_ANGRY (8)	LN_POSCOMMENT (9)	LN_NEGCOMMENT (10)
PROGRESSIVE	0.121**	0.019	0.035	0.180***	0.152***	0.048**	0.027	0.004	-0.006	0.029
	(0.051)	(0.058)	(0.047)	(0.045)	(0.042)	(0.021)	(0.020)	(0.024)	(0.044)	(0.035)
REPUTATIONAL	-0.000	-0.150***	-0.073*	0.184***	-0.036	0.015	-0.012	-0.074***	-0.069*	-0.117***
	(0.047)	(0.054)	(0.044)	(0.042)	(0.038)	(0.019)	(0.018)	(0.022)	(0.041)	(0.031)
CHARACTER_LOG	0.097***	0.054	0.119***	0.066**	0.049*	-0.001	0.030*	0.005	0.135***	0.029
	(0.032)	(0.036)	(0.030)	(0.029)	(0.027)	(0.015)	(0.016)	(0.015)	(0.029)	(0.022)
VISUALS	0.181***	0.145***	0.180***	0.232***	0.099***	0.051***	0.017	0.010	0.143***	0.042**
	(0.033)	(0.035)	(0.028)	(0.030)	(0.025)	(0.015)	(0.016)	(0.014)	(0.027)	(0.020)
URL	-0.147***	-0.029	-0.042	-0.165***	-0.036	-0.006	-0.002	0.012	-0.080***	-0.010
	(0.033)	(0.035)	(0.028)	(0.030)	(0.023)	(0.015)	(0.014)	(0.014)	(0.027)	(0.020)
HASHTAG	0.003	0.098***	0.048*	0.057*	-0.011	0.013	-0.000	-0.000	0.011	0.011
	(0.033)	(0.034)	(0.028)	(0.030)	(0.023)	(0.014)	(0.016)	(0.013)	(0.027)	(0.019)
SIZE	1.379***	0.379	0.537**	1.556***	0.807***	0.200**	0.234***	0.370***	0.561**	0.569***
	(0.264)	(0.304)	(0.246)	(0.242)	(0.189)	(0.094)	(0.084)	(0.088)	(0.230)	(0.153)
CONSTANT	-14.001***	-3.722	-6.509**	-17.624***	-9.283***	-2.272**	-2.768***	-4.111***	-6.833***	-6.437***
	(2.936)	(3.387)	(2.740)	(2.695)	(2.101)	(1.055)	(0.937)	(0.987)	(2.559)	(1.713)
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	7,104	7,104	7,104	7,104	7,104	7,104	7,104	7,104	7,104	7,104
R-squared	0.568	0.478	0.547	0.478	0.318	0.263	0.123	0.460	0.479	0.525
Adjusted R^2	0.562	0.472	0.541	0.472	0.310	0.254	0.113	0.454	0.473	0.519

Notes Table 2.13 reports robustness test using OLS regression. Panel A reports the OLS regression on CSR hypocrisy disclosures. Panel B reports the OLS regression on progressive and reputational façade disclosures. *LN_LIKES* is the log transformation of the total number of likes. *LN_SHARES* is the log transformation of the total number of shares. *LN_COMMENTS* is the log transformation of the total number of comments. *LN_LOVES* is the log transformation of the total number of loves. *LN_WOWS* is the log transformation of the total number of wows. *LN_HAHAS* is the log transformation of the total number of hahas. *LN_SADS* is the log transformation of the total number of sads. *LN_ANGRYS* is the log transformation of the total number of angrys. *LN_PSCOUNT* is the log transformation of the total number of positive comments. *ln_negcount* is the log transformation of the total number of negative comments. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

2.6 Discussion and Conclusions

Using the organised hypocrisy theory (Brunsson, 1989, 1993, 2007) and organisational façade framework (Abrahamson & Baumard, 2008), the purpose of this study is to further extend the findings in Cho et al. (2015) and investigate how stakeholders perceive the legitimation strategies employed in corporate CSR disclosures on Facebook. By focusing on the dynamic interactions between corporate disclosure strategies and stakeholder subsequent reactions at a Facebook message level, this study demonstrates that stakeholders exhibit diverse reactions towards corporate CSR hypocrisy and façade disclosures and the intensity and sentiment of their reactions also have an effect on corporate post-disclosure responses to stakeholder comments.

In examining the first hypotheses (H1), the empirical findings show that talk and decisions disclosures lead to positive stakeholder reactions. Brunsson (2007) argues that the success of employing organised hypocrisy depends on stakeholders' assumptions that corporate talk leads to corresponding decisions and actions. The findings suggest that corporate CSR talk disclosures are more likely than non-CSR posts to attract 'love' and are less likely than non-CSR posts to attract negative reactions, including 'sad', 'angry" and negative stakeholder comments. The results also show that CSR talk disclosures are associated with fewer shares and a lower likelihood of receiving positive emoticons such as 'wow' and 'haha'. With regard to CSR decisions disclosures, it is found that these have a high likelihood of attracting both positive and negative emotions ('love' and 'angry'), indicating that stakeholders hold divergent views towards corporate decisions. The empirical results confirm the assumption that stakeholders believe in the causal relationship among talk,

decisions and actions because both CSR talk and decisions disclosures are associated with a high likelihood of receiving ‘love’. The negative association between talk disclosures and stakeholder negative reactions is probably explained by corporate commitments and values being consistent with social expectations (Christensen et al., 2013). As a result, stakeholders are less likely to criticise a wish that everyone is hoping for (Brunsson, 2006). What’s more, since these expressed social and environmental commitments are often taken for granted by social members, corporate talk is less likely to impress stakeholders on Facebook resulting in a lower likelihood of receiving ‘wow’ and ‘haha’. However, once companies have made decisions on a specific CSR issue, stakeholders start to show divergent views as the conflicts among them begin to crystallise. This is a possible reason as to why decisions disclosures attract opposite reactions. As Brunsson (2007, pp. 116–117) argues:

> “*Without hypocrisy, one party or interest would be completely satisfied and all others completely dissatisfied. With hypocrisy, several parties and interests can be somewhat satisfied…[because] neither party has their needs fully met, but neither is anyone left completely satisfied.”*

Because stakeholders assume that corporate decisions will increase the likelihood of corresponding actions, those who might benefit from such a decision will express strong support even though companies have not taken any action. In contrast, those who are concerned with other issues may express strong objections. However, these oppositions are only present in emoticons but not reflected in comments, and the result shows a high likelihood of receiving positive rather than negative reactions. Overall, the legitimacy of organisations can be maintained as stakeholders are more likely to react positively to talk and decisions disclosures.

The second hypothesis confirms whether stakeholders react to corporate actions disclosures. Prior literature suggests that firm legitimacy is only driven by hard or factual information (Aerts & Cormier, 2009; Brown et al., 2009). Although actions disclosures are more likely to gain legitimacy from stakeholders (reflected in positive emotions and comments), the results show that they are associated with a higher likelihood of receiving negative responses (e.g. ‘sad’, ‘angry’ and negative comments). In contrast to previous arguments that corporate legitimacy can only be achieved if hard information is disclosed, it is more likely that actions disclosures will attract divergent stakeholder reactions. In fact, the presence of all talk, decisions and actions disclosures employed in Facebook CSR disclosures suggest that companies may need all three strategies to gain legitimacy. Companies need to continuously close the gaps among talk, decisions and actions through frequent updates on their progressions in order to ensure the stability of hypocrisy (Brunsson, 2007) and to buy more time and flexibility in meeting divergent demands (Cho et al., 2015; Christensen et al., 2013). Because it is impossible for companies to achieve progress in all areas at once, actions disclosures can never fully satisfy stakeholders as there are always some groups who will demand more or demand a response to other issues. Thus, actions disclosures attract both positive and negative reactions.

When examining whether the intensity of stakeholder reaction towards CSR actions disclosures is greater than talk and decisions disclosures (H3), the results confirm this hypothesis and show that actions disclosures not only receive more positive stakeholder reactions but also more negative responses than talk and decisions disclosures. Overall, the results support organised

hypocrisy theory whereby talk and decisions can indeed gain a “related value” and partially meet divergent stakeholder interests (Brunsson, 2007). Actions disclosures also attract more debate among stakeholders, while talk and decisions can gain stakeholders’ support and ease their negative reactions. Therefore, this study supplements the findings in Cho et al. (2015) and demonstrates that hypocrisy strategies on social media can help companies maintain or gain legitimacy from stakeholder groups who have divergent and conflicting interests.

The last set of hypotheses explores whether there is a pecking order among the three organisational façades. The empirical results show marginal support as reputational façade disclosures are more likely to attract ‘love’ and less likely to attract ‘sad’ and ‘angry’ responses than the rational façade: indeed, the effect of the reputational façade on other reactions is insignificant compared to the rational façade. Similarly, progressive façade disclosures exhibit the strongest effects only on the number of ‘likes’ and the likelihood of receiving ‘wow’, suggesting that stakeholders are impressed with the progression of companies. A possible reason for this weak support is that the rational façade mainly follows market logic, hence it attracts more criticism than the reputational façade as shareholders are probably not the main audience on social media. In contrast, the reputational façade presents a positive corporate image so it attracts more positive and fewer negative emotions. Cho et al. (2015) argue that the central feature of a progressive façade is innovation and reform in CSR practices, which, on one hand, may depart from a rational underpinning, but on the other hand, may also align with corporate committed goals and objectives. As a result, the progressive façade is more likely than the

other façades to receive both extreme reactions. These results also suggest that most CSR posts on Facebook try to erect a reputational façade, implying firms' strategies to shape positive stakeholder perceptions and reduce negative concerns. However, the presence of the progressive façade on social media may also imply that companies know the sole use of a reputational façade on social media will increase the likelihood of exposing organised hypocrisy, hence the disclosure of their progression to reduce the risk of exposing hypocrisy (Brunsson, 2007; Cho et al., 2015).

In additional analyses, this study investigates how companies respond to stakeholder comments after posting CSR disclosures. The results show that companies are more likely to respond when there is a high intensity of comments with more positive comments and less likely to do so when there is a high intensity of positive emotional reactions. Consistent with prior studies on social media stakeholder engagement (Gómez-Carrasco et al., 2017; Manetti & Bellucci, 2016), companies merely use social media as a tool to manage stakeholder perceptions for legitimacy or reputation risk management purposes (Bebbington et al., 2008). Once a large number of stakeholders under a post express compliments, those who have criticisms tend to be ignored. As Cho et al. (2015, p. 91) discuss in their study, whether organised hypocrisy and organisational façades bring any beneficial change to firms and the wider society is still questionable. Organised hypocrisy and organisational façade strategies present a dubious advantage as they can be used for both good and bad intentions. Engaging in hypocrisy and façade strategies may be a necessary choice for companies to achieve long-term CSR commitments, but such progress can only be established under a pro-active stakeholder

engagement approach (Bebbington et al., 2007; Thomson & Bebbington, 2005). Prior studies often show that corporate engagement on social media are largely based on one-way communication, and that stakeholder concerns and criticism are often neglected (Colleoni, 2013; Gómez-Carrasco et al., 2017; Manetti & Bellucci, 2016; Unerman & Bennett, 2004). While companies use talk and decisions disclosures to construct rational, progressive and rational façades, they also need to actively seek stakeholder opinions. Therefore, companies need to actively engage with stakeholders on social media and turn their aspirational talk and decisions into realities (Christensen et al., 2013).

2.6.1 Limitations and Recommendations for Future Research

This study is not without limitations. Firstly, it assumes that the users on social media are stakeholders of a company and their reactions reflect their perceptions towards corporate disclosures. Although the separation between consumer and non-consumer facing industries may provide some glimpse into the reactions of different stakeholder groups, their profiles cannot be precisely identified and categorised in this study. Furthermore, companies may disclose different strategies depending on the importance of stakeholders (Brunsson, 2007). Future studies may be necessary to conduct surveys or interviews to explore how stakeholders from different groups may perceive hypocrisy and façade strategies, and how companies select strategies according to stakeholder salience level (Mitchell, Agle, & Wood, 1997). Secondly, this study only focuses on a single social media platform (i.e. Facebook). As Cho et al. (2015) suggest, companies may try to erect discrepant façades across various platforms, such as annual reports, CSR reports, corporate websites, Twitter,

YouTube, Facebook and so on. Therefore, in order to reveal more insight into how façades are erected towards stakeholders and how stakeholder perceptions differ among them, more case studies are needed to focus on firm-level disclosures and assess all CSR communication platforms. Thirdly, this study cannot differentiate between accounts that are operated by firms or an outsourced PR company. Third-party PR firms may employ more sophisticated sentiment monitoring software with the objective of maintaining high level positive reactions. As a result, those companies may not pay attention to the issues that people criticise, but only emphasise the positive opinions of users on social media. Future studies may conduct qualitative research by going behind the stage and exploring how corporate social media officers (or third-party PR firms) engage with their (or their clients') stakeholders.

2.6.2 Managerial Implications

Despite the presence of the limitations outlined above, this study may provide some guidance to managers. An over-emphasis on the number of positive emoticons and comments that stakeholders provide on Facebook may potentially mislead managers in assuming that corporate legitimacy can be obtained by merely erecting rational, progressive and reputational façades using talk and decisions disclosures. Managers should understand that divergent stakeholder interests present on social media will never allow companies to achieve positive reactions from all stakeholders at one time. Positive reactions obtained from talk and decisions disclosures may persist in the short term, but not in the long run (Christensen et al., 2013). Therefore managers should pay close attention to the countersignals that stakeholders

are sending (Saxton et al., 2019) and actively engage with people who have concerns. Although actions disclosures may attract both positive and negative reactions, companies should not over-use talk and decisions disclosures while reducing their actions disclosures. In order to bring potential improvements to corporate CSR practices, managers should frequently update their CSR progressions and actions to enhance transparency and accountability towards stakeholders.

3 Social Media Engagement of Advocacy NGOs and Stakeholder Support – The Case of the Greenpeace "Save the Arctic" Campaign

3.1 Introduction

The aim of this chapter is to examine how social media may assist Advocacy NGOs (A-NGOS) in enhancing their downward accountability. A-NGOs play an important role in society in improving social justice and promoting social change for marginalised groups (Hall & O'Dwyer, 2017). While it is widely agreed that A-NGOs have upward accountability towards patrons or donors who provide funds for sustaining their work (Agyemang, O'Dwyer, Unerman, & Awumbila, 2017; O'Dwyer & Boomsma, 2015; O'Dwyer & Unerman, 2007), several studies argue that A-NGOs are also accountable to a broad range of stakeholders who are directly and indirectly impacted by outcomes resulting from advocacy activities (Dixon, Ritchie, & Siwale, 2006; O'Dwyer, 2005; O'Dwyer & Unerman, 2008, 2010; Unerman & O'Dwyer, 2006b). According to this view, every stakeholder has a basic right to express opinions and participate in decisions on matters that may affect themselves (O'Dwyer & Unerman, 2008; Unerman & Bennett, 2004), and the need for such engagement grows when the potential impacts on that individual stakeholder intensify (Unerman & O'Dwyer, 2006b).

To discharge downward accountability, A-NGOs are required to actively engage with stakeholders to help them assess the nature and impact of advocacy activities, and then to improve the effectiveness of mission attainment and long-term sustainable social impacts (O'Dwyer & Unerman, 2008; Unerman & O'Dwyer, 2006b). Through active stakeholder engagement, A-

NGOs are able to consult and ascertain the actual needs of stakeholders and respond to those whom they seek to assist (O'Dwyer & Unerman, 2008; Unerman & Bennett, 2004). A-NGOs also communicate and disseminate information regarding their advocated issues, findings and progress made through engagement in order to raise stakeholder awareness; identify (potential) stakeholders upon whom their work may have an impact (Unerman & O'Dwyer, 2006b); seek stakeholder support on advocacy activities to facilitate future collective actions (Davis, McAdam, Scott, & Zald, 2005; Gallhofer, Haslam, Monk, & Roberts, 2006; McCarthy & Zald, 1977) and bring about potential environmental and social changes (Deegan & Blomquist, 2006; Islam & van Staden, 2018; King & Soule, 2007; O'Sullivan & O'Dwyer, 2009).

Several accounting studies have examined a number of mechanisms used by A-NGOs to communicate with stakeholders such as press release (Brennan & Merkl-Davies, 2014), counter accounts (Denedo, Thomson, & Yonekura, 2017; Dey, Russell, & Thomson, 2010; Laine & Vinnari, 2017; Thomson, Dey, & Russell, 2015; Tregidga, 2017), social account and auditing (Ebrahim, 2003; O'Dwyer, 2005; O'Dwyer & Unerman, 2008) and focus groups (Agyemang, Unerman, Awumbila, & O'Dwyer, 2009). However, in all these studies, considerable obstacles for greater downward accountability are still present. Firstly, A-NGOs face difficulties in identifying and engaging with (potential) stakeholders to raise awareness and consult their opinions about advocacy activities on a large scale, which may result in a failure to recognise the broader impacts that these activities have on stakeholders, and increase the risk of a narrow approach to accountability (O'Dwyer & Unerman, 2008). This inability to engage with a wide range of stakeholders may also lead to another obstacle:

the difficulty in making stakeholders understand the importance of advocated issues and in obtaining their support for the work of A-NGOs (Denedo et al., 2017; Irvine & Moerman, 2017; Laine & Vinnari, 2017; Tregidga, 2017). The lack of stakeholder support may hinder the effectiveness of future mission attainment and the generation of potential social and environmental changes (O'Dwyer & Unerman, 2008).

In recent years, social media have become a key platform for NGO-stakeholder engagement (Arnaboldi et al., 2017; Guo & Saxton, 2018; Lovejoy et al., 2012; Unerman & Bennett, 2004; Xu & Saxton, 2018). Social media are renowned for both high interactivity between disseminators and audiences (Brennan & Merkl-Davies, 2018; Gómez-Carrasco et al., 2017; Manetti & Bellucci, 2016; Neu et al., 2019; She & Michelon, 2019) and high autonomy in content production without being constrained by the limitations of traditional media (Castelló et al., 2013; Gómez-Carrasco & Michelon, 2017; Lee et al., 2013). Social media also have the advantage of wide information dissemination at a relatively low cost (Blankespoor, 2018; Unerman & Bennett, 2004). As such, social media have the potential to enhance A-NGO accountability by facilitating large-scale stakeholder engagement (Bellucci & Manetti, 2017; Gallhofer et al., 2006; Gómez-Carrasco et al., 2017; Gómez-Carrasco & Michelon, 2017; Neu et al., 2018, 2019; Unerman & Bennett, 2004).

Previous literature mainly focuses on how A-NGOs use social media features such as hashtags, URLs or "mentions" to attract stakeholder attention and accumulate social media capital on application platforms (Guo & Saxton, 2018; Lovejoy et al., 2012; Saxton & Waters, 2014; Xu & Saxton, 2018).

However, more work is needed into how A-NGOs communicate advocacy information with stakeholders and whether such engagement may generate an impact outside social media platforms (Neu et al., 2018, 2019; Quinn, Lynn, Jollands, & Nair, 2016; Saxton & Wang, 2013; Xu & Saxton, 2018). This question has become particularly pertinent given the increasing criticism of social media "clicktivism" – a like-clicking activity (Morozov, 2009; White, 2010) and the use of social media for non-public-interested purposes (Flyverbom et al., 2019; Neu et al., 2018).

Drawing on Castells' (2011, 2012, 2013) network-making power perspective, this chapter examines how A-NGOs communicate advocacy information to attract stakeholder engagement, and whether the effectiveness and global dissemination of advocacy information may lead to the attainment of large-scale stakeholder support outside social media. Castells (2011, 2012, 2013) argues that social media have the ability to promote an alternative worldview through its dialogic function (programming capacity), and the ability to widely disseminate information to reach a wider, global society (switching capacity). Both capacities play an influential role in forming collective actions (Castells, 2011, 2012, 2013). To attract stakeholder engagement, A-NGOs may communicate advocacy information that appeals to logic and emotions with (potential) stakeholders (Brennan & Merkl-Davies, 2014; Castells, 2012; Vinnari & Laine, 2017). The scale of stakeholder engagement may also be widened by cooperating with multiple social media accounts to increase the extent of information dissemination (Castells, 2013). Through social media engagement, a broad range of stakeholders can learn about and express opinions on how advocated issues may have an impact their lives, and then decide whether to

give support to A-NGO activities (O'Dwyer & Unerman, 2008; Unerman & Bennett, 2004; Unerman & O'Dwyer, 2006b). The support gained from these stakeholders will allow A-NGOs to better identify who their work might have an impact on (O'Dwyer & Unerman, 2008) and further engage with them to increase the success of future campaigns (Castells, 2012, 2013; Irvine & Moerman, 2017; Laine & Vinnari, 2017; Tregidga, 2017).

This study relies on the Greenpeace "Save the Arctic" (STA) campaign as the empirical setting. The STA is a global campaign which began in 2012 and aims to tackle climate change and reduce corporate irresponsible environmental practices in the Arctic region (Allsopp, Santillo, & Johnston, 2012; Greenpeace International, 2012). With the rising global temperature, glaciers and sea ice are disappearing and the sea level is rising, threatening millions of lives on the planet (Greenpeace International, 2019). By employing a unique dataset of internal Greenpeace petition signups (i.e. the proxy for stakeholder support) from over 236 countries and a sample of 8,336 Greenpeace Facebook messages related to the STA campaigns in 29 languages, this study examines Greenpeace Facebook engagement and its direct impact on the online petition signups for the STA campaign. After analysing social media engagement at the message level, this study finds that stakeholder engagement is positively related to the level of emotional appeal expressed in both textual and visual advocacy information, and, in particular, stakeholder engagement is driven by the use of negative emotive words and visuals containing Arctic animals. This study also finds that the level of logical appeal (which is the amount of specific information communicated in textual content) has a positive effect on message shares and reactions with positive

emoticons. The study then examines the effect of social media engagement on stakeholder support at both the Greenpeace Facebook account and network levels. This study finds that two factors lead to stakeholder support outside social media platforms (i.e. online petition signups): (1) the effectiveness of advocacy information in attracting stakeholder engagement (measured using Facebook emoticons, shares and comments that advocacy information attracts); and (2) the global dissemination of advocacy information (measured using the percentage of Greenpeace Facebook accounts involved in posting STA messages). Overall, the results suggest that social media can help A-NGOs engage with stakeholders concerning an advocated issue, and that A-NGOs can obtain large-scale stakeholder support beyond social media platforms through the use of social media (Gómez-Carrasco & Michelon, 2017; Guo & Saxton, 2018; Neu et al., 2018, 2019; She & Michelon, 2019; Xu & Saxton, 2018).

This chapter contributes to the literature in two ways. First, it extends NGO accounting and accountability literature by illustrating the potential of social media in enhancing the downward accountability of A-NGOs (O'Dwyer & Unerman, 2008; Unerman & O'Dwyer, 2006b). Several studies have criticised the potential use of social media for non-public-interested purposes (Flyverbom et al., 2019; Neu et al., 2018) and the meaningless like-clicking activities under social media messages (Morozov, 2009; White, 2010). Given the important role of A-NGOs in advancing social interests (Hall & O'Dwyer, 2017; Unerman & O'Dwyer, 2006b), it is important to understand how social media may facilitate NGO-stakeholder engagement processes and their impact on stakeholder decision-making outside social media platforms (Gómez-Carrasco & Michelon,

2017; Guo & Saxton, 2018; Neu et al., 2018, 2019; She & Michelon, 2019; Xu & Saxton, 2018). Employing Castells' (2011, 2012, 2013) network-making power theory and the unique data on Greenpeace online petition signups, this study shows that Greenpeace communicates emotional and specific advocacy information in Facebook posts to invite stakeholder assessment of and opinions about advocacy activities. The study also shows that the effectiveness and dissemination of advocacy information allow Greenpeace to obtain large-scale stakeholder support outside social media platforms. The study therefore highlights how social media can be used to help A-NGOs overcome the difficulties of inadequate stakeholder engagement (O'Dwyer & Unerman, 2008; Unerman & Bennett, 2004; Unerman & O'Dwyer, 2006b) and a lack of stakeholder support (Irvine & Moerman, 2017; Laine & Vinnari, 2017; Tregidga, 2017) when fostering greater downward accountability.

Second, this study adds to the literature by examining stakeholder reactions towards the information and strategies used in A-NGO communication. Extensive studies propose a number of strategies that A-NGOs or activist groups use in their communication to attract stakeholder attention and influence decision-making (Benford & Snow, 2000; Brennan & Merkl-Davies, 2014; Giorgi, 2017; Saxton & Guo, 2014; Saxton & Waters, 2014; Vinnari & Laine, 2017). The majority of these studies focus on communication strategies from a "preparer's perspective" (Benford & Snow, 2000; Brennan & Merkl-Davies, 2014; Giorgi, 2017; Vinnari & Laine, 2017), and several recent studies have begun to explore the effect of interactive features such as hashtags, URLs and photos on stakeholder attention (Saxton & Guo, 2014; Saxton & Waters, 2014). However, the way in which stakeholders react to

textual and visual advocacy information remains unclear. This question is particularly important given the considerable difficulties that A-NGOs face in reaching potential stakeholders: it can therefore help them make a more effective assessment of the nature and impact of advocacy activities (O'Dwyer & Unerman, 2008). By exploiting the unique interactive features on Facebook, this study finds that textual advocacy information that contains more emotive words, more specific terms, and visuals that show live beneficiaries of the advocacy campaign are more effective in attracting stakeholder engagement (Brennan & Merkl-Davies, 2014; Merkl-Davies & Brennan, 2017; Vinnari & Laine, 2017). In summary, these findings provide guidance on the approaches which A-NGOs can use to communicate with potential stakeholders on social media.

The remainder of the chapter is structured as follows. Section 3.2 discusses the relationship between A-NGO accountability and stakeholder engagement. Section 3.3 discusses the role of social media in facilitating stakeholder engagement. Section 3.4 presents the theoretical framework and hypotheses development. Section 3.5 presents the research design, followed by Section 3.6 which presents the empirical findings. Lastly, Section 3.7 concludes and discusses relevant implications for A-NGOs, limitations and ideas for future research.

3.2 A-NGO Accountability and Stakeholder Engagement

A-NGOs engage in activities which involve raising public awareness, seeking stakeholder support, lobbying and campaigning to promote certain social and environmental interests and outcomes (Unerman & O'Dwyer, 2006b,

2006a). Due to the potentially political nature of these activities and unintended consequences that may arise, a broad range of stakeholders may be directly or indirectly impacted (O'Dwyer & Unerman, 2008; Unerman & O'Dwyer, 2006b). Therefore, it is argued that A-NGOs not only have upward accountability towards donors and patrons who provide access to key financial resources in sustaining advocacy activities (Agyemang et al., 2017; Awio, Northcott, & Lawrence, 2011; Dixon et al., 2006; O'Dwyer & Boomsma, 2015; O'Dwyer & Unerman, 2007), but also downward accountability to a range of stakeholder groups including individuals, communities, institutions and the environment in general (Dixon et al., 2006; O'Dwyer & Unerman, 2008). As a result, every stakeholder enjoys the basic right to participate and express opinions on matters that may affect their lives, regardless of the power that the individual stakeholder holds in relation to others (O'Dwyer & Unerman, 2008; Unerman & Bennett, 2004). Furthermore, the greater the impact these activities have on individual lives, the greater the desire these stakeholders have to express their opinions and participate in the decision-making process (Unerman & O'Dwyer, 2006b).

O'Dwyer and Unerman (2008) argue that stakeholder engagement plays an important role in helping A-NGOs enhance downward accountability. Stakeholder engagement is defined as a process in which organisations actively communicate with stakeholders to understand their interests and enhance transparency regarding organisational practices to facilitate better stakeholder decision-making (Bebbington et al., 2007; O'Dwyer, 2005). Through active stakeholder engagement, A-NGOs can consult and ascertain the actual needs of these stakeholders, and incorporate these needs into the

planning and operation of A-NGO activities (O'Dwyer & Unerman, 2008; Unerman & Bennett, 2004). A-NGOs also communicate and disseminate advocacy information to raise stakeholder awareness, identify (potential) stakeholders upon whom their work may have an impact, and keep stakeholders informed about the findings and progress they have made on advocated issues. Once (potential) stakeholders understand the importance of advocacy activities and the impacts that may arise, they may provide support to A-NGOs works by signing petitions, making donations, joining protests and changing personal behaviours, thereby contributing to future collective actions (Davis et al., 2005; Gallhofer et al., 2006; McCarthy & Zald, 1977) and increasing the influence of A-NGOs on potential environmental and social change (Deegan & Blomquist, 2006; Islam & van Staden, 2018; King & Soule, 2007; O'Sullivan & O'Dwyer, 2009).

Several accounting studies have examined various mechanisms that A-NGOs use to understand stakeholder needs, engage with stakeholders on advocated issues, and seek their support. However, these studies tend to conclude that considerable obstacles for enhanced downward accountability are still present. For example, O'Dwyer (2005) examines how a social accounting process evolves in an Irish overseas aid agency and how it can be used to enhance downward accountability. He finds that the organisation only uses social accounting as a management control device when external pressures which threaten key NGO objectives can be effectively managed. He also finds that the extreme power imbalance between stakeholders and the organisation leads to stakeholder voices largely being silenced or neglected during the decision-making process, raising significant accountability issues. In

the same vein, O'Dwyer and Unerman (2008) examine how social accounting is used in Amnesty Ireland and they find that the organisation faces difficulties in engaging with a broad range of stakeholders. This eventually results in a situation in which the organisation focuses solely on upward accountability and prioritising the need of donors over other stakeholders.

The lack of large-scale stakeholder engagement not only leads to the failure to acknowledge the implications of A-NGO work on stakeholders, but also results in a lack of support and understanding from these stakeholders, affecting long term mission attainment and social changes (Denedo et al., 2017; Irvine & Moerman, 2017; Laine & Vinnari, 2017; O'Dwyer & Unerman, 2008; Tregidga, 2017). For example, Denedo et al. (2017) find that although the A-NGO in their case study perceives the Oil Spill Monitor (OSM) to be a useful tool in making local human rights issues more visible, the power relations between oil companies and the local people are still imbalanced, even after having built coalitions with investors, supranational political institutions, judicial systems and international rule enforcers. This finding suggests that large-scale stakeholder support may be necessary to exert greater public pressure on oil companies. Similarly, Tregidga (2017) examines how a social movement organisation uses shadow reports to challenge a target corporation. Consistent with the findings in Denedo et al. (2017), she finds that although the accountants perceive shadow reports to be a useful tool in facilitating corporation-stakeholder engagement, the effects on the target company are limited. This is largely due to the failure of the activist organisation and its shadow reports in obtaining public support, casting significant doubts on the legitimacy status of the organisation.

Irvine and Moerman (2017) explore how an activist organisation uses the internet and social media to disseminate campaign information and exert pressure to bring about corporate engagement. However, the target company eventually refused to engage with the activist organisation as the campaign information failed to exert significant public pressure on the company. Finally, Laine and Vinnari (2017) examine how animal activists create and use video clips showing the unfair treatment of farm pigs to challenge industrial meat and dairy production in Finland. However, they find that these video clips only create a small-scale social effect. They conclude that the failure to generate a large wave of stakeholder support is due to two main reasons. Firstly, activists place significant trust in stakeholders in a passive manner, and they assume that their advocacy information will raise awareness among the public. Secondly, activists fail to disseminate advocacy information to the wider society, thereby failing to raise large-scale stakeholder awareness. The above findings suggest that large-scale stakeholder engagement and their support are closely linked to the enhancement of A-NGO downward accountability.

3.3 Social Media and Stakeholder Engagement

The unique features of social media - high interactivity, high autonomy and a wide dissemination - make them a potentially powerful mechanism for stakeholder engagement. High interactivity is rooted in a two-way dialogic communication function in which A-NGOs are able to disseminate information and stakeholders can respond with emoticons, shares and comments (Brennan & Merkl-Davies, 2018; Guo & Saxton, 2018). This function gives stakeholders more channels to express their “voices” (Gómez-Carrasco & Michelon, 2017;

Neu et al., 2018, 2019; She & Michelon, 2019) hence empowering them during the engagement process (O'Dwyer, 2005; O'Dwyer & Unerman, 2010; Unerman & Bennett, 2004). A-NGOs also enjoy a large degree of autonomy in content production as they are able to communicate advocacy information with stakeholders without being restricted by the limitations of traditional media (Etter et al., 2018, 2019). Consequently, advocacy information can reach stakeholders more freely and the needs and opinions of stakeholders can be sought directly (Gómez-Carrasco & Michelon, 2017; Manetti & Bellucci, 2016; She & Michelon, 2019; Unerman & Bennett, 2004). Since these characteristics offer A-NGOs and stakeholders a dialogic engagement experience (Unerman & Bennett, 2004), social media can facilitate engagement with a broad range of stakeholders, and large-scale stakeholder consensus and support can be sought (Gómez-Carrasco et al., 2017; Guo & Saxton, 2018; Manetti & Bellucci, 2016; Neu et al., 2019; She & Michelon, 2019; Unerman & Bennett, 2004).

While extensive studies have tried to examine the use of social media by corporations (Bellucci & Manetti, 2017; Blankespoor et al., 2014; Gómez-Carrasco et al., 2017; Jung et al., 2018; Manetti & Bellucci, 2016; Yang & Liu, 2017), only a few have explored the use of social media by A-NGOs (Lovejoy & Saxton, 2012; Lovejoy, Waters, & Saxton, 2012; Saxton, Guo, Chiu, & Feng, 2011; Saxton & Waters, 2014). For example, Saxton and Waters (2014) classify 1,000 NGO social media messages into fundraising, event promotion and calls for action, and find that messages that call for action are more likely to attract stakeholder engagement than messages related to fundraising and event promotion. Similarly, based on a sample of 219,915 tweets posted by 145 A-NGOs in 2013, Guo and Saxton (2018) find that the use of social media features

such as hashtags, URLs and the presence of photos help to attract more stakeholder engagement. However, these studies only focus on the type of messages and the interactive features employed in these messages, while the effect of information communicated on stakeholder engagement is not examined. Further exploration into the effects of communicated information may be important in helping stakeholders assess the nature and impact of advocacy activities.

Since A-NGOs engage with stakeholders to consult their opinions and seek their support, social media engagement has also become a key intermediate process in achieving subsequent social outcomes (Guo & Saxton, 2018; Unerman & Bennett, 2004; Xu & Saxton, 2018). For example, studies have found that social media messages have a positive effect on the accumulation of social media capital such as the number and the diversity of social media followers, the centrality of the organisation in its social media network, and the frequency of interactions between stakeholders and NGOs (Guo & Saxton, 2018; Saxton & Guo, 2014; Xu & Saxton, 2018). However, these studies still limit their attention within the realm of social media, while the influence of A-NGO social media engagement on stakeholder decision-making beyond social media platforms remains questionable (Guo & Saxton, 2018; Neu et al., 2018; Quinn et al., 2016; She & Michelon, 2018).

3.4 Theoretical Framework and Hypotheses Development

3.4.1 Network-Making Power Theory

In his seminal work *Communication Power*, Castells (2013) argues that digital communication networks have become a key domain in power-making.

In order to influence power dynamism within society, both existing power holders (i.e. corporations) and actors of social change (e.g. A-NGOs) seek to exert their influence through network-making power, which consists of two important abilities: programming capacity and switching capacity (Castells, 2011, 2012, 2013).[15] Programming capacity is defined as the ability to determine the worldview of a network. Through the exercise of programming capacity, existing power holders are able to manage stakeholder worldviews and actions through communication, and to ensure the acceptance of communicated ideas within the network (Castells, 2011). Switching capacity refers to the ability to create a strategic network by sharing a common worldview and cooperating on information dissemination (Castells, 2013). By creating a massive communication network, information can be disseminated to individuals around the world thus creating a world-wide acceptance of a promoted worldview (Castells, 2013).

A-NGOs also rely on both programming and switching capacity to disseminate information and engage with stakeholders on an alternative worldview, thus reaching a consensus among a broad range of stakeholders on the advocated issue and forming potential network power to bring future social changes (Castells, 2013). Due to their unique feature of high interactivity and high autonomy, online self-communication networks such as social media may help A-NGOs strengthen their programming and switching capacity, generating greater network-making power (Castells, 2011, 2012, 2013). In

[15] Castells (2013) argues that the definition of power holders are not only restricted to individuals but may include states, corporations, and their associated networks. Similarly, actors of social change are also not only limited to individual activists, but may include NGOs, social societies, and their associated networks.

order to strengthen programming capacity, A-NGOs may communicate with stakeholders about an advocated issue in a strategic and dialogic way (Manetti & Bellucci, 2016), thereby raising their awareness and allowing them to assess and express opinions on activities that may affect them (O'Dwyer & Unerman, 2008). Social media may also help A-NGOs to strengthen their switching capacity by increasing the scale of information dissemination across the communication network and reaching a broad range of stakeholders on a global scale (Castells, 2012, 2013). Indeed, Castells argues:

> *"… the more the movement is able to convey its messages over the communication networks, the more citizen consciousness rises, and the more the public sphere of communication becomes a contested terrain, and the lesser will be the politicians' capacity to integrate demands and claims with mere cosmetic adjustments." (Castells, 2012, p. 237)*

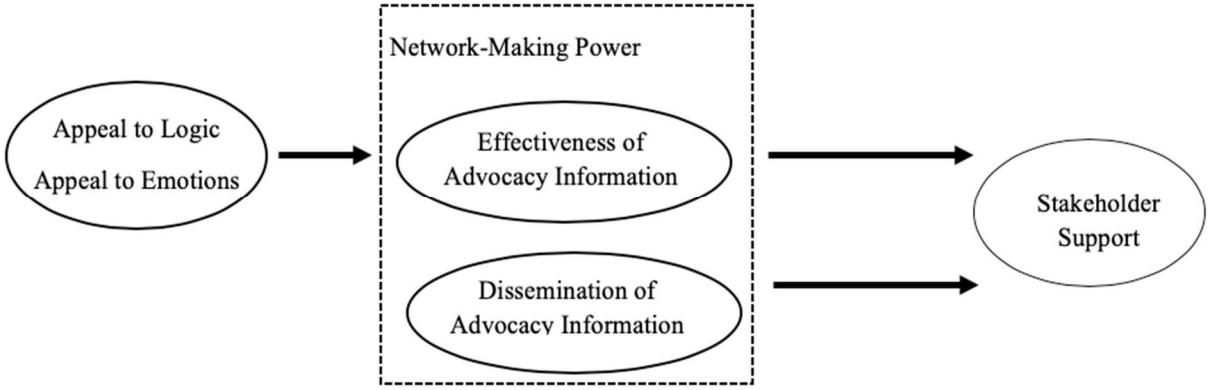
Therefore, the exercise and consolidation of both capacities can help A-NGOs identify and engage with (potential) stakeholders on social media networks and obtain their support on advocated issues. This, in turn, allows A-NGOs to form a large network of stakeholders to whom they can report progress and consult again in future (O'Dwyer & Unerman, 2008; Unerman & O'Dwyer, 2006b).

Nevertheless, there is an ongoing debate in the literature regarding the ability of social media to enhance A-NGO accountability (Halupka, 2014; Karpf, 2010; Shulman, 2009).[16] Some studies argue that social media have turned NGO-stakeholder engagement into a mere "like-clicking activity" (Gerlitz & Helmond, 2013), and stakeholders who respond to online messages have no further intention in showing support beyond application platforms (Morozov, 2009; White, 2010). For example, Drumbl (2012) investigates the search

[16] This phenomenon is referred as "clicktivism" or "slacktivism".

volume index of the *Kony 2012* campaign[17] and finds that NGO online messages have a limited shelf life. Using multiple fields and experimental settings, Kristofferson, White, & Peloza (2013) find that participants who express support for a social cause on Facebook are less likely to provide contributions to a subsequent and more meaningful helping task. In the same vein, after performing a series of experiments, Cornelissen, Karelaia, & Soyer (2013) find that participants who follow a charity on Facebook write fewer requested slogans and make fewer donations than those who do not follow the account.

Figure 2 Theoretical Framework for Network-Making Power



However, some studies challenge the above view and argue that "social media engagement" is not a derogatory term. When stakeholders react to A-NGOs' social media messages, they are directly engaging with a political "Object", i.e. the messages that may help them reflect on their worldview concerning an underlying political "Cause", i.e. the voices of marginalised groups (Halupka, 2014, p. 120). Therefore, social media is seen as an extension and replacement of old-fashioned engagement mechanisms such as

[17] Kony 2012 is a short documentary film produced by Invisible Children, Inc. with an aim to make Uganda cult and militia leader Joseph Kony globally known and get him arrested by the end of 2012.

paper-based posters and reports, and this kind of media may help achieve better advocacy outcomes (Halupka, 2014; Karpf, 2010). Prior empirical studies also provide evidence supporting the above view. For example, after analysing 1.5 million tweets generated by customers and trade union towards major Spanish banks, Gómez-Carrasco and Michelon (2017) find the intensity of stakeholder tweets can indirectly affect financial stakeholders' investment decisions. Similarly, studies document that people who have one or multiple social media accounts have more online political expressions (Gil de Zúñiga, Molyneux, & Zheng, 2014) and active protest participation (Harlow, 2011; Tufekci & Wilson, 2012; Valenzuela, 2013). While the personal use of social media may influence individual political activities, questions remain as to how A-NGOs might use social media to facilitate stakeholder engagement and obtain their support on advocacy activities in order to enhance accountability.

3.4.2 Hypotheses Development

A-NGOs may employ various communication strategies in advocacy messages to attract stakeholder engagement (Guo & Saxton, 2018; Lovejoy et al., 2012; Saxton & Waters, 2014). Castells (2013) argues that information that appeals to logic and emotions plays an important role when communicating with stakeholders and influencing their decision-making. To help stakeholders better assess the impact of advocacy activities and express their opinions, A-NGOs may frame advocacy information that appeals to logic by including factual and specific terms related to an issue (Benford & Snow, 2000; Brennan & Merkl-Davies, 2014; Giorgi, 2017; Snow & Benford, 1988). The inclusion of factual and specific terms not only adds credibility to the advocated issue (Brennan &

Merkl-Davies, 2014; Giorgi, 2017), but also provides quality information that can help stakeholders make better-informed decisions (Hope, Hu, & Lu, 2016; Michelon et al., 2015). For example, by analysing reports and press releases published by Greenpeace over toxic chemicals issue, Brennan and Merkl-Davies (2014) find that this A-NGO uses a large number of scientific terms and the names of independent parties to support the credibility of their claims. Similarly, after analysing the number of specific terms included in the risk-factor disclosures in 10-K reports, Hope et al. (2016) find that the inclusion of more specific disclosures benefit the users of the information through enhanced quality. As a result, stakeholders are more likely to engage with information that has a high level of logical appeal.

Compared to logical appeal, emotions can have both direct and indirect effects on stakeholder decision-making. On one hand, emotions directly influence stakeholder decisions as stakeholders tend to assess a situation with information that is aligned with intentions (Castells, 2013). On the other hand, emotions indirectly affect decision-making by limiting the number of options available. For example, studies find that emotions influence people's economic decision-making even though they arise from an irrelevant prior event (Lerner, Small, & Loewenstein, 2004). Prior studies also document evidence regarding the extensive use of emotional appeal in A-NGO communications. For example, Rodriguez (2016) finds that NGOs post personal stories of LGBTI refugees and asylum seekers to invoke feelings of empathy and sympathy. Brennan and Merkl-Davies (2014) find that Greenpeace uses metaphors that are linked to strong emotions to influence stakeholder opinions about more stringent environmental regulation. Similarly, by analysing video clips filmed by animal

activists, Vinnari and Laine (2017) find that activists create visual messages which appeal to stakeholders' sense of morality in order to shorten the distance between audiences and the distant suffering of 'others': in their case, pigs in Finnish farms. As a result, advocacy information that appeals to both logic and emotions may help A-NGOs attract stakeholder engagement and enable stakeholders to better assess advocated issues. Therefore, following this stream of argument, the first set of hypotheses are:

> ***H1a.*** *The level of stakeholder engagement is positively associated with the level of logical appeal in advocacy information.*
>
> ***H1b.*** *The level of stakeholder engagement is positively associated with the level of emotional appeal in advocacy information.*

A-NGOs not only engage with stakeholders to help them assess the nature and the impact of the advocated issue, but they also exercise programming capacity to actively encourage stakeholders to show support on these important advocacy activities. Prior studies show that A-NGOs frequently engage with stakeholders on social media to accumulate social media capital (Guo & Saxton, 2018; Saxton & Guo, 2014; Xu & Saxton, 2018), and this accumulated capital is considered a crucial resource in facilitating future charitable donations (Saxton, 2018; Saxton & Wang, 2013) and mission attainment (Harlow, 2011; Valenzuela, 2013). As a result, the number of stakeholders who wish to support advocacy activities depends on how effective the advocacy information is in attracting stakeholder engagement. Following this line of argument, the second hypothesis is:

H2. *The level of stakeholder support is positively associated with the effectiveness of advocacy information in attracting stakeholder engagement at the account level.*

To obtain stakeholder support on a large scale, A-NGOs not only exercise programming capacity to ensure the effectiveness of advocacy information in attracting stakeholder engagement, but they also use switching capacity to widely disseminate advocacy information and reach more stakeholders without temporal and spatial restrictions (Castells, 2012, 2013). One way to escalate an advocated issue from local to global is by encouraging individual stakeholders to share messages on their own social media networks (Huang & Sun, 2014). For example, studies find that the number of followers is positively associated with the amount of charitable donations (Saxton & Wang, 2013) and the acquisition of social media capital (Saxton & Guo, 2014). However, this method may be slow in creating a global influence as most social media messages stop disseminating after two rounds of re-posting (Huang & Sun, 2014). Castells (2012, 2013) argues that A-NGOs may generate global influence by creating a strategic network with other social media accounts. Through the cooperation with multiple accounts that have a diversified background of stakeholders, advocacy information can reach a global scale within a short time frame, enabling more stakeholders to be aware of an advocated issue. This large-scale stakeholder engagement may significantly increase the likelihood of obtaining global support (Castells, 2013; Xu & Saxton, 2018). Therefore, the third set of hypotheses are:

H3a. *The level of stakeholder support is positively associated with the effectiveness of advocacy information in attracting stakeholder engagement at the network level.*

H3b. *The level of stakeholder support is positively associated with the dissemination of advocacy information at the network level.*

3.5. Research Design

3.5.1. Greenpeace “Save the Arctic” Campaign

The empirical setting of this study is based on the Greenpeace “Save the Arctic” campaign. “Save the Arctic” (STA) is a global campaign which began in 2012, and advocates actions to mitigate climate change and to safeguard Arctic nature, wildlife, (such as polar bears, walruses, bowhead whales, arctic foxes and harps seals), and over 4 million indigenous people living around the area from irresponsible corporate exploitation (Allsopp et al., 2012; Greenpeace International, 2012). Since its initial launch, the main targeted corporations to date include oil companies such as Royal Dutch Shell, Gazprom, Cairn Energy, Statoil and ExxonMobil, retail businesses like LEGO (due to its relationship with Shell), seafood-related businesses including McDonald’s, Tesco, Young’s and Iglo (due to their irresponsible fishing activities in the Arctic area), and state authorities such as the US, Norwegian, Russian and Canadian governments (Greenpeace International, 2012, 2014, 2015, 2016, 2017). During the campaign period, Greenpeace achieved a number of significant advances in terms of raising global awareness on climate change and protesting against Arctic oil drilling by states and corporations. For example, Shell abandoned its oil drilling plan in Alaska in 2015. Global brands such as McDonald’s and Tesco ceased further expansion of cod fishing in the Arctic area in 2016. Greenpeace also successfully filed lawsuits against oil corporations for the use of seismic

blasting at the Clyde River area in Canada in 2016, and against the Norwegian government for permitting Arctic oil drilling in 2018. Since all these achievements cannot be made without the support from Greenpeace stakeholders and the general public, social media may offer valuable insights into the growth of this kind of "people power" (Kenyon, 2010).

3.5.2. Sample and Data Collection

This study relies on a unique dataset of the Greenpeace STA online petition signups as a direct measure for stakeholder support outside social media platforms, and it assesses the effects of Greenpeace social media engagement on stakeholder support both nationally and globally. The proprietary data has been contributed by Greenpeace and contains weekly STA signups from over 236 countries and regions between 1st January 2015 and 12th February 2018.[18] The employment of this dataset provides an opportunity to directly assess the effects of A-NGOs' social media engagements on global stakeholder support, where no previous study has done so.

The sample includes all Greenpeace international and national Facebook accounts and posts related to the STA campaign during the sample period.[19] Greenpeace Facebook accounts were identified through links on Greenpeace international and regional websites. After excluding offices that are

[18] The data only contains statistical information and no information is provided regarding supporters' identity.

[19] The reason for choosing Facebook is due to its heavy use by Greenpeace. According to a web traffic report generated by SimilarWeb (https://www.similarweb.com), for the period between November 2017 and January 2018, channels that direct web traffic to the STA campaign website (www.savethearctic.org) include social media (54.39%), links from the Greenpeace website (18.94%), emails (12.8%) and others (13.87%). Among social media channels, Facebook, Twitter, YouTube and Instagram accounted for 87.02%, 7.39%, 4.78% and 0.65% respectively. The heavy use of Facebook by Greenpeace is also confirmed by the Greenpeace social media team.

no longer available or lacking a Facebook account, the final sample consists of 51 Greenpeace Facebook accounts covering five geographical regions and 50 countries and territories (Appendix E).[20] Python was used to scrape a total of 76,670 posts from these accounts using the Facebook Application Programme Interface (API) on 13th February 2018. The retrieved data include message ID, message text, link name, type of media included, message published time and all engagement metrics (i.e. comments, shares and Facebook emoticon reactions: like, love, wow, haha, sad and angry).

3.5.3. Developing a Dictionary

Following prior studies (Loughran & McDonald, 2016; She & Michelon, 2019), this study employs a dictionary-based approach to identify STA-related posts among other Greenpeace campaigns. The dictionary was constructed using messages posted by the STA Facebook account,[21] STA campaign messages on the Greenpeace international office website, and a report about the Arctic wildlife published by the Greenpeace Scientific Unit (Allsopp et al., 2012). The final English dictionary constitutes 103 unique lexicons shown in Appendix F.[22]

Because the sample accounts contain messages in 29 languages, a dictionary was constructed for each language.[23] Following Limoncelli (2016),

[20] Some Facebook accounts are shared by several national offices hence the number of nations covered is greater than sample accounts.
[21] The STA Facebook account name was @arctic.rising during the sample collection period. Its current name is @peoplevsoil.
[22] To develop the dictionary, a textual analysis is performed on these documents to determine word frequency and then lexicons that are related to the Arctic and the STA campaign are manually selected. All words were normalised (stemmed, lower-capitalised and removing stopwords) before the analysis.
[23] The final complete dictionary used for textual analysis is available on request.

this study employs Google Translate and Wikipedia to identify translated lexicons as prior studies find that the accuracy of Google Translate is reasonable (Limoncelli, 2016), and both Google Translate and Wikipedia have been widely used by translation professionals (Alonso, 2015). To construct these dictionaries, firstly, STA campaign pages written in local languages on Greenpeace regional websites were located, and then the Google web translation function was used to locate and validate words on these website pages. Wikipedia was also used to identify scientific terms in corresponding languages. Extra lexicons were added to the dictionary due to various expressions in some languages. Wherever possible, these dictionaries were validated with native speakers.

3.5.4. Selecting Messages Using Textual Analysis

To identify STA-related information from other campaign information, textual analysis was performed using two approaches: (1) the score-based approach, and (2) the pattern-based approach. The score-based approach involves assigning a score to each lexicon contained in the dictionary and then selecting messages based on the total score. While most of the Arctic-related lexicons in the dictionary are assigned with a value of one, terms that are strongly related to the Arctic such as “savethearctic”, “polar”, “arctic”, “alaska”, and “bowhead whale” are assigned with a high value score to reduce the risk of a Type 1 error.[24] Additional exclusion words are added and assigned with a

[24] These terms include “Arctic”, “polar”, “Baffin”, “bowhead”, “Greenland”, “Narwhal”, “peoplevsarcticoil” and “Savethearctic”. “Savethearctic” is a hashtag used during the campaign and it is also a phrase contained in the website after removing punctuation (www.savethearctic.org).

high negative score to further eliminate a Type 2 error.[25] The pattern-based approach was used for languages that are not included in the textual analysis package (mainly Asian languages) and involved identifying characters that were matched with lexicons contained in the dictionary. To reduce the risk of Type 2 errors, more exclusion words were included to avoid texts being misclassified. After carrying out the above process, the final sample constitutes 8,336 STA-related Facebook posts.

3.5.5. Validation

The validation for information classification was conducted through two sources: (1) a crowdsourcing website, and (2) manual validation. Crowdsourcing validation involves uploading texts to a website where human contributors conduct verifications or classifications. In recent years, crowdsourcing websites, such as Amazon's Mechanical Turks and Figure Eight (formerly known as Crowdflower), are gaining popularity in conducting experiments, classifying data and creating training programs for machine learning within the accounting literature (Ku & Firoozi, 2017; Rennekemp, 2012). Due to the large variety of languages involved, this study uses Figure Eight to classify messages that were posted in English, Spanish and German language accounts, constituting 41.12% of the sample accounts.[26] To conduct

[25] The threshold for classifying an Arctic-related message is a minimum score of 5. The reason for choosing 5 is because this study assigns 5 or 10 to words that are strongly Arctic-related and -7 to exclusion words. Therefore, a text will be classified as a sample observation if it contains at least one high score word and one low score word. However, if a text contains an exclusion word, it needs at least two strongly related words and three weakly related words, hence the possibility of Type 2 is significantly lower. The exclusion words include issues such as deforestation, Antarctic, nuclear energy, and coal burning as they are related to other Greenpeace activities.

[26] Figure Eight is a crowdsourcing website: please visit www.figure-eight.com for more information.

the crowdsourcing validation, 441, 210 and 120 observations were randomly selected from the English, Spanish and German language accounts respectively. Some pre-test questions were set to preclude non-eligible contributors. To improve coding reliability, Figure Eight requires at least three people to classify each observation and an aggregated confidence score is computed based on the agreement among them. The final classification outcome is chosen based on the response with the highest confidence score. For manual validation, 10 observations were randomly selected from each of the remaining 30 accounts (300 observations in total) and then Google Translate was used to verify messages. Appendix G presents the performance of manual and computerised classification. All tasks scored an accuracy above 90% and a high inter-coder agreement for crowdsourcing validations. Therefore, the classification performance is considered reasonable.

3.6. Empirical Models

3.6.1. Message Level

Only English Facebook posts are analysed at the message level due to the limited functionality available in R *Quanteda*. Following prior studies (Saxton & Waters, 2014; She & Michelon, 2019), the Negative Binomial (NB) model is used to test H1a and H1b:

$$\begin{aligned} STK\_ENG_{ij} = {} & \beta_0 + \beta_1 TEXT\_LOG_{ij} + \beta_2 TEXT\_EMO_{ij} + \beta_3 VISUAL\_EMO_{ij} \\ & + \beta_4 HASHTAG_{ij} + \beta_5 URL_{ij} + \beta_6 VIDEO\_LEN_{ij} + \beta_7 TIME\_TREND_{ij} \\ & + Account\ Fixed\ Effect + \varepsilon \end{aligned} \tag{3.1}$$

where *ij* denotes Facebook post *i* in account *j*.

STK_ENG is the level of stakeholder engagement at the message level which is measured using the number of total emoticons (*EMOTICON*), the

number of shares (*SHARE*), the number of comments (*COMMENT*), the number of positive emoticons (*EMO_POS*: the sum of like, love, haha and wow), and the number of negative emoticons (*EMO_NEG*: the sum of sad and angry). Emoticons reflect stakeholders' emotional reactions towards Facebook posts and indicate how stakeholders are persuaded by A-NGOs' advocacy information (Saxton & Waters, 2014; She & Michelon, 2019). Shares indicate how well advocacy information resonate among stakeholders and their willingness to further disseminate the information (Saxton et al., 2019). Comments indicate the level of stakeholder discussion and the expression of their opinions on advocacy information (Saxton & Waters, 2014).

TEXT_LOG is the level of logical appeal in textual content. Similar to prior studies (Hope et al., 2016), this study uses the spaCy Named Entity Recognition package to identify the number of specific terms communicated in a Facebook post scaled by the length of the post. *TEXT_EMO* captures the emotional appeal in textual content and is calculated as the number of emotive words scaled by the length of the post.[27] The total number of emotive words were identified using the Lexicoder Sentiment Dictionary (LSD) which contains about 4,500 unique positive and negative phrases and is specifically developed for political communication (Young & Soroka, 2012).[28] To ensure the validity of both measures, 50 Facebook posts that are classified as high and low logical appeal as well as emotional appeal were randomly selected and then validated by three research assistants. The consistency rate between the computerised

[27] Sample messages are pre-processed using a script developed by Luxon (2017) to replace contractions, punctuation and negations.

[28] In LSD, "shell" is a negative sentiment word. However, it is also a specific term referring to Shell Oil Company, a main target by Greenpeace during the campaign. To reduce the multicollinearity between logical and emotional appeal, I exclude "shell" from the sentiment dictionary.

measure and human coding is 0.92 and 0.82 for logical appeal and emotional appeal respectively, with inter-coder agreements of 0.87 and 0.76 respectively.

VISUAL_EMO captures the emotional appeal in visual content: this is equal to one if a Facebook post contains images or videos showing Arctic wildlife and/or environment and zero otherwise. Indeed, prior literature suggests that the presence of suffering beneficiaries can elicit a higher level of emotions (Vinnari & Laine, 2017). Python and Google TensorFlow were used firstly to train 150 images for each of the ten categories - polar bears, bowhead whales and narwhals, walrus, Arctic owls, Arctic foxes, reindeers, Arctic seals, Arctic landscape, humans and oil platforms - and then the trained algorithm was used to determine the likelihood of a test image belonging to each of the ten categories.[29] Videos were coded manually.

Control variables. Following prior studies (Guo & Saxton, 2018; Saxton et al., 2019; Saxton & Waters, 2014; She & Michelon, 2019; Yang & Liu, 2017), a dummy variable is equal to one if a Facebook post contains a hashtag, and zero otherwise (*HASHTAG*); and a dummy variable is equal to one if a Facebook post contains a link to an external website, and zero otherwise (*URL*). The natural logarithm of the total number of seconds a video lasts (*VIDEO_LEN*) is included to control for the effect of video length on audience reactions. Because Facebook API does not provide historical data on follower size and previous studies indicate that follower size may increase in the long run (Guo & Saxton, 2018), a time trend variable that ranks Facebook post publication time in an ascending order is included to control for the potential

[29] The threshold for deciding its category is a minimum likelihood of 70%. Performance is compared by choosing a threshold likelihood ranging from 50% to 95% with an interval of 5%. 70% gives the highest accuracy in classifying both “Arctic animal” and “environment” (0.94 and 0.9 respectively).

growing trend of fan size over time (*TIME_TREND*). Account fixed effect is also added to capture other unobservable, time-invariant account-level characteristics. Standard errors are robust and clustering at the account level.

3.6.2. Account Level

The following NB model is used to test H2:

$$NATION\_SUPPORT_{nt} = \beta_0 + \beta_1 ACC\_EFFECT_{nt} + \beta_2 NUM\_POSTS_{nt} + \beta_3 NATION\_GTREND_{nt} + \beta_4 NATION\_NEWS_{nt} + \beta_5 GDP_{nt} + \beta_6 FHI_{nt} + Country\ Fixed\ Effect + Week\ Fixed\ Effect + \varepsilon \quad (3.2)$$

where *nt* denotes country *n* in week *t*.

NATION_SUPPORT is the level of stakeholder support at the account level which is measured using weekly Greenpeace STA petition signups received in a sample country. Since the 46 Greenpeace Facebook accounts cover 50 countries and territories,[30] this analysis includes 8,300 country-week observations.[31] *ACC_EFFECT* is the effectiveness of advocacy information in attracting stakeholder engagement at the account level, measured using the natural logarithm of the weekly total number of emoticons, shares, comments, positive emoticons and negative emoticons that STA Facebook posts receive alternatively.[32]

Control Variables. Since the level of stakeholder engagement is positively associated with the number of social media messages posted (Guo

[30] Some Facebook accounts are used in more than one country or territory.
[31] The number of weeks covered by the sample period is 166 weeks. The week number used by Greenpeace in the STA dataset is calculated by taking every 7 days from the first day of the year and the remaining days as the last week of the year. For example, the total number of days in 2015 is 365 days. Therefore, 1/1/2015 to 7/1/2015 is week 1 and the remaining days (i.e. only 31/12/2015) is in week 53 instead of being in week 1 2016. In this case, 2015, 2016, and 2017 each has 53 weeks, and 2018 has 7 weeks.
[32] A value of one was added before taking natural logarithm transformation for metrics with a zero value. To ensure robustness of the results, 0.0001 was added as an alternative constant before taking natural log transformation. The results are presented in robustness analyses.

& Saxton, 2018), the number of STA Facebook messages posted (*NUM_POSTS*) is included to control for the frequency of engagement. Following prior studies on the role of media in agenda-setting (Aerts & Cormier, 2009; Deegan et al., 2002), the Google trends volume search indicator (SVI) is employed to capture online media exposure (*NATION_GTREND*), and the number of newspaper articles is used as a measure for offline media exposure (*NATION_NEWS*). Prior studies find that Google trends data are positively associated with the volume of news coverage (Weeks & Southwell, 2010) and it also has potential in reflecting public attention (Zhi, Joseph, & Gao, 2011). Therefore, the inclusion of Google trends can control for situations in which stakeholders visit the STA petition page through an online search engine or online media outlet. Weekly Google trends data are retrieved from its API by searching for "Arctic" in each sample country. Local newspaper articles containing the keyword "Arctic", or its translated phrase are retrieved from Nexis UK. Major publication articles are searched and used for countries with many news outlets. The model also controls for the level of economic development (*GDP*) and the political freedom (*FHI*) for each country as prior studies suggest that both macro-level factors influence political participation (Sofie, Marc, & Ellen, 2010). *GDP* is the natural logarithm of each country's annual GDP per capita. It is measured in US dollars and is retrieved from the International Monetary Fund (IMF) database.[33] *FHI* is the annual Freedom House Index between 2015 and 2018 where a higher FHI indicates a higher level of political freedom (Sofie et al., 2010). The Freedom House Index data is retrieved from

[33] 2018 GDP per capita is estimated as of 18th May 2018.

the Freedom House website.[34] Finally, country fixed effect is used to control for other unaccounted, time-invariant, country-level characteristics such as culture and people's habits in using social media, and week fixed effect is used to account for unobserved events that may arise in a week. Standard errors are robust and clustering at the country level.

3.6.3. Network Level

The following NB model is used to test H3a and H3b:

$$WORLD\_SUPPORT_t = \beta_0 + \beta_1 NET\_EFFECT_t + \beta_2 NET\_EXTENT_t + \beta_3 WORLD\_GTREND_t + \beta_4 WORLD\_NEWS_t + \beta_5 STA\_EVENT_t + Year\ Fixed\ Effect + \varepsilon \quad (3.3)$$

where *t* detonates week *t* during the sample period.

WORLD_SUPPORT is the level of stakeholder support globally which is measured using the total weekly number of Greenpeace STA petition signups from over 236 countries. *NET_EFFECT* is the effectiveness of advocacy information in attracting stakeholder engagement at the network level, which is measured using the natural logarithm of the weekly total number of emoticons, shares, comments, positive emoticons and negative emoticons that STA Facebook posts receive alternatively.[35] *NET_EXTENT* is the extent of advocacy information disseminated on the network, measured using the percentage of Greenpeace Facebook accounts which participated in the dissemination process.

[34] Freedom house website: https://freedomhouse.org. Annual FHI is computed based on the level of democratic freedom in the previous year.
[35] To increase the robustness of results, I add 0.0001 before taking natural logarithm to measure effectiveness of advocacy information. The results (un-tabulated) are consistent with the main findings.

Control variables. Global Google trends (*WORLD_GTREND*) and global newspaper articles (*WORLD_NEWS*) are included to control for both online and offline media exposure. *WORLD_GTREND* is the global search volume for “Arctic” during the sample period. Global newspaper articles are retrieved from Nexis UK by searching for “Arctic” in world major newspaper publications. *STA_EVENT* is a dummy variable that is equal to one if any STA event happens in a given week, and zero otherwise. The information regarding major events was identified from Greenpeace International press releases by searching for the keyword “Arctic”. Year fixed effect is used to account for unobserved events that may arise in a year. Standard errors are robust. All variables employed in empirical models are defined in Table 3.1.

Table 3.1 Variable Definitions

Variable Name	Definition
Message Level	
STK_ENG	The natural logarithm of 1) *EMOTICON*: the number of total emoticons, 2) *SHARE*: the number of shares, 3) *COMMENT*: the number of comments, 4) *EMO_POS*: the number of positive emoticons, and 5) *EMO_NEG*: the number of negative emoticons.
TEXT_LOG	The number of specific phrases detected using spaCy Entity Recognition package divided by the total number of words in a message. Specific information includes numbers, time, date, location, countries, and organisation.
TEXT_EMO	The total number of LSD positive and negative emotive words identified divided by the total number of words in a message text
VISUAL_EMO	A dummy variable which sets to 1 if an image or video contains Arctic wildlife or natural environment and 0 otherwise.
HASHTAG	A dummy variable which equals 1 if a message contains a hashtag and 0 otherwise.
URL	A dummy variable which equals 1 if a message contains a link to external website and 0 otherwise.
VIDEO_LEN	The natural logarithm of the total number of seconds a video lasts.
TEXT_EMO_POS	The number of LSD positive words identified divided by the total number of words in a message text
TEXT_EMO_NEG	The number of LSD negative words identified divided by the total number of words in a message text
ANIMAL_IMAGE	A dummy variable which sets to 1 if an image contains Arctic animal and 0 otherwise
ENVIRON_IMAGE	A dummy variable which sets to 1 if an image contains Arctic landscape/environment and 0 otherwise
ANIMAL_VIDEO	A dummy variable which sets to 1 if a video contains Arctic animal and 0 otherwise
ENVIRON_VIDEO	A dummy variable which sets to 1 if a video contains Arctic landscape/environment and 0 otherwise
TIME_TREND	An increasing discreet variable showing the growing trend of fan size over time
Account Level	
NATION_SUPPORT	The natural logarithm of the weekly number of people who sign up to Greenpeace STA petition in a given country/territory.
ACC_EFFECT	The natural logarithm of the total number of emoticons (*ACC_EMOTICON)*, shares (*ACC_SHARE*), comments (*ACC_COMMENT*), positive emoticons (*ACC_EMO_POS*), and negative emoticons (*ACC_EMO_NEG*) that STA Facebook messages receive alternatively in a given week.
NUM_POSTS	Weekly number of Facebook messages posted by a Greenpeace account
NATION_GTREND	The weekly Google trends SVI searching "Arctic" in a given country/territory.
NATION_NEWS	The weekly number of newspaper articles containing the keyword "Arctic" or translated phrase in a given country/territory.
GDP	The natural logarithm of annual GDP per capita (GDP) in a given country/territory between 2015 and 2018.
FHI	The annual Freedom House Index (FHI) in a given country/territory between 2015 and 2018.
Network Level	
WORLD_SUPPORT	The natural logarithm of the weekly number of people who sign up to Greenpeace STA petition across the world.
NET_EFFECT	The natural logarithm of the total number of emoticons (*NET_EMOTICON)*, shares (*NET_SHARE*), comments (*NET_COMMENT*), positive emoticons (*NET_EMO_POS*), and negative emoticons (*NET_EMO_NEG*) that STA Facebook messages receive alternatively in a given week.
NET_EXTENT	The number of Greenpeace Facebook accounts that are connected to or switched on in given week to help post messages about STA divided by the total number of Greenpeace Facebook accounts.
WORLD_GTREND	Global weekly Google trends SVI searching "Arctic" in a given week.
WORLD_NEWS	The number of world major publication newspaper articles containing the keyword "Arctic" in a week.
STA_EVENT	A dummy variable that equals to 1 if any major STA event happens in a given week and 0 otherwise.

3.7. Empirical Findings

3.7.1. Descriptive Statistics

Table 3.2 provides descriptive statistics for variables at the message, account and network levels. As indicated in Table 3.2 Panel A, the average number of stakeholder engagement that each English Facebook post receives is a total of 1,575 emoticons, 859 shares and 68 comments. Further separating emoticons into positive and negative, an English Facebook post, on average, receives 1,463 positive emoticons and 221 negative emoticons. With regard to the level of logical and emotional appeal in textual content, each English Facebook post contains a mean of 8.28% specific terms and 7.44% emotive words. 30.5% of posts include images or videos containing “Arctic animal” and/or “environment”. As indicated in Table 2.2 Panel B, Greenpeace national accounts receive a mean of 460 petition signups each week. Regarding the effectiveness of advocacy information at the account level, STA Facebook posts on average receive 15.89 emoticons, 8.29 shares and 3.35 comments every week.[36] In Table 2.2 Panel C, the mean weekly global STA petition signups amount to 24,772. STA Facebook posts on average receive 46,027.76 total emoticons, 15,756.37 shares and 1,088.98 comments. Moreover, 42.2% of Greenpeace accounts on average participated in disseminating STA information every week.

[36] Values are presented before taking natural log transformation.

Table 3.2 Descriptive Statistics

Variables	N	Mean	St. Dev.	Min	P25	Median	P75	Max
Panel A. Message Level								
STK_ENG								
EMOTICON	1,527	1,574.86	2,949.57	0	206	567	1,673	37,324
SHARE	1,527	858.94	3,785.85	0	45	174	577	101,027
COMMENT	1,527	68.18	315.45	0	6	19	55	10,337
EMO_POS	1,527	1,462.65	2,820.30	0	175.5	501	1,581.5	37,324
EMO_NEG	773	221.40	862.45	0	1	12	116	16,772
TEXT_LOG	1,527	8.28	4.71	0	5.09	7.69	10.81	33.33
TEXT_EMO	1,527	7.44	4.15	0	4.76	7.14	9.68	27.27
VISUAL_EMO	1,527	0.31	0.46	0	0	0	1	1
HASHTAG	1,527	0.25	0.43	0	0	0	1	1
URL	1,527	0.24	0.43	0	0	0	0	1
VIDEO_LEN	1,527	1.63	2.27	0	0	0	4.16	8.22
Panel B. Account Level								
NATION_SUPPORT	8,300	459.75	2,105.17	0	10	45	233	111,337
ACC_EFFECT								
ACC_EMOTICON	8,300	2.77	3.45	0	0	0	6.30	12.38
ACC_SHARE	8,300	2.12	2.86	0	0	0	4.73	11.46
ACC_COMMENT	8,300	1.20	1.77	0	0	0	2.49	9.29
ACC_EMO_POS	8,300	2.72	3.40	0	0	0	6.16	12.38
ACC_EMO_NEG	5,250	1.26	2.21	0	0	0	1.95	9.76
NUM_POSTS	8,300	0.91	1.55	0	0	0	1	18
NATION_GTREND	8,300	43.20	21.20	0	30.96	44.71	57.57	100
NATION_NEWS	8,300	1.28	4.03	0	0	0	1	103
GDP	8,300	9.77	1.10	6.82	9.08	9.95	10.68	11.70
FHI	8,300	81.76	18.96	20	77	89	96	100
Panel C. Network Level								
WORLD_SUPPORT	166	24,772.52	27,913.19	122	7,499	14,807	32,257	187,533
NET_EFFECT								
NET_EMOTICON	166	10.74	1.52	0	10.28	10.97	11.49	13.61
NET_SHARE	166	9.67	1.52	0	9.08	9.81	10.54	12.79
NET_COMMENT	166	6.99	1.26	0	6.47	7.06	7.72	9.91
NET_EMO_POS	166	10.59	1.57	0	10.01	10.76	11.46	13.61
NET_EMO_NEG	105	8.41	1.57	0	7.90	8.66	9.23	10.75
NET_EXTENT	166	0.42	0.16	0	0.31	0.41	0.53	0.94
WORLD_GTREND	166	73.10	10.49	57	65	71.64	80.11	98.86
WORLD_NEWS	166	13.83	6.55	2	9	12	18	35
STA_EVENT	166	0.11	0.32	0	0	0	0	1

Notes All variables are defined in Table 3.1

3.7.2. Correlation Analysis

Table 3.3 provides the Pearson correlation matrices of variables used in three levels of analyses. Most pairs of independent and control variables used in analyses have correlation coefficients of less than ±0.5. However, *NUM_POSTS* has a high correlation with *ACC_EMOTICON, ACC_SHARE, ACC_COMMENT, ACC_EMO_POS, and ACC_EMO_NEG*. This is because the number of messages posted are directly linked to the number of stakeholders engaging with the advocacy information. *FHI* and *GDP* also have a high correlation at the national-account level. At the global-network level, *NET_EXTENT* and *NET_EMO_NEG* have a correlation coefficient of 0.5. To ensure there is no bias in the models due to multicollinearity, the variance inflation factors (VIF) for each regression analysis were computed: the highest VIF at each level of analysis is 1.20, 2.34, and 2.49 respectively. Therefore, the results suggest no presence of multicollinearity.

Table 3.3 Correlation Table

Panel A. Message Level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. EMOTICON	1										
2. SHARE	0.58***	1									
3. COMMENT	0.48***	0.39***	1								
4. EMO_POS	0.98***	0.52***	0.45***	1							
5. EMO_NEG	0.54***	0.65***	0.25***	0.24***	1						
6. TEXT_LOG	0.09***	0.13***	0.02	0.10***	0.01	1					
7. TEXT_EMO	0.04	0.08**	0.06*	0.04	0.08*	0.08**	1				
8. VISUAL_EMO	0.07**	0.11***	0	0.05	0.14***	-0.06*	-0.02	1			
9. HASHTAG	-0.06*	-0.04	-0.04	-0.06*	0	0.02	0.01	-0.04	1		
10. URL	-0.14***	-0.09***	-0.07**	-0.14***	-0.07*	-0.03	0.01	-0.21***	-0.05	1	
11. VIDEO_LEN	-0.01	0.09***	0.08**	-0.03	0.07	-0.03	-0.03	0.24***	0.04	-0.17***	1

Panel B. Account Level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. NATION_SUPPORT	-									
2. ACC_EMOTICON	0.23***	-								
3. ACC_SHARE	0.26***	0.96***	-							
4. ACC_COMMENT	0.27***	0.93***	0.95***	-						
5. ACC_EMO_POS	0.23***	1***	0.96***	0.93***	-					
6. ACC_EMO_NEG	0.17***	0.84***	0.86***	0.86***	0.82***	-				
7. NUM_POSTS	0.23***	0.75***	0.74***	0.75***	0.75***	0.66***	-			
8. NATION_GTREND	0.08***	0.14***	0.15***	0.16***	0.15***	0.1***	0.1***	-		
9. NATION_NEWS	0.07***	0.12***	0.15***	0.16***	0.12***	0.1***	0.18***	0.15***	-	
10. GDP	0.06***	0.22***	0.19***	0.2***	0.21***	0.17***	0.21***	0.29***	0.14***	-
11. FHI	0.05***	0.1***	0.1***	0.12***	0.1***	0.07***	0.14***	0.16***	0.14***	0.66***

Panel C. Network Level

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. WORLD_SUPPORT	-									
2. NET_EMOTICON	0.25**	-								
3. NET_SHARE	0.31***	0.9***	-							
4. NET_COMMENT	0.29***	0.77***	0.81***	-						
5. NET_EMO_POS	0.29***	0.98***	0.87***	0.75***	-					
6. NET_EMO_NEG	-0.07	0.72***	0.75***	0.59***	0.61***	-				
7. NET_ENG_EXTENT	0.59***	0.45***	0.45***	0.43***	0.5***	0.07	-			
8. WORLD_GTREND	-0.09	0.15	0.01	0.06	0.2*	-0.19	0.03	-		
9. WORLD_NEWS	-0.05	-0.03	-0.05	0.07	-0.06	0.04	0.02	0.16*	-	
10. STA_EVENT	0.25**	0	0.02	0.09	0.02	-0.15	0.36***	-0.16*	0.02	-

Notes All variables are defined in Table 3.1. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

3.7.3. Multivariate Results

3.7.3.1. Message level

Table 3.4 presents the results for examining the relationship between the level of stakeholder engagement and the level of logical and emotional appeal in advocacy information. The results show that *EMOTICON* (β = 0.012, p < .05)*, SHARE* (β = 0.029, p < .05) and *EMO_POS* (β = 0.013, p < .05) are positively associated with *TEXT_LOG*, while *COMMENT* and *EMO_NEG* show no significant relationship. These results indicate that stakeholders are more likely to share or react with positive emoticons towards information containing more specific terms. With regard to the level of emotional appeal, all five measures of stakeholder engagement are positively associated with *TEXT_EMO*, suggesting information containing more emotive words are more likely to attract stakeholder engagement. When compared to *TEXT_LOG*, *TEXT_EMO* only has a stronger effect on *EMO_NEG* (F test = 20.38, p < .01), while no significant difference is found on other engagement measures, suggesting that emotional appeal and logical appeal have similar effects on stakeholder engagement. In relation to visual content, while *EMOTICON* (β = 0.147, p < .01), *SHARE* (β = 0.614, p < .01), and *EMO_NEG* (β = 1.162, p < .01) are positively associated with *VISUAL_EMO*, *COMMENT* is negatively related (β = -0.216, p < .05) and *EMO_POS* shows no significant relationship. These results suggest that stakeholders are less willing to make comments or react with positive emoticons after seeing visuals containing “Arctic animals” and “environment”. Overall, the findings support H1a and H1b where stakeholder engagement is positively associated with the level of logical and emotional appeal in advocacy information.

Table 3.4 NB Regression Analysis of the Logical and Emotional Appeal in Advocacy Information on the Stakeholder Engagement at Message Level

	Dependent variable: STK_ENG				
	EMOTICON	SHARE	COMMENT	EMO_POS	EMO_NEG
	(1)	(2)	(3)	(4)	(5)
TEXT_LOG	**0.012****	**0.029****	0.013	**0.013****	-0.040
	(0.005)	**(0.012)**	(0.011)	**(0.005)**	(0.033)
TEXT_EMO	**0.031*****	**0.039*****	**0.054****	**0.030*****	**0.058***
	(0.011)	**(0.012)**	**(0.027)**	**(0.012)**	**(0.031)**
VISUAL_EMO	**0.147*****	**0.614*****	**-0.216****	0.032	**1.162*****
	(0.044)	**(0.211)**	**(0.103)**	(0.040)	**(0.249)**
HASHTAG	-0.296**	-0.418	-0.449**	-0.313**	0.044
	(0.145)	(0.256)	(0.205)	(0.144)	(0.299)
URL	-0.198**	-0.295	-0.472**	-0.241**	0.454**
	(0.098)	(0.191)	(0.200)	(0.115)	(0.210)
VIDEO_LEN	-0.019	0.132***	0.148***	-0.020	-0.021
	(0.029)	(0.050)	(0.048)	(0.030)	(0.031)
TIME_TREND	-0.002***	-0.002	-0.000	-0.003***	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
CONSTANT	5.776***	4.062***	2.082***	5.797***	2.360***
	(0.131)	(0.206)	(0.227)	(0.166)	(0.271)
Account FE	YES	YES	YES	YES	YES
Observations	1,527	1,527	1,527	1,527	773(1)
Pseudo R^2	0.0407	0.0374	0.0401	0.0416	0.0297
Log Likelihood	-12063	-10650	-7268	-11920	-3735
Within Regression F Test					
TEXT_LOG = *TEXT_EMO*	2.25	0.21	1.31	1.65	20.38***

Notes (1) Observations reduced because Facebook introduced 5 additional emoticons after 26th February 2016. Positive emoticons have full sample because the number of likes is available prior to February 2016. Table 3.4 reports the results on Negative Binomial analysis of the logical and emotional appeal in advocacy information on stakeholder engagement at message level. Column 1 to 5 presents the results from regressing the number of emoticons (Column 1), shares (Column 2), comments (Column 3), positive emoticons (Column 4), and negative emoticons (Column 5) on the level of logical (TEXT_LOG) and emotional appeal in textual (TEXT_EMO) and visual contents (VISUAL_EMO) of advocacy information. TEXT_LOG = TEXT_EMO shows the within regression F test on the difference between two variable coefficients. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors clustering at account level. All variables are defined in Table 3.1. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (twotailed), respectively.

Table 3.5 presents the results examining the effect of the individual information component on the level of stakeholder engagement by further separating *TEXT_EMO* into positive (*TEXT_EMO_POS*) and negative emotional appeal (*TEXT_EMO_NEG*) and *VISUAL_EMO* into *ANIMAL_IMAGE*, *ENVIRON_IMAGE*, *ANIMAL_VIDEO* and *ENVIRON_VIDEO*. As indicated in Table 3.5, while the coefficients of *TEXT_LOG* are consistent with the ones in the main finding, the effects are not significant. This is probably due to the substitution effect between specific information and visuals (as reflected in the correlation coefficient of -0.06, $p < .1$ in Table 3.3) in which Greenpeace may communicate less specific information when posting visuals containing “Arctic animal” and “environment”. In terms of the sentiment of textual content, *TEXT_EMO_POS* has a positive relationship with *EMO_POS*, and a negative relationship with *SHARE* and *EMO_NEG,* suggesting advocacy information that appeals to positive emotions are more likely to attract stakeholder positive emoticons but less likely to attract shares and negative emoticons. All five engagement measures are positively associated with *TEXT_EMO_NEG*, suggesting that the effect of emotional appeal on stakeholder engagement is driven by negative emotive words. With regard to the level of emotional appeal by visual content, images showing Arctic animals are positively associated with *EMOTICON* and *EMO_POS*, but negatively related to *EMO_NEG*. The presence of videos showing Arctic animals is positively related to *EMOTICON* and *SHARE* but not *COMMENT*. The presence of videos showing the Arctic environment is negatively associated with *EMOTICON*, *COMMENT* and *EMO_POS*. These results suggest that stakeholders are more likely to engage on visuals showing Arctic

animals instead of the environment. Overall, these results suggest that advocacy messages containing more negative emotive words and visuals of live beneficiaries are effective in attracting stakeholder engagement (Brennan & Merkl-Davies, 2014; Castells, 2013; Vinnari & Laine, 2017).

Table 3.5 Additional NB Regression Analysis of Positive and Negative Emotional Appeal on Stakeholder Engagement at Message Level

	Dependent variable: STK_ENG				
	EMOTICON	SHARE	COMMENT	EMO_POS	EMO_NEG
	(1)	(2)	(3)	(4)	(5)
TEXT_LOG	0.007	0.012	0.005	0.010	-0.051
	(0.006)	(0.014)	(0.010)	(0.006)	(0.036)
TEXT_EMO_POS	0.013	**-0.019***	-0.001	**0.020***	**-0.077*****
	(0.011)	**(0.011)**	(0.018)	**(0.011)**	**(0.022)**
TEXT_EMO_NEG	**0.044****	**0.074*****	**0.100****	**0.039***	**0.145*****
	(0.019)	**(0.017)**	**(0.039)**	**(0.022)**	**(0.046)**
ANIMAL_IMAGE	**0.201***	0.152	-0.021	**0.194***	**-0.968*****
	(0.106)	(0.181)	(0.262)	**(0.109)**	**(0.337)**
ENVIRON_IMAGE	-0.152	-0.169	-0.269	-0.201	0.460
	(0.164)	(0.194)	(0.237)	(0.177)	(0.303)
ANIMAL_VIDEO	**0.517*****	**1.314*****	0.281	**0.307*****	**1.712*****
	(0.119)	**(0.354)**	(0.185)	**(0.110)**	**(0.534)**
ENVIRON_VIDEO	**-0.374***	-0.278	**-0.809*****	**-0.340***	-0.066
	(0.203)	(0.351)	**(0.218)**	**(0.182)**	(0.359)
HASHTAG	-0.315**	-0.506**	-0.473***	-0.318**	-0.278
	(0.134)	(0.220)	(0.176)	(0.132)	(0.398)
URL	-0.156*	-0.227	-0.353**	-0.202*	0.323
	(0.094)	(0.163)	(0.160)	(0.117)	(0.279)
VIDEO_LEN	-0.013	0.110**	0.163***	-0.008	-0.039
	(0.037)	(0.056)	(0.050)	(0.040)	(0.038)
TIME_TREND	-0.002***	-0.003***	-0.001	-0.003***	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
CONSTANT	5.897***	4.526***	2.320***	5.849***	3.051***
	(0.154)	(0.192)	(0.265)	(0.179)	(0.383)
Account FE	YES	YES	YES	YES	YES
Observations	1,527	1,527	1,527	1,527	773(1)
Pseudo R^2	0.0423	0.0425	0.0458	0.0425	0.0402
Log Likelihood	-12042	-10593	-7225	-11909	-3695

Note (1) Observations reduced because Facebook introduced 5 additional emoticons after 26th February 2016. Positive emoticons have full sample because the number of likes is available prior to February 2016.

Table 3.5 reports the results on additional Negative Binomial analysis of the emotional appeal in advocacy information on stakeholder engagement at message level. Column 1 to 5 presents the results from regressing the number of emoticons (Column 1), shares (Column 2), comments (Column 3), positive emoticons (Column 4), and negative emoticons (Column 5) on the level OF positive and negative emotional appeal in textual contents as well as the presence of Arctic wildlife image, Arctic environment image, Arctic wildlife videos, and Arctic environment videos in advocacy information. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors clustering at account level. All variables are defined in Table 3.1. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (twotailed), respectively.

3.7.3.2. Account Level

Table 3.6 reports the results examining the relationship between stakeholder support and the effectiveness of advocacy information in attracting stakeholder engagement at the account level. As indicated by the table, *NATION_SUPPORT* is positively associated with all five measures of message effectiveness (*ACC_EMOTICON*, *ACC_SHARE*, *ACC_COMMENT*, *ACC_EMO_POS* and *ACC_EMO_NEG*). When analysing the effect individually, *ACC_COMMENT* has the strongest effect on national petition signups, followed by *ACC_SHARE* and *ACC_ EMO_NEG*. These results indicate that advocacy information that is effective in attracting stakeholder comments, shares and negative emotional reactions can convince stakeholders to sign up to petitions on the STA website. Overall, the results support H2 in that social media engagement in advocacy activities can help A-NGOs obtain national stakeholder support outside social media platforms.

Table 3.6 NB Regression Analysis of the Effectiveness of Advocacy Information on the Level of Stakeholder Support at Account Level

	Dependent variable: NATION_SUPPORT				
	(1)	(2)	(3)	(4)	(5)
ACC_EFFECT					
ACC_EMOTICON	**0.072*** (0.013)**				
ACC_SHARE		**0.094*** (0.016)**			
ACC_COMMENT			**0.155*** (0.029)**		
ACC_EMO_POS				**0.072*** (0.014)**	
ACC_EMO_NEG					**0.085*** (0.015)**
NUM_POSTS	0.112***	0.103***	0.102***	0.114***	0.161***
	(0.028)	(0.027)	(0.027)	(0.028)	(0.034)
NATION_GTREND	0.005**	0.005**	0.005**	0.005**	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
NATION_NEWS	-0.002	-0.002	-0.002	-0.002	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
GDP	0.013	-0.044	-0.113	-0.003	-1.128
	(1.726)	(1.693)	(1.684)	(1.725)	(1.643)
FHI	0.006	0.007	0.005	0.006	0.028
	(0.022)	(0.022)	(0.022)	(0.022)	(0.021)
CONSTANT	5.912	6.304	7.112	6.057	14.643
	(15.475)	(15.193)	(15.123)	(15.461)	(15.065)
Country FE	YES	YES	YES	YES	YES
Week FE	YES	YES	YES	YES	YES
Observations	8,300	8,300	8,300	8,300	5,250[(1)]
Pseudo R^2	0.143	0.143	0.143	0.143	0.154
Log Likelihood	-43842	-43830	-43829	-43846	-26436

[(1)] Observations reduced because Facebook introduced 5 additional emoticons after 26th February 2016. Positive emoticons have full sample because the number of likes is available prior to February 2016.

Table 3.6 reports the results on Negative Binomial analysis of the effectiveness of advocacy information on the level of national stakeholder support. Column 1 to 5 presents the results from regressing the natural log of weekly total number of national petition signups on the weekly total number of emoticons, shares, comments, positive emoticons, and negative emoticons that STA messages receive alternatively. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors clustering at country level. All variables are defined in Table 3.1. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (twotailed), respectively.

3.7.3.3. Network Level

Table 3.7 reports the results which examine the relationship between the level of global stakeholder support and the effectiveness and dissemination of advocacy information at the network level. With regard to the effectiveness of advocacy information, the level of global stakeholder support is positively associated with *NET_EMOTICON*, *NET_SHARE*, *NET_COMMENT* and *NET_EMO_POS*. However, no significant relationship is found between *WORLD_SUPPORT* and *NET_EMO_NEG*. This is probably due to the reduced number of observations for negative emoticons. Overall, the findings suggest that advocacy information that is effective in attracting stakeholder engagement can also convince stakeholders to subsequently sign up petitions. With regard to the extent of advocacy information dissemination, *WORLD_SUPPORT* is positively associated with *NET_EXTENT* in all models, suggesting that the cooperation with other Greenpeace Facebook accounts to disseminate information regarding advocated issues can lead to more petition signups across the world. Thus, the results support H3a and H3b where the effectiveness and dissemination of advocacy information help A-NGOs to obtain global stakeholder support.[37]

[37] The Durbin-Watson test is run to identify any auto-correlation issues in stakeholder petition signups. The coefficient is 2.2278 (p = 0.1533), indicating no presence of autocorrelation.

Table 3.7 NB Regression Analysis of the Effectiveness and Dissemination of Advocacy Information on the Level of Stakeholder Support at Network Level

	Dependent variable: WORLD_SUPPORT				
	(1)	(2)	(3)	(4)	(5)
NET_EFFECT					
NET_EMOTICON	**0.264*** **				
	(0.039)				
NET_SHARS		**0.256*** **			
		(0.047)			
NET_COMMENT			**0.262*** **		
			(0.099)		
NET_EMO_POS				**0.286*** **	
				(0.040)	
NET_EMO_NEG					0.062
					(0.085)
NET_EXTENT	**3.008*** **	**3.014*** **	**2.990*** **	**2.839*** **	**4.738*** **
	(0.610)	**(0.614)**	**(0.700)**	**(0.609)**	**(0.729)**
WORLD_GTREND	-0.010	-0.006	-0.007	-0.011*	-0.014*
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)
WORLD_NEWS	-0.014	-0.015	-0.015	-0.013	-0.020
	(0.010)	(0.010)	(0.011)	(0.010)	(0.014)
STA_EVENT	-0.038	-0.033	-0.079	-0.049	-0.160
	(0.175)	(0.174)	(0.170)	(0.172)	(0.231)
CONSTANT	6.650***	6.734***	7.512***	6.548***	8.770***
	(0.573)	(0.598)	(0.743)	(0.565)	(0.965)
Year FE	YES	YES	YES	YES	YES
Observations	166	166	166	166	105(1)
Pseudo R^2	0.0431	0.0427	0.0409	0.0439	0.0475
Log Likelihood	-1766	-1766	-1770	-1764	-1096

(1) Observations reduced because Facebook introduced 5 additional emoticons after 26th February 2016. Positive emoticons have full sample because the number of likes is available prior to February 2016.

Table 3.7 reports the results on Negative Binomial analysis of the effectiveness and dissemination of advocacy information on the level of global stakeholder support. Column 1 to 5 presents the results from regressing the natural log of weekly total number of global petition signups on the weekly total number of emoticons, shares, comments, positive emoticons, and negative emoticons that STA messages receive alternatively. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors. All variables are defined in Table 3.1. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (twotailed), respectively.

3.7.4. Robustness Analyses

3.7.4.1. OLS Models

Following Guo and Saxton (2018), the above regressions were re-run using the OLS models with dependent variables measured using the natural logarithm. A constant of one is added to zero values before the log-transformation. Table 3.8 presents the OLS model results for all three level analyses. Overall, the results are largely consistent with the main findings, except for *TEXT_LOG* where it has a strong positive effect on *COMMENT* and a negative effect on *EMO_NEG*, while no effect is found on *EMOTICON*, *SHARE* and *EMO_POS*.

3.7.4.2. Measuring Emotional Appeal Using Hu & Liu (2004) Dictionary

To test the robustness of H1 analysis, this study uses an alternative sentiment dictionary developed by Hu and Liu (2004) to re-compute the number of emotive words. Hu and Liu (2004) create a well-known sentiment dictionary for social media content used in prior accounting studies (Bartov et al., 2017). Table 2.9 provides the NB regression results using the Hu and Liu (2004) sentiment dictionary. While *HL_SENT* has a consistent sign with the main findings, only *EMOTICON*, *EMO_POS* and *EMO_NEG* show a significant positive relationship. Since Hu and Liu (2004) was not specifically developed for political communication, the power in measuring the sentiment of a political text may be reduced (Young & Soroka, 2012).

Table 3.8 Sensitivity Analysis – OLS Model

Panel A. OLS Regression Analysis of the Logical and Emotional Appeal in Advocacy Information on Stakeholder Engagement at Message Level

	Dependent variable: STK_ENG				
	EMOTICON	SHARE	COMMENT	EMO_POS	EMO_NEG
	(1)	(2)	(3)	(4)	(5)
TEXT_LOG	0.006	-0.000	**0.011*** **	0.008	**-0.054*** **
	(0.006)	(0.011)	**(0.003)**	(0.006)	**(0.010)**
TEXT_EMO	**0.018***	**0.021****	0.009	0.015	**0.041****
	(0.009)	**(0.008)**	(0.009)	(0.009)	**(0.013)**
VISUAL_EMO	**0.312*** **	**0.569*** **	0.144	**0.242*** **	**1.131*** **
	(0.063)	**(0.083)**	(0.083)	**(0.063)**	**(0.159)**
HASHTAG	-0.220**	-0.352**	-0.283**	-0.222**	-0.119
	(0.077)	(0.109)	(0.103)	(0.075)	(0.180)
URL	0.078	0.209	0.072	0.010	0.308*
	(0.101)	(0.128)	(0.110)	(0.131)	(0.156)
VIDEO_LEN	-0.031*	0.042	0.052*	-0.022	-0.025
	(0.014)	(0.030)	(0.027)	(0.014)	(0.046)
TIME_TREND	-0.003***	-0.004***	-0.002	-0.004***	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
CONSTANT	5.057***	3.062***	1.502***	5.083***	0.866***
	(0.074)	(0.091)	(0.061)	(0.096)	(0.130)
Account FE	YES	YES	YES	YES	YES
Observations	1,527	1,527	1,527	1,527	773(1)
Adjusted R^2	0.511	0.417	0.340	0.517	0.226

Panel B. OLS Regression of Effectiveness of Advocacy Information on the Level of Stakeholder Support at Account Level

	Dependent variable: NATION_SUPPORT				
	(1)	(2)	(3)	(4)	(5)
ACC_EFFECT					
ACC_EMOTICON	**0.068*** **				
	(0.011)				
ACC_SHARE		**0.093*** **			
		(0.015)			
ACC_COMMENT			**0.146*** **		
			(0.027)		
ACC_EMO_POS				**0.069*** **	
				(0.012)	
ACC_EMO_NEG					**0.087*** **
					(0.013)
NUM_POSTS	0.118***	0.105***	0.107***	0.118***	0.124***
	(0.033)	(0.033)	(0.034)	(0.034)	(0.041)
NATION_GTREND	0.005**	0.005**	0.005**	0.005**	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
NATION_NEWS	-0.003	-0.004	-0.003	-0.003	-0.004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
GDP	0.224	0.157	0.084	0.210	-0.006
	(1.321)	(1.285)	(1.274)	(1.318)	(1.390)
FHI	-0.032*	-0.032*	-0.033*	-0.032*	-0.016
	(0.019)	(0.018)	(0.018)	(0.019)	(0.022)
CONSTANT	6.113	6.715	7.476	6.237	6.911
	(11.513)	(11.212)	(11.105)	(11.485)	(12.786)
Country FE	YES	YES	YES	YES	YES
Week FE	YES	YES	YES	YES	YES
Observations	8,300	8,300	8,300	8,300	5,250(2)
Adjusted R^2	0.814	0.815	0.814	0.814	0.811

Panel C. OLS Regression Analysis of the Effectiveness and Dissemination of Advocacy Information on the Level of Stakeholder Support at Network Level

	Dependent variable: WORLD_SUPPORT				
	(1)	(2)	(3)	(4)	(5)
NET_EFFECT					
NET_EMOTICON	**0.270*** **				
	(0.038)				
NET_SHARE		**0.278*** **			
		(0.040)			
NET_COMMENT			**0.299*** **		
			(0.088)		
NET_EMO_POS				**0.282*** **	
				(0.039)	
NET_EMO_NEG					**0.148** **
					(0.062)
NET_EXTENT	**2.949*** **	**2.843*** **	**2.910*** **	**2.863*** **	**4.521*** **
	(0.523)	**(0.517)**	**(0.676)**	**(0.526)**	**(0.637)**
WORLD_GTREND	-0.009	-0.006	-0.006	-0.010*	-0.009
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
WORLD_NEWS	-0.011	-0.011	-0.014	-0.010	-0.019*
	(0.009)	(0.008)	(0.008)	(0.009)	(0.011)
STA_EVENT	0.003	0.011	-0.059	-0.019	-0.069
	(0.172)	(0.172)	(0.170)	(0.172)	(0.214)
CONSTANT	6.259***	6.306***	6.958***	6.236***	7.361***
	(0.529)	(0.515)	(0.560)	(0.525)	(0.623)
Year FE	YES	YES	YES	YES	YES
Observations	166	166	166	166	105(3)
Adjusted R^2	0.649	0.652	0.637	0.652	0.666

Note (1)-(3) Observations reduced because Facebook introduced 5 additional emoticons after 26th February 2016. Positive emoticons have full sample because the number of likes is available prior to February 2016. Table 3.8 reports the results on the robustness rests of main analyses using OLS models. Panel A presents the OLS results from regressing the number of emoticons (Column 1), shares (Column 2), comments (Column 3), positive emoticons (Column 4), and negative emoticons (Column 5) on the level logical and emotional appeal in textual and visual contents of advocacy information. Panel B presents the OLS results from regressing the natural log of weekly total number of national petition signups on the weekly total number of emoticons, shares, comments, positive emoticons, and negative emoticons that STA messages receive alternatively. Panel C presents the OLS results from regressing the natural log of weekly total number of global petition signups on the weekly total number of emoticons, shares, comments, positive emoticons, and negative emoticons that STA messages receive alternatively. The table reports OLS coefficient estimates and (in brackets) robust standard errors. All variables are defined in Table 3.1. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (twotailed), respectively.

Table 3.9 Sensitivity Analysis: NB Regression Results of the Logical and Emotional Appeal on Stakeholder Engagement Using Hu & Liu (2004) Dictionary

	Dependent variable: STK_ENG				
	EMOTICON	SHARE	COMMENT	EMO_POS	EMO_NEG
	(1)	(2)	(3)	(4)	(5)
TEXT_LOG	**0.016*** **	**0.037*** **	**0.022** **	**0.017*** **	-0.035
	(0.006)	**(0.011)**	**(0.009)**	**(0.006)**	(0.036)
HL_EMO	**0.040** **	0.031	0.064	**0.037** *	**0.105*** **
	(0.019)	(0.023)	(0.051)	**(0.021)**	**(0.020)**
VISUAL_EMO	**0.136*** **	**0.620*** **	**-0.219** **	0.020	**1.147*** **
	(0.037)	**(0.197)**	**(0.086)**	(0.034)	**(0.241)**
HASHTAG	-0.274**	-0.405	-0.435**	-0.291**	0.110
	(0.140)	(0.247)	(0.185)	(0.137)	(0.396)
URL	-0.220**	-0.320*	-0.498**	-0.260**	0.349**
	(0.102)	(0.191)	(0.206)	(0.115)	(0.164)
VIDEO_LEN	-0.021	0.133***	0.145***	-0.021	-0.031
	(0.026)	(0.045)	(0.044)	(0.028)	(0.038)
TIME_TREND	-0.002**	-0.001	-0.000	-0.003***	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
CONSTANT	5.922***	4.287***	2.368***	5.955***	2.307***
	(0.103)	(0.196)	(0.238)	(0.138)	(0.162)
Account FE	YES	YES	YES	YES	YES
Observations	1,527	1,527	1,527	1,527	773(1)
Pseudo R^2	0.0405	0.0368	0.0391	0.0414	0.0302
Log Likelihood	-12065	-10656	-7275	-11923	-3734

Note (1) Observations reduced because Facebook introduced 5 additional emoticons after 26th February 2016. Positive emoticons have full sample because the number of likes is available prior to February 2016 Table 3.9 reports the results on Negative Binomial analysis of the level of logical and emotional appeal on stakeholder engagement at message level using Hu & (Liu 2004) sentiment dictionary. Column 1 to 5 presents the results from regressing the number of emoticons (Column 1), shares (Column 2), comments (Column 3), positive emoticons (Column 4), and negative emoticons (Column 5) on the level emotional appeal in textual and visual contents of advocacy information measured using Hu & Liu (2004) sentiment dictionary. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors clustering at account level. All variables are defined in Table 3.1. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (twotailed), respectively.

3.7.4.3. Alternative Measure of Advocacy Information Effectiveness

To ensure the robustness of H2 analyses, 0.0001 was added instead of one before the log-transformation as an alternative measure of the effectiveness of advocacy information. Table 3.10 presents the results of H2 by adding 0.0001 before log-transformation. The results are consistent with the main finding. To ensure the robustness of H3 analyses, 0.0001 was also added instead of one before the log-transformation as an alternative measure of the effectiveness of advocacy information. Table 3.11 presents the results of H3 using the alternative measure, and the results are consistent with the main finding.

Table 3.10 Sensitivity Analysis: NB Regression Analysis of the Effectiveness of Advocacy Information on the Level of Stakeholder Support at Account Level

	Dependent variable: NATION_SUPPORT				
	(1)	(2)	(3)	(4)	(5)
ACC_EFFECT					
ACC_EMOTICON_AC	**0.027*** **				
	(0.005)				
ACC_SHARE_AC		**0.031*** **			
		(0.005)			
ACC_COMMENT_AC			**0.042*** **		
			(0.006)		
ACC_EMO_POS_AC				**0.027*** **	
				(0.005)	
ACC_EMO_NEG_AC					**0.034*** **
					(0.005)
NUM_POSTS	0.133***	0.128***	0.115***	0.133***	0.148***
	(0.028)	(0.026)	(0.025)	(0.028)	(0.032)
NATION_GTREND	0.005**	0.005**	0.006**	0.005**	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
NATION_NEWS	-0.002	-0.002	-0.002	-0.002	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
GDP	0.108	0.122	0.062	0.102	-1.221
	(1.757)	(1.738)	(1.743)	(1.756)	(1.647)
FHI	0.006	0.007	0.005	0.006	0.026
	(0.022)	(0.022)	(0.022)	(0.022)	(0.021)
CONSTANT	5.395	5.188	5.955	5.451	16.000
	(15.715)	(15.554)	(15.604)	(15.710)	(15.139)
Country FE	YES	YES	YES	YES	YES
Week FE	YES	YES	YES	YES	YES
Observations	8,300	8,300	8,300	8,300	5,250[(1)]
Pseudo R^2	0.143	0.143	0.143	0.143	0.154
Log Likelihood	-43856	-43852	-43829	-43858	-26429

[(1)] Observations reduced because Facebook introduced 5 additional emoticons after 26th February 2016. Positive emoticons have full sample because the number of likes is available prior to February 2016.

Table 3.10 Panel A reports the sensitivity analyses results on Negative Binomial analysis of the effectiveness of advocacy information on the level of national stakeholder support using an alternative constant added before log transformation. A constant of 0.0001 is added before taking the log transformation of independent variables. Column 1 to 5 presents the results from regressing the natural log of weekly total number of national petition signups on the weekly total number of emoticons, shares, comments, positive emoticons, and negative emoticons that STA messages receive alternatively. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors clustering at country level. All variables are defined in Table 3.1. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (twotailed), respectively.

Table 3.11 NB Regression Analysis of the Effectiveness and Dissemination of Advocacy Information on the Level of Stakeholder Support at Network Level

	Dependent variable: WORLD_SUPPORT				
	(1)	(2)	(3)	(4)	(5)
NET_EFFECT					
NET_EMOTICON_AC	**0.128*** **				
	(0.020)				
NET_SHARE_AC		**0.137*** **			
		(0.021)			
NET_COMMENT_AC			**0.150*** **		
			(0.027)		
NET_EMO_POS_AC				**0.134*** **	
				(0.021)	
NET_EMO_NEG_AC					**0.084** **
					(0.034)
NET_EXTENT	**3.505*** **	**3.413*** **	**3.339*** **	**3.439*** **	**4.465*** **
	(0.546)	**(0.549)**	**(0.549)**	**(0.544)**	**(0.735)**
WORLD_GTREND	-0.008	-0.006	-0.007	-0.009	-0.014*
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)
WORLD_NEWS	-0.014	-0.014	-0.014	-0.013	-0.020
	(0.010)	(0.010)	(0.010)	(0.010)	(0.014)
STA_EVENT	-0.042	-0.029	-0.052	-0.046	-0.109
	(0.173)	(0.173)	(0.170)	(0.171)	(0.235)
CONSTANT	7.835***	7.793***	8.177***	7.830***	8.710***
	(0.580)	(0.579)	(0.595)	(0.577)	(0.719)
Year FE	YES	YES	YES	YES	YES
Observations	166	166	166	166	105(1)
Pseudo R^2	0.0423	0.0426	0.0418	0.0427	0.0491
Log Likelihood	-1767	-1767	-1768	-1766	-1094

(1) Observations reduced because Facebook introduced 5 additional emoticons after 26th February 2016. Positive emoticons have full sample because the number of likes is available prior to February 2016.

Table 3.11 reports the sensitivity analyses results on Negative Binomial analysis of the effectiveness and dissemination of advocacy information on the level of global stakeholder support using alternative constant added before log transformation. A constant of 0.0001 is added before taking the log transformation of independent variables. Column 1 to 5 presents the results from regressing the natural log of weekly total number of global petition signups on the alternative measure of the weekly total number of emoticons, shares, comments, positive emoticons, and negative emoticons that STA messages receive alternatively. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors. All variables are defined in Table 3.1. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (twotailed), respectively.

3.8. Conclusions, Discussions, and Implications for Future Research

Drawing on Castells' (2011, 2012, 2013) network-making power perspective, this chapter examines how A-NGOs communicate advocacy information with stakeholders in social media to attract their engagement, and whether such engagement can obtain large-scale stakeholder support beyond social media platforms. By focusing on the Greenpeace “Save the Arctic” campaign and its social media engagement at the message, account and network levels, this study documents evidence that Greenpeace communicates advocacy information that appeals to logic and emotions to attract stakeholder engagement on social media, and such engagement can help Greenpeace obtain large-scale stakeholder support outside social media platforms.

The first set of hypotheses examines the relationship between the level of stakeholder engagement and the level of logical and emotional appeal in advocacy information. The findings show that the amount of specific terms is positively associated with stakeholder engagement with emoticons (mainly positive emoticons) and shares. The number of emotive words, especially negative words used in textual content, have a positive effect on five alternative engagement measures. However, compared to emotional appeal in textual content, logical appeal has a similar effect on stakeholder engagement. While social media content is more likely to contain partial views, inaccurate facts and emotionally charged information (Etter et al., 2019), the findings suggest that stakeholder worldviews are not easily changed purely by emotional appeal. Instead, stakeholders also use specific information to assess the impact of advocacy activities on their lives. Therefore, instead of over-focusing on the role

of emotions in attracting stakeholder engagement (Castells, 2013; Etter et al., 2019), the findings indicate an equal role between logical and emotional appeal (Brennan & Merkl-Davies, 2014; Giorgi, 2017). Visual content such as images or videos showing Arctic animals are more likely to attract emoticons and shares. The evidence supports claims made in previous literature that stakeholders react to communication strategies used in both textual and visual content (Brennan & Merkl-Davies, 2014; Giorgi, 2017; Vinnari & Laine, 2017), suggesting the power of A-NGOs in influencing stakeholder worldviews.

The second and third set of hypotheses examine the relationship between the level of stakeholder support and the effectiveness and dissemination of advocacy information at the account and network level. The results show that the engagement between Greenpeace and stakeholders may facilitate the attainment of national stakeholder support, and the dissemination of information may increase their influence by allowing more stakeholders to express their opinions on the advocated issue, thereby increasing the likelihood of obtaining large-scale stakeholder support across the world. Thus, the findings provide support to Castells' (2011, 2012, 2013) predictions that social media may help A-NGOs improve their network-making power so that a broad range of stakeholders can be engaged and a stronger collective power can potentially be formed. The findings also add to prior studies by showing that social media engagement can create an impact beyond application platforms, suggesting that social media engagement is an important activity in assisting A-NGO mission attainment and long term social impacts (Gómez-Carrasco & Michelon, 2017; Guo & Saxton, 2018; Neu et al., 2018; Quinn et al., 2016; Unerman & Bennett, 2004; Xu & Saxton, 2018). Thus this study highlights the

potential of social media in helping A-NGOs identify and engage with stakeholders and enhance their downward accountability (O'Dwyer & Unerman, 2008; Unerman & O'Dwyer, 2006b).

This study opens several avenues for future research. First, prior studies argue that establishing stakeholder engagement in social media is the first step to help A-NGOs achieve impact in the "real" world (Guo & Saxton, 2018; Neu et al., 2018; Xu & Saxton, 2018). While this study provides evidence that social media engagement can help Greenpeace obtain large-scale stakeholder support beyond social media platforms, petitions are still based online: how online signups may be transformed into substantive organisational outcomes remains unclear (Neu et al., 2018). As A-NGOs are required to focus on long-lasting social impacts for marginalised beneficiaries (Hall & O'Dwyer, 2017; O'Dwyer & Unerman, 2008, 2010; Unerman & O'Dwyer, 2006b), the long-term effect of social media engagement needs further exploration.

Second, Castells (2013) argues that switching capacity involves connecting to various networks to increase the extensiveness of engagement. While this study only focuses on cooperation within Greenpeace networks, inter-organisational networks may also have an effect on movement outcomes (Islam & van Staden, 2018; O'Sullivan & O'Dwyer, 2015). Therefore, the formation of an alliance between different A-NGOs' social media accounts may help engage with stakeholders from diversified demographic, geographical and political backgrounds. Recent global campaigns on plastic pollution is an anecdotal example in which multiple NGOs form an alliance (e.g. Plastic Pollution Coalition and #breakfreefromplastic movement) in raising awareness of the severity of plastic pollution in the ocean. Therefore, future research can

explore how inter-organisational networks facilitate A-NGOs' social media engagement and the roles networks may play in affecting movement outcome.

Finally, while social media engagement measures may be used as indicators in accounting the impact of advocacy campaigns and evaluating campaign outcomes (Arnaboldi et al., 2017), over-emphasis on quantitative measurement may also lead to a myopic view where the importance of actual engagement and its impact on long-term mission achievement may be undermined (Ebrahim, 2005; O'Dwyer & Unerman, 2008, 2010). In addition, A-NGOs might also run into danger by providing exaggerated or misleading information to attract stakeholder engagement, just like the recent examples in the US Election and the Brexit referendum (Gorodnichenko, Pham, & Talavera, 2018). Therefore, future studies can explore how A-NGOs perceive the use of social media in decision-making, performance evaluation and downward accountability processes (Hall & O'Dwyer, 2017).

This study is not without limitations. First, due to the limited data which is publicly available, the focus is on a single A-NGO: this narrow scope may not lead to a generalisability of findings across A-NGOs in social media. While the results may not be generalizable to all NGO social media accounts, they may share similar patterns with accounts that are specifically used to communicate advocacy information and seek stakeholder support. Despite this limitation, this study moves towards understanding how social media engagement contributes to A-NGO downward accountability processes and their social impact beyond online platforms. Future studies may extend the findings in this study by including more A-NGOs that use social media to communicate advocacy information and seek stakeholder support. Second, despite efforts made to

identify Arctic-related messages and the use of crowdsourcing and manual verification to validate performance, textual analysis inherently contains classification errors. In addition, the bag-of-words approach may have limitations in measuring the level of emotional appeal as it does not consider the position as well as the sequence of words in a sentence. Future research may use more sophisticated algorithms to reveal more nuanced details on the narratives in NGO social media communication. Finally, the use of control variables, fixed effects and robustness tests should mitigate concerns about causality. However, the research design cannot exclude the possibility that other unobservable factors that are both internal and external to Greenpeace international and regional offices (e.g. governance characteristics, budget allocation and connection to other NGO networks) are also driving the documented relationships.

4 B Corp Governance and Social Media Engagement

4.1 Introduction

The aim of this chapter is to examine the effect of B Corp governance mechanisms on the extent and quality of social media engagement. B Corp is a certification status awarded to for-profit firms whose owners voluntarily pursue both financial and corporate social responsibility (CSR) objectives and have met rigorous standards regarding CSR policies and practices set out by B Lab, the certifying body (Hiller, 2013; Romi et al., 2018; Serafeim et al., 2017). Initially created by B Lab in 2006 with an aim of campaigning "a global movement of people using business as a force for good" (Cao et al., 2017, p. 3), the number of B Corps has grown to over 2,500 in 60 countries over the last decade (B Lab, 2018d; Cao et al., 2017). Some noticeable examples include Patagonia and Ben & Jerry's in the United States, SustainAbility and Bulb in the United Kingdom, Natura in Brazil, and Animikii in Canada (B Lab, 2019a).

The increasing exposure of B Corp in the business community has attracted academic attention, mainly due to the co-existence of dual missions and its standardised assessment of CSR transparency and accountability practices (André, 2012; Cao et al., 2017; Hiller, 2013; Moroz, Branzei, Parker, & Gamble, 2018; Romi et al., 2018). Several studies have explored the determinants in choosing the B Corp certification, the effect of certification on firm practices and B Corp financial performance. However, there has been very little research into and how B Corp firms discharge stakeholder accountability (André, 2012; Battilana & Lee, 2014; Baudot, Dillard, & Pencle, 2019; Ebrahim et al., 2014). This question is particularly important given the equal status of

shareholders and stakeholders[38] in its dual-mission model (Battilana & Lee, 2014; Ebrahim et al., 2014; Haigh, Walker, Bacq, & Kickul, 2015; Moroz et al., 2018) and the pressing call for a greater corporate responsibility towards stakeholders (Gray, 2006).

Due to the co-existence of financial and CSR objectives, B Corp firms face a mission drift risk in which the pressure for financial sustainability "crowds out" the mission for CSR impacts, increasing the risk of reverting the dual-mission model back to the traditional shareholder-centric paradigm (Battilana & Dorado, 2010; Battilana & Lee, 2014; Cornforth, 2014; Ebrahim et al., 2014). To prevent mission drift, it is important to communicate CSR-related information to diversified stakeholders groups (Ebrahim et al., 2014; Ramus & Vaccaro, 2017; Winkler, Brown, & Finegold, 2018), and social media have recently become a popular platform which firms can use to undertake such activity and enhance their accountability (Besiou, Hunter, & Van Wassenhove, 2013; Castelló et al., 2013; Fieseler & Fleck, 2013; Lyon & Montgomery, 2013; Unerman & Bennett, 2004; Whelan et al., 2013). Despite the potential benefits that social media may bring, recent studies also document the use of social media for legitimacy and public relation purposes, questioning whether they promote greater stakeholder accountability (Bellucci & Manetti, 2017; Gómez-Carrasco et al., 2017; Manetti & Bellucci, 2016; She & Michelon, 2019; Yang & Liu, 2017). As a result, understanding how B Corp firms use social media to engage with stakeholders and which factors influence their social media engagement activities may shed more light on B Corp accountability practices.

[38] Stakeholders here refer to employees, customers, community, suppliers, environment, and the general public.

Corporate governance is believed to a critical factor in determining accountability and transparency practices in business (Brennan & Solomon, 2008). The type of governance mechanisms ranges from external means, such as regulations and markets, to internal means including the board of directors, share ownership, charter provisions and managerial incentives (Gillan, 2006). Prior literature find that governance mechanisms can improve firm transparency by limiting earnings management (Dechow, Sloan, & Sweeney, 1996; Peasnell, Pope, & Young, 2005), reducing impression management in narrative disclosures (Osma & Guillamón-Saorín, 2011), increasing voluntary financial (Lim, Matolcsy, & Chow, 2007) and social and environmental disclosures (Chan, Watson, & Woodliff, 2014; Mallin, Michelon, & Raggi, 2013) in annual reports, and enhancing social and environmental performance (Jo & Harjoto, 2012; Mallin & Michelon, 2011). Given the uniqueness of the B Corp dual-mission model and its associated governance mechanisms that protect the interests of stakeholders, it deserves our attention to gain further insight into the role of corporate governance in enhancing stakeholder accountability in an alternative organisational context (Battilana & Lee, 2014; Brennan & Solomon, 2008; Levillain & Segrestin, 2019; O'Dwyer & Unerman, 2016).

This study posits that B Corp governance mechanisms play an important role in influencing social media engagement activities. More specifically, it focuses on three governance mechanisms that are explicitly required and assessed by B Lab: legal responsibility, ethical standards and mission-alignment policies. This study examines the effects of these mechanisms on the extent and quality of social media engagement on Twitter. The legal responsibility mechanism refers to the extent to which a firm incorporates

stakeholder considerations into its legal structure. In the B Corp case, firms can choose to sign a private agreement with B Lab, amend the corporate charter or convert to Benefit Corporation. However, the level to which stakeholders are considered in the legal responsibility varies as the private agreement gives the lowest legal protection, while the Benefit Corporation status gives the highest protection. The second mechanism, ethical standards, refers to the establishment of programmes and policies that ensure the integrity and ethical compliance of the firm. Examples include prevention, monitoring and reporting of anti-corruption activities, code of ethics, training on code of ethics, and its breach policy. The third mechanism, mission-alignment policies, refers to the implementation of policies or strategies to align firm operations with their CSR objectives and in achieving their CSR mission. Examples include policies on materiality assessment, board review on CSR performance, CSR-related managerial job descriptions, CSR-linked managerial compensation contracts, employee training on CSR performance, and the existence of a formal CSR-oriented mission statement. These three governance mechanisms are measured using B Impact Assessment (BIA) Mission-Locked score, Ethics score, and Mission & Engagement respectively.

With regard to the extent and quality of social media engagement, the extent refers to the level of two-way dialogic communication between the firm and its stakeholders regarding CSR practices. Following Lee et al. (2013), the extent is measured using the number of firm-initiated and stakeholder-initiated CSR-related tweets alternatively. Quality refers to how effective a firm is in communicating CSR information with its stakeholders, and the effective communication framework proposed in Brennan and Merkl-Davies (2018) is

used to develop a social media engagement quality index based on the concept of intertextual connectivity, intentionality, informativity, acceptability and situationality.

By scraping and classifying CSR-related tweets posted by 1,074 U.S. B Corp firms certified between 2014 and 2018 and those posted by stakeholders towards the firm, this study finds that the extent of social media engagement is positively associated with the comprehensiveness of mission-alignment policies in both the assessment year and the following year. The findings also show that the quality of social media engagement is positively associated with the level of B Corp legal responsibility, the level of ethical standards and the comprehensiveness of mission-alignment policies in both the assessment year and the following year. When analysing the effect of B Corp governance mechanisms on each quality dimension (i.e. intertextual connectivity, intentionality, informativity, acceptability and situationality), all three governance mechanisms are positively related to the intention to engage with stakeholders regarding CSR issues (i.e. intentionality). Furthermore, firms with more comprehensive mission-alignment policies initiate CSR-related tweets with high intertextual connectivity, informativity, acceptability and situationality for stakeholders. Overall, this study documents evidence that B Corp governance mechanisms positively influence social media engagement activities.

This study contributes to the literature in three ways. First, it contributes to the B Corp literature by highlighting the role of B Corp governance mechanisms in enhancing stakeholder accountability practices. While extensive studies have examined governance mechanisms in either

conventional corporations or non-governmental organisations (Brennan & Solomon, 2008; Ebrahim, 2003; O'Dwyer, 2005), their influence on the accountability practice in hybrid organisations remain under-explored (Battilana & Lee, 2014; Brennan & Solomon, 2008; O'Dwyer & Unerman, 2016). The B Corp governance model is unique in accommodating both shareholder and stakeholder interests (André, 2012; Hiller, 2013; Munch, 2012), and there has been increasing academic interest into governance mechanisms in alternative organisational forms (Battilana & Lee, 2014; Brennan & Solomon, 2008; Levillain & Segrestin, 2019; O'Dwyer & Unerman, 2016). Correspondingly, this study adds to the previous literature by documenting evidence that B Corp legal responsibility, ethical standards and mission-alignment policies improve the extent and quality of social media engagement, illustrating the importance of B Corp governance mechanisms in promoting stakeholder accountability.

Second, this study makes a methodological contribution to the social and environmental accounting literature by employing a machine-learning approach in classifying CSR-related information. While machine-learning classification has been used in the analysis of financial reports (Huang et al., 2014; Li, 2010), very few studies apply this method in a social and environmental accounting context. Compared to manual (Deegan et al., 2002; Michelon et al., 2015) and dictionary-based textual analysis (Cho, Roberts, & Patten, 2010; Loughran & McDonald, 2011; She & Michelon, 2019), machine learning classification requires no dictionary beforehand. This advantage offers more flexibility and higher accuracy when classifying information with no consistent pattern or expression. This study therefore provides an empirical illustration of the use of machine learning algorithms in classifying CSR-related big data.

Thirdly, this study contributes to the accounting and social media literature by developing a social media engagement quality index. Since firms are able to use social media for legitimacy purposes and to hinder stakeholder accountability (Gómez-Carrasco et al., 2017; Manetti & Bellucci, 2016; She & Michelon, 2019), it is not only important to investigate the extent and the type of CSR information communicated in social media (Lee et al., 2013; Saxton et al., 2019; She & Michelon, 2019), but also the quality of such communication (Mallin et al., 2013; Michelon et al., 2015). Employing the effective communication model proposed in Brennan & Merkl-Davies (2018), this study develops an index to measure the quality of social media engagement on CSR-related issues, and provides a detailed picture into how B Corp firms engage with stakeholders in each quality dimension.

Lastly, this study has some managerial implications for firms that wish to obtain B Corp certification or adopt a dual-mission model. While the findings show that that the extent and quality of social media engagement are mainly driven by mission-alignment policies, B Corp legal responsibility and ethical standards still have a positive influence on social media engagement quality. Furthermore, although Benefit Corporation status has no effect on either the extent or the quality of social media engagement, the interaction effect between Benefit Corporation status, ethical standards and mission-alignment policies can further improve the extent of social media engagement. These findings indicate that multiple governance mechanisms may jointly enhance stakeholder accountability and prevent mission drift risk.

The rest of the chapter is structured as follows. Sections 4.2 and 4.3 give a brief overview of hybrid organisation, social enterprise and B Corp. Section

4.4 provides a literature review on B Corp. Sections 4.5 and 4.6 discuss B Corp mission drift risk and the role of social media in enhancing stakeholder accountability. Section 4.7 develops the hypotheses and Section 4.8 presents the research design. Sections 4.9 and 4.10 present and discuss the main findings and additional analyses. Section 4.11 concludes the chapter and discusses limitations.

4.2 Hybrid Organisation and Social Enterprise

Hybrid organisations are defined as entities that adopt structures or practices which allow the co-existence of multiple organisational identities, forms, and/or institutional logics (Battilana & Lee, 2014; Doherty, Haugh, & Lyon, 2014). Traditionally, organisations are categorised into three forms: private sector, public sector and non-profit-sector, and their identities, forms and logics are distinctly different from each other (Billis, 2010). Private-sector organisations adopt a market-based economic principle where their operations are driven by the maximisation of financial returns, owned by shareholders, sourced through investment and revenues, and governed according to the size of share ownership. Public sector organisations adopt a public benefit and collective choice principle where operations are sustained through taxation, owned by the state and citizens, and governed according to the principle of public elections. Non-profit sector organisations adopt a commitment to a specific social and environmental mission, owned by members, funded through donations and membership fees, and governed by privately elected representatives. However, in recent years, the boundary between these distinctive sectors has been blurring worldwide, and a growing number of new

hybrid organisational forms have emerged on the market because of a variety of legislative and social innovations (Santos et al., 2015). Among them, the fastest growing hybrid organisation is social enterprise (Ebrahim et al., 2014; Haigh et al., 2015).

Social enterprises encompass both the logic of generating revenue from commercial activities to sustain financial continuity and the logic of pursuing CSR missions (Battilana & Lee, 2014; Doherty et al., 2014; Ebrahim et al., 2014; Haigh et al., 2015; Santos et al., 2015). Unlike traditional private-sector organisations which prioritise the goal of maximising financial returns for their owners above all other interests, social enterprises adopt a dual-mission logic where both financial sustainability and CSR impacts are equally important to the very existence of the business (Doherty et al., 2014; Haigh & Hoffman, 2014). The first social enterprises can be traced back to the 1960s and 70s (Haigh et al., 2015), with several variants depending on geographical and legal contexts (Doherty et al., 2014). For example, in the United Kingdom, businesses that wish to become a social enterprise are allowed to register as a Community Interest Company (CIC) (Ebrahim et al., 2014; Nicholls, 2010). Similarly, in the United States, businesses can adopt legal forms such as Flexible Purpose Corporation, Low-Profit Limited Liability Company (L3C), or Benefit Corporations (André, 2012; Ebrahim et al., 2014; Haigh et al., 2015; Hiller, 2013). Apart from the adoption of a legal form, businesses may also voluntarily pursue third-party certifications which assure their socially responsible practices (Cao et al., 2017; Cornforth, 2014; Stubbs, 2017b). Certification can be used as a mechanism to mitigate regulatory risk, signal, and assure the quality of products and services. It can also release hidden

information about a firm's CSR impacts to stakeholders (Moroz et al., 2018). Some noticeable examples include LEED for green building, and Fair Trade for coffee. However, these certifications are only applicable to the practice or product of a particular firm (Moroz et al., 2018; Stubbs, 2017b). In recent years, a new form of business-wide certification called "B Corporation" (B Corp)[39] is emerging and has quickly become a popular trend among the business community to demonstrate their dual-mission commitments (Cao et al., 2017; Moroz et al., 2018; Romi et al., 2018; Stubbs, 2017b).

4.3 Background on B Corp

To become a B Corp company, a firm must meet stringent standards set out by B Lab with regard to CSR performance, transparency and governance (B Lab, 2019b; Serafeim et al., 2017). To meet the performance requirement, B Lab requires the firm to take the B Impact Assessment (BIA) – a questionnaire developed by B Lab to examine firm performance in areas including employees, community, environment and customers.[40] B Lab also requires the firm to change its governance model by considering stakeholder interests during decision-making processes and it evaluates the effectiveness of governance mechanisms in protecting stakeholders and aligning the firm's CSR mission with its business operations. The assessed firm receives a pre-determined score after choosing relevant options in each question, and a minimum total

[39] Some academic papers refer to B Corporation as "Certified B Corporation" or "Certified B Corp". However, some studies often mix the concept of B Corporation with Benefit Corporation and use them interchangeably. The distinction between the two concepts is discussed in the following section.

[40] The current version of BIA assessment is Version 6, effective from January 2019. The versions covered in this study only include Versions 4 and 5, effective from January 2014 and January 2016 respectively.

score of 80 out of 200 secures the certification (Cao et al., 2017; Moroz et al., 2018; Serafeim et al., 2017). After the assessment, the firm receives a B Impact Report that displays an overall score as well as individual scores for each sub-area assessed.[41] The firm must publicly display its scores on the B Lab website to meet the transparency requirement. Since the BIA score is computed consistently across firms, stakeholders can be better informed by comparing and assessing B Corp performance both longitudinally and cross-sectionally (Romi et al., 2018). After the initial certification, a re-assessment is required every three years (B Lab, 2018b) and 10% of certified B Corps are subject to a random audit by B Lab every year (Cao et al., 2017).[42]

Some B Corp firms can also adopt a Benefit Corporation status. Although both forms originated from B Lab and share some common accountability characteristics, their legal statuses are different (Hiller, 2013). The key distinction is that B Corp refers to firms (regardless of the legal form) that voluntarily pursue both financial and CSR objectives and are awarded the B Corp status after meeting B Lab requirements. In contrast, a Benefit Corporation is a legal corporate form that is created and promoted by B Lab and has been legislated by over 34 U.S. states which legally recognise a director fiduciary duty towards stakeholders (Hiller, 2013; Serafeim et al., 2017). A firm that is incorporated as a Benefit Corporation may not necessarily follow B Lab standards and become a B Corp, and a firm that is certified as a B Corp may not necessarily be a Benefit Corporation. However, there is a connection between the two, as one of the legal requirements for being a Benefit

[41] The complete list of questions in the B Impact Assessment can be accessed at B Lab website https://bimpactassessment.net/.
[42] Prior to July 2018, this re-certification period was every two years.

Corporation is to gain a third-party audit on its CSR performance and B Lab can be appointed as the auditor. Therefore, a Benefit Corporation that is certified by B Lab will automatically become a B Corp. In addition, B Lab also encourages B Corp firms that are headquartered in states with Benefit Corporation legislation to become a Benefit Corporation within four years of the effective date of the introduction of Benefit Corporation legislation, or two years of initial B Lab certification, whichever is later, to be re-certified. In addition, both organisational forms have no tax advantage compared to conventional companies (B Lab, 2019b). Further, there are some costs involved in adopting each organisational form. B Corp firms are required to pay B Lab an annual membership fee from $500 to $50,000 based on their size (Cao et al., 2017). Firms that wish to be incorporated as a Benefit Corporation will also incur some costs. While the direct cost of filing a new legal form in the US is usually around $100 to $200, indirect costs such as attorney fees and the amount of time and resources required for preparatory work will vary depending on firm age, size, and the complexity of the capital structure (B Lab, 2016; Serafeim et al., 2017).

4.4 Literature Review on B Corp

Existing literature so far have examined questions such as the determinants of seeking B Corp certification, the impact of B Corp certification on firm practices, and how they perform financially.

4.4.1 Determinants in Seeking B Corp Certification

Prior studies find that the adoption of B Corp certification is subject to both micro- and macro-level factors. At the micro level, a firm's pre-existing

CSR values, the need to improve CSR practices and gain legitimacy, and the mutual benefits gained from a network of good businesses are key motives for B Corp adoption (Gehman & Grimes, 2016). Leadership also plays a role as firms with female and ethnic minority owners are more likely to be certified (Grimes, Gehman, & Cao, 2018; Harjoto, Laksmana, & Yang, 2018). At the macro level, industry and regional characteristics determine B Corp certification. For example, Harjoto et al. (2018) find that firms in states with more Democratic party supporters, a lower hourly wage, higher unemployment, and a larger religious population are more likely to seek certification. Similarly, Grimes et al. (2018) find that women-owned firms operating in industries and states with weak sustainability norms, low mimic pressure to pursue B Corp, and a low concentration of women-owned businesses are more likely to qualify for and seek B Corp certification.

4.4.2 The Impact of B Corp Certification on Firm Practices

Another stream of literature examines how B Corp certification influences firm practices. For example, after conducting interviews with B Corp managers, fund managers and B Lab staff, Sharma, Beveridge, and Haigh (2018) find that B Corp firms change practices over time as managers undergo assessment and reassessment for certification. In the same vein, Muñoz, Cacciotti, and Cohen (2018) explore the timing and process of firms which incorporate pro-CSR missions into their organisations, and they find that B Corp certification interacts with the business process by triggering different decisions on how pro-social organisations are organised. B Corp certification may also cause unintended outcomes. For example, Conger, McMullen, Bergman, and

York (2018) examine how B Corp certification leads entrepreneurs to re-evaluate company activities and opportunities, and they find that some entrepreneurs abandon efforts to pursue a prosocial ideal after receiving B Corp certification as they realise that it is impractical to continue doing so.

4.4.3 B Corp Financial Performance

Since B Corp firms are for-profit businesses, scholars also enquire whether they can “do good and do well” in terms of outperforming their non-B Corp peers financially and surviving in the long run. Findings to date are largely inconclusive. For example, by comparing B Corp firms with a sample of public firms and non-B Corp private firms, Chen and Kelly (2015) find that B Corp firms only outperform public companies on sales growth rates, but no superior performance is found in employee productivity growth rates when compared against the performance of private firms. Furthermore, they do not find any significant correlation between B Corp financial performance and CSR performance. Similarly, by analysing B Corp firms in Italy, Gazzola et al. (2019) find that CSR performance has no impact on firm profit. One possible explanation for this phenomenon is that B Corp certification may cause internal organisation disruption among young and small-size firms which may subsequently lead to a short-term growth slowdown (Parker, Gamble, Moroz, & Branzei, 2018).

However, some studies find that B Corp firms exhibit stronger financial performance than their non-B Corp peers. For example, Romi et al. (2018) find that B Corp firms exhibit higher one- and three-year sales growth rates than non-B Corp peers. When examining whether CSR performance affects financial

performance, they find that firms that perform well in Customer and Employee areas have better sales growth and employee productivity respectively. In the same vein, by comparing the capital structure of a matched sample between B Corp firms and non-B Corp peers, Siqueira, Guenster, Vanacker, and Crucke (2018) find that B Corp firms have 40% to 13% lower gearing ratios and up to four times greater leverage stability over time than non-B Corp firms.

To sum up, while the existing literature has examined the determinants in seeking B Corp certification and the effect of this certification on firm practices and financial performance, how B Corp firms perform in terms of enhancing stakeholder accountability is still under-examined. Given that the creation of financial sustainability and CSR impacts are equally important to B Corp firms (Battilana & Lee, 2014; Ebrahim et al., 2014; Haigh et al., 2015; Moroz et al., 2018), scholars are also calling for more research into understanding how B Corp firms establish accountability practices, and which mechanisms are available to protect the interests of stakeholders (André, 2012; Battilana & Lee, 2014; Baudot et al., 2019; Ebrahim et al., 2014).

4.5 B Corp Stakeholder Accountability and Mission Drift Risk

B Corp firms have the potential to drive change and bring about higher stakeholder accountability as they internalise CSR missions into firm operations, reduce negative impacts and increase positive impacts, and establish a mutually beneficial relationship with stakeholders (Hiller, 2013; Stubbs, 2017a, 2017b; Wilburn & Wilburn, 2014). For example, compared to other sustainable businesses, B Corp firms are more likely to donate profits to

charity, install on-site renewable energy, use suppliers from low-income communities, cover some health insurance cost for employees, have women and minorities in management, and provide employees with more training and development opportunities (Wilburn & Wilburn, 2014).

However, some studies question the ability of B Corp firms in promoting stakeholder accountability as they face inherent accountability issues. Firstly, B Corp membership fees may create a conflict of interest as B Lab's financial dependence on members may run the risk of setting lower quality standards, potentially creating a misleading picture about companies' CSR performance (André, 2012, 2015; Hemphill & Cullari, 2014). Furthermore, since the BIA is based on self-reported documentation (Cummings, 2012), firms may exaggerate reports on CSR practices (André, 2012, 2015; Munch, 2012), making B Corp certification a symbolic and greenwashing tool (André, 2012; Rodrigue, Magnan, & Cho, 2013). Finally, no detailed information is provided on publicly disclosed BIA scores, making it difficult for external stakeholders to assess the information (André, 2012). Thus some firms may simply reach the minimum BIA threshold with no further improvement and "hide" among others to take advantage of the collective reputation benefits (Gamble, Parker, & Moroz, 2019).

In addition to the issues above, prior studies argue that B Corp firms are more likely to face mission drift risk which may threaten the fundamental idea of a dual mission model. Mission drift risk is defined as "a process of organisational change, where an organisation diverges from its main purpose or mission" (Cornforth, 2014, p. 4). While all types of organisations may face this risk to a certain extent, it is particularly problematic for B Corp firms as they

pursue both financial and CSR objectives (Cornforth, 2014; Ebrahim et al., 2014). Commercial pressure is cited as the main driver for mission drift (Weisbrod, 2004), although some scholars point out that dependence on other major funders such as the government or foundations may also create this problem (Jones, 2007). The reliance on commercially generated profits may force B Corp firms to prioritise the interests of shareholders (or funders) over stakeholders, leading to undesirable consequences (Cornforth, 2014). For example, organisational members who have two objectives (commercial and CSR) may have an identity clash, leading to inter-personal conflict (Battilana & Dorado, 2010). This dualism may also result in an unbalanced allocation of limited resources between commercial and CSR activities (Battilana & Lee, 2014). If conformance to financial pressures persists, it would be difficult for firms to maintain a hybrid purpose over time (Ebrahim et al., 2014). Therefore, the prevention of mission drift risk is particularly important to the long-term survival of B Corp firms.

Several studies recognise the importance of stakeholder engagement in managing mission drift risk (Battilana & Lee, 2014; Ebrahim et al., 2014; Ramus & Vaccaro, 2017; Winkler et al., 2018). Stakeholder engagement is defined as a process in which firms establish a dialogue with stakeholders to constantly communicate information about their CSR activities, and consult with stakeholders in order to assess and improve CSR practices (Bebbington et al., 2007; Greenwood, 2007; Thomson & Bebbington, 2005; Unerman & Bennett, 2004). This timely engagement is particularly important if stakeholders rely heavily on a firm's product or service. For example, a dual-mission optical company may provide eyeglasses to low-income individuals and communities.

If increasing financial pressure forced the company to charge a higher price, these low-income customers would have to bear the increased costs, compromising the CSR commitments of the company (Ebrahim et al., 2014). As a result, stakeholder engagement plays a vital part in understanding the views of stakeholders (Bebbington et al., 2007; Thomson & Bebbington, 2005; Unerman & Bennett, 2004) and ensuring the successful achievement of dual objectives (Ebrahim et al., 2014; Ramus & Vaccaro, 2017). The importance of stakeholder engagement in promoting accountability is also documented in prior empirical studies. For example, after analysing two Italian social enterprises, Ramus and Vaccaro (2017) find that stakeholder engagement can counter-balance mission drift risk by helping directors re-embed previously abandoned pro-social values, and facilitate communication with external stakeholders about their re-established commitments. In the same vein, Mason and Doherty (2016) document that the directors of three Fair Trade social enterprises actively involve producers in board meetings and provide training to help them take up board positions.

4.6 Social Media Engagement and B Corp Accountability

In recent years, the rise of social media has given firms an additional platform for the creation of dialogue with diversified stakeholders and the collection of their opinions for decision-making on a large scale (Castelló et al., 2013; Unerman & Bennett, 2004). Prior studies find that firms with better governance and CSR performance are more likely to engage with stakeholders on social media. For example, Yang, Liu, and Zhou (2016) investigate a sample of UK FTSE 350 firms and find that firms with larger board size, more female

directors and more frequent board meetings are more active in disclosing financial information on social media. Lee et al. (2013) find that firms with higher CSR ratings adopt social media earlier, have more stakeholders following the account, and receive more dialogue from stakeholders. This finding is also echoed in Huang, Lu, and Su (2016) where they find that firms with better environmental performance adopt Twitter earlier, disclose more prosocial information, and enable more stakeholders to follow their accounts. Similarly, Saxton et al. (2019) examine stakeholder reactions to Fortune 500 Twitter messages and find that firms that post tweets containing CSR topics such as the environment and education are more likely to attract stakeholder reactions. Other studies also find that social media engagement may help firms boost corporate reputation (Eberle et al., 2013), mitigate negative public perceptions during firm crisis (Cade, 2018; Elliott et al., 2018; Lee et al., 2015), reduce information asymmetry and increase transparency (Blankespoor et al., 2014; Lei, Li, & Luo, 2018; Prokofieva, 2014).

Meanwhile, some studies also question the ability of social media to enhance accountability due the poor operationalisation and potential motives of stakeholder engagement on social media in seeking to maintain legitimacy (Gómez-Carrasco et al., 2017; Manetti & Bellucci, 2016; Owen, Swift, & Hunt, 2001; She & Michelon, 2019). For example, Manetti and Bellucci (2016) find that only a small number of firms engage with stakeholders on social media, and the quality of this engagement is very low. Similarly, Gómez-Carrasco et al. (2017) document that banks disengage stakeholders on Twitter by communicating supplementary instead of core CSR activities in attempting to restore their image during a legitimacy crisis. She & Michelon (2018) find that

firms use hypocrisy talk and decisions strategies on Facebook to manage stakeholder perceptions and camouflage CSR practices. Firms also disclose financial information opportunistically on Twitter to influence investor perceptions and shape a positive image (Jung et al., 2018; Yang & Liu, 2017).

The discussions above indicate that social media engagement can easily be transformed into a public relation exercise to maintain legitimacy which ultimately hinders firm accountability to stakeholders. Since the prevention of mission drift risk is considered to be closely linked to B Corp stakeholder engagement activities, and corporate governance systems regulates firms' accountability processes (Battilana & Lee, 2014; Bebbington et al., 2007; Brennan & Solomon, 2008; Ebrahim et al., 2014; Owen et al., 2001; Ramus & Vaccaro, 2017; Unerman & Bennett, 2004), it is important to understand the role of B Corp governance mechanisms in influencing social media engagement activities.

4.7 Hypotheses Development

It is believed that corporate governance has a central function in preventing mission drift risk and maintaining social enterprise joint accountability (Battilana & Lee, 2014; Cornforth, 2014; Ebrahim et al., 2014). Traditionally, the notion of corporate governance is rooted in a shareholder-oriented approach where governance mechanisms protect shareholder interests (Brennan & Solomon, 2008). However, given the equal importance of financial and CSR objectives, the B Corp governance model adopts a stakeholder-oriented approach in which its mechanisms ensure accountability

to all stakeholders and the achievement of CSR commitments (Brennan & Solomon, 2008).

The governance system underlying B Corp is unique, as B Lab requires firms that wish to be certified to adopt a mission-aligned governance model (B Lab, 2016). B Lab defines mission-aligned governance as a "governance model that embeds a purpose beyond creating profit and requires directors to consider the impact of their actions on stakeholders as well as shareholders" (B Lab, 2016, p. 2). The key aim of this model is to build the preservation of a CSR mission and stakeholder interests into the firm's governance structure (B Lab, 2016). This would involve the firm in actively implementing various mechanisms and/or policies to protect stakeholders' interests during the decision-making process (B Lab, 2016). This study focuses on three governance mechanisms that are explicitly required and assessed by B Lab with regard to the prevention of mission drift and the protection of stakeholders, and it examines their effects on the extent and quality of social media engagement with reference to legal responsibility, ethical standards and mission-alignment policies.

4.7.1 *Legal Responsibility*

There are three main options that a B Corp firm can adopt to incorporate stakeholder interests into its legal structure (B Lab, 2016). The first is to sign a term sheet (B Corp Agreement) with B Lab. The sheet states that directors *shall* consider the impact of business decisions not only on shareholders but also on a range of stakeholders. However, this term sheet is a private agreement between the firm and B Lab (Hiller, 2013), and the violation of relevant terms will only lead to the revocation of B Corp status (B Lab, 2018a). The second

method is to amend the corporate charter by including a stakeholder provision. Although this method gives the firm a higher legal responsibility to stakeholders than the first, directors are still only *permitted*, but not *obligated*, to consider stakeholders. Furthermore, it is up to the court to determine whether directors have a responsibility to stakeholders under the business judgement rule and constituency statutes (Hiller, 2013). The last and the most stringent method is to convert to a Benefit Corporation that explicitly states a director's *obligation* to consider the impact of business decisions on a range of stakeholders, including employees, suppliers, customers, the environment and the local community (B Lab, 2016; Munch, 2012; Serafeim et al., 2017). Unlike the previous two methods which can be easily overturned and ignored (Cornforth, 2014), this legal obligation extends the director's fiduciary duty beyond shareholders, and gives him/her more flexibility and reduced liability when making decisions concerning stakeholders (B Lab, 2016; Hiller, 2013; Munch, 2012; Serafeim et al., 2017). It is argued that by assigning directors a legal obligation, this gives stakeholders the highest level of protection and safeguards the firm's CSR mission (B Lab, 2016; Cornforth, 2014; Hiller, 2013; Levillain & Segrestin, 2019).

However, several studies also cast doubt on the role of director obligations in enhancing stakeholder accountability as the Benefit Corporation legislation only permits shareholders to file legal claims against any mismanagement, and stakeholders cannot sue the firm (Munch, 2012). Therefore, the lack of enforceability may give directors opportunities to use B Corp as a legitimacy tool, and pursue profits without being penalised by stakeholders (André, 2012, 2015; Munch, 2012). Nevertheless, Hiller (2013)

disagrees with the above view and argues that directors will weigh different interests equally during decision-making and that no interest can take precedence. Therefore, it would be simplistic to conclude that the inclusion of stakeholder consideration in the director's fiduciary duty is a symbolic move for corporate legitimacy (Hiller, 2013). He further argues that the inclusion of stakeholder consideration reflects a strong demonstration of the firm's CSR value, thus reducing the likelihood of greenwashing (Hiller, 2013). Following this stream of argument, firms with a higher level of legal responsibility to stakeholders are expected to actively communicate with them in order to seek their opinions and provide stakeholders with high quality CSR-related information. This, it is argued, leads to more extensive and higher quality social media engagement. Correspondingly, the following hypothesis is formulated:

> ***H1a.*** *The extent of social media engagement is positively associated with the level of B Corp legal responsibility to stakeholders.*
>
> ***H1b.*** *The quality of social media engagement is positively associated with the level of B Corp legal responsibility to stakeholders*.

4.7.2 *Ethical Standards*

In addition to legal responsibility, B Lab assesses a firm's ethical programmes including prevention, monitoring and reporting of anti-corruption activities, code of ethics, training on code of ethics, and its breach policy to safeguard stakeholder interests. Although legal responsibility may give stakeholders a certain level of protection, it alone is not sufficient in the prevention of mission drift as directors and managers may merely tick boxes on regulatory requirements without implementing any substantive actions

(Rossouw, 2005a). Previous literature argues that high stakeholder accountability is achieved when directors and managers conform to the spirit, standards and substance of good governance (Arjoon, 2005; Rossouw, 2005a). A high ethical standard not only includes comprehensiveness in developing and implementing codes of conduct (Erwin, 2011), but also policies on code violation handling, whistle-blowing reporting, and employee training on ethical programmes (Schwartz, Dunfee, & Kline, 2005). As a result, the ethical standards set by management are central to the overall ethical environment of the firm, and ethical compliance across all firm members ensures the long-term preservation of a CSR mission (Rose, 2007; Schwartz et al., 2005). The way in which a firm treats its stakeholders reflects its ethical standards, so it is expected that companies with more ethical programmes are more sensitive to stakeholder demands, and such ethical sensitivity will result in more extensive and higher quality social media engagement (Rossouw, 2005a, 2005b; Schwartz et al., 2005). Prior empirical evidence also supports this positive relationship. For example, Erwin (2011) proposes that high-quality codes of conduct must include public availability, commitments from the leadership, high readability, the presence of code breach policy and reporting, embedding corporate commitments & values, firm- and industry-specific risk topics, the provision of comprehension aids to stakeholders, and an effective style of presentation. By employing this quality index and analysing its association with CSR performance, Erwin (2011) finds that firms with higher quality codes of conduct exhibit higher CSR rankings and better ethical behaviours. This finding indicates that high ethical standards can lead to positive organisational outcomes. Moreover, Winkler et al. (2018) compare the relationship between

employee involvement/ownership and external stakeholder engagement in a sample of conventional businesses and B Corp firms, and they find a positive relationship only for B Corp firms. They argue that employees who are motivated by their firm's ethical leadership hold a long-term view about the firm's CSR mission, therefore they are more active in engaging with external stakeholders. Lastly, Miller-Stevens, Taylor, Morris, and Lanivich (2018) examine the value differences between leaders of social enterprises and non-profit organisations and find that leaders from both organisations share similar values in integrity, trust, accountability and responsiveness, thus indicating a high ethical value among social enterprise employees. Based on the above argument, the second set of hypotheses is as follows:

> ***H2a.*** *The extent of social media engagement is positively associated with the level of B Corp ethical standards.*
>
> ***H2b.*** *The quality of social media engagement is positively associated with the level of B Corp ethical standards*.

4.7.3 *Mission-Alignment Policies*

B Lab also encourages B Corp firms to actively implement policies that protect stakeholders and preserve the CSR mission (B Lab, 2016). These mission-alignment policies include materiality assessment, board reviews on CSR performance, CSR-related managerial job descriptions, CSR-linked managerial compensation contracts, employee training on CSR performance, and the existence of a formal CSR-oriented mission statement. The reasons for the implementation of these policies are as follows. First, an extensive literature has established that directors have both a monitoring function and a service function in providing advice and resources to CEOs on CSR management (Hillman & Dalziel, 2003; Johnson, Daily, & Ellstrand, 1996). Therefore, having

an explicit policy for board review of CSR performance may significantly influence CSR outcomes, leading to higher stakeholder accountability (Dixon-Fowler, Ellstrand, & Johnson, 2017; Mallin et al., 2013; Peters & Romi, 2014). For example, Mallin et al. (2013) analyse 100 U.S. Best Corporate Citizens in the period 2005 to 2007 and they find that firms with a CSR committee have superior CSR performance to those without such a committee. Similarly, Dixon-Fowler et al. (2017) find that the presence of a board environmental committee and an environmental manager leads to higher environmental performance. In the same vein, Peters and Romi (2014) find that the presence of a board environmental committee and a chief sustainability officer increases the likelihood of Greenhouse Gas disclosure.

Second, CSR-related managerial job descriptions and compensation contracts can align the interest of managers with the firm's long-term CSR mission (Berrone & Gomez-Mejia, 2009). Good CSR performance requires time and resources, and sometimes unforeseen problems may create risks; as a result, managers may have lower incentives to allocate and invest resources in CSR activities (Berrone & Gomez-Mejia, 2009; Russo & Fouts, 1997). Berrone and Gomez-Mejia (2009) argue that linking CSR performance to managerial job descriptions and compensation contracts can help the board assess managerial decisions, and at the same time compensate for the higher risk faced by managers in CSR investment (Berrone & Gomez-Mejia, 2009). This view is supported by several empirical studies. For example, Hong, Li, and Minor (2016) find that the use of CSR-linked managerial compensation contracts leads to better CSR performance. Haque (2017) finds that CSR-linked compensation policies are positively related to the carbon reduction initiatives

of UK firms. In the same vein, Flammer, Hong, and Minor (2019) find that CSR-linked managerial compensation contracts have a positive effect on a firm's long-term orientation, firm value, CSR initiatives, GHG emission reduction and green innovations. Finally, Al-Shaer and Zaman (2017) find that both board-level sustainability committees and sustainability reporting assurance have a positive effect on the use of CSR-linked compensation contracts, suggesting that firms with more intense monitoring on CSR issues are more likely to monitor managerial behaviours and their achievement of CSR objectives.

However, several studies also criticise the symbolic function of CSR policies in legitimacy building and stakeholder management (Bansal & Clelland, 2004; Cho & Patten, 2007; Rodrigue et al., 2013). For example, Rodrigue et al. (2013) focus on a sample of environmentally sensitive firms and find no significant relationship between the presence of an environmental committee and environmental performance. Along the same line, Peters, Romi, and Sanchez (2018) find no significant relationship between the appointment of a corporate sustainability officer and a firm's subsequent environmental performance. Some studies also question the ability of CSR-linked compensation contracts to promote stakeholder accountability. For example, Cordeiro and Sarkis (2008) examine the relationship between CSR-linked executive compensation contracts and environmental performance for a sample of U.S. S&P 500 firms in 1996, and they only find a positive relationship in firms that link the absolute level (no industry adjustment) of compliance and spill indices to CEO compensation. No relationship is found when using toxic emission level and the use of industry adjusted environmental performance. Such a weak relationship between CEO compensation and environmental

performance may imply the exertion of managerial power on the compensation committee to weaken the effect of CSR-linked compensation on CSR performance. They conclude that firms may utilise the linkage between CEO compensation and environmental performance for a symbolic purpose rather than a substantive purpose. In addition, Francoeur, Melis, Gaia, and Aresu (2017) find that environment-friendly firms pay their CEOs less total compensation and rely less on incentive-based compensation than environmentally careless firms because CEOs feel rewarded by playing an overseeing role in environmentally-friendly firms. Their findings question the validity of financial incentives in motivating CEOs to promote environmental performance and enhancing stakeholder accountability.

While the presence of a single policy may hint towards a symbolic motive behind CSR management, the adoption of multiple policies may indicate a firm's real commitments to a CSR mission, thus promoting higher stakeholder accountability (Shaukat, Qiu, & Trojanowski, 2016). Furthermore, since B Corp CSR policies are certified and randomly audited by a third-party organisation (i.e. B Lab), the credibility of these policies can be enhanced (Ballou, Chen, Grenier, & Heitger, 2018; Brown-Liburd & Zamora, 2014). Therefore, it can be argued that the more comprehensive mission-alignment policies a firm implements, the more active the firm is in engaging with stakeholders regarding CSR issues, thus preventing mission drift risk. Following the above argument, the third set of hypotheses as formulated as follows:

> ***H3a.*** *The extent of social media engagement is positively associated with the comprehensiveness of B Corp mission-alignment policies.*

H3b. *The quality of social media engagement is positively associated with the comprehensiveness of B Corp mission-alignment policies.*

4.8 Research Design

4.8.1 Sample and Data Collection

This empirical analysis considers U.S. B Corps that were certified between 2014 and 2018. U.S. B Corp firms were selected because the B Corp movement originated in the U.S, and about 62% of B Corps are from North America (Serafeim et al., 2017). The complete list of 1,450 B Corp firms and related firm information were retrieved from the B Lab database on data.world as of 20th February 2019 (B Lab, 2018c).[43]

Next, B Corp Twitter accounts were identified through firm websites. If no link was found, the firm's name was manually sought on Twitter. After excluding firms without a Twitter account and those that were inactive during the sample period, the process yielded 1,089 distinct firms. By further excluding samples with missing data on other firm characteristics, this process yielded a final sample of 1,074 distinct firms with 1,520 firm-year observations. Table 4.1 shows the statistics of U.S. B Corps. By breaking down the final sample according to industry characteristics, Education & Training Services, Media, and Consumer Products & Services are the top three industries active on Twitter, while financial service, building, and health & human services have the lowest active rate.

[43] The data can be retrieved from https://data.world/blab/b-corp-impact-data.

Table 4.1 Twitter Adoption and Activity by U.S. B Corps and by Industry

	All	Twitter Adoption		Active Twitter		Final Sample	
Industry	**N**	**N**	**(%)**	**N**	**(%)**	**N**	**(%)**
Agriculture	31	26	83.9	26	83.9	25	81%
Building	71	49	69.0	40	56.3	38	54%
Business Products & Services	508	399	78.5	373	73.4	366	72%
Consumer Products & Services	420	376	89.5	354	84.3	351	84%
Education & Training Services	44	41	93.2	40	90.9	39	89%
Energy & Environmental Services	71	59	83.1	52	73.2	52	73%
Financial Services	154	103	66.9	93	60.4	93	60%
Health & Human Services	36	28	77.8	22	61.1	21	58%
Legal Services	28	20	71.4	19	67.9	19	68%
Media	24	21	87.5	21	87.5	21	88%
Restaurant, Hospitality & Travel	28	22	78.6	21	75.0	21	75%
Retail	29	27	93.1	23	79.3	23	79%
Transportation & Logistics	6	5	83.3	5	83.3	5	83%
Total	1,450	1,176	81.1	1089	75.1	1074	74%

Twitter Advanced Search and Python were used to scrape all tweets posted by Twitter active B Corps in the assessment year as well as the following year.[44] Stakeholder-initiated tweets that mention or directly comment on a sample firm during the sample period were also retrieved. The initial number of B Corp tweets amounted to 634,165, and the total number of stakeholder-initiated tweets amounted to 288,641. After excluding firm retweets and firm replies, this process yielded 552,679 firm-initiated tweets.[45] To measure the extent and quality of B Corp social media engagement, data analysis began with the classification of CSR-related tweets and the CSR topics communicated using the Naïve Bayes Algorithm in R *Quanteda*.

4.8.2 Naïve Bayes Classification

The Naïve Bayes text classification is a statistical machine-learning approach that classifies a textual document (*doc*) into a specific category (*cat*)

[44] Twitter Advanced Search allows the search for tweets that are posted by a specific twitter account and the time periods in which they are posted. Tweets that were scraped were posted by all Twitter active firms to increase the algorithm training sample.

[45] When using Twitter Advanced Search, the server does not return tweets that are directly reposted by the firm through the "retweet" button. The retweets here refer to tweets that have "RT" at the start of the message.

from a set of possible pre-determined categories (*cats* = *{cat₁, cat₂, …, catₙ}*) based on the maximum likelihood of that text being associated with that category (Huang et al., 2014; Li, 2010). Mathematically, the Naïve Bayes algorithm determines the specific category (*cat*), in which a textual document (*doc*) belongs to by solving the following equation:

$$cat^* = \underset{cat \in cats}{argmax} \frac{P(doc|cat)P(cat)}{P(doc)}$$

Since *P*(*doc*) remains constant throughout different categories, it can be eliminated. The equation can be rewritten as:

$$cat^* = \underset{cat \in cats}{argmax}\, P(doc|cat)P(cat)$$

Lastly, the Naïve Bayes algorithm assumes that the probability of each word ($w_1, w_2, \ldots w_n$) appearing in a document is conditionally independent. This assumption ignores the sequence of words as well as the presence or absence of other words in the same document (Huang et al., 2014; Li, 2010). As a result, the above equation is equivalent to:

$$cat^* = \underset{cat \in cats}{argmax}\, P(cat) \prod_{j=1}^{m} P(w_j|cat)$$

Several studies have employed the Naïve Bayes algorithm to analyse accounting documents and have shown satisfactory performance in classifying the tone as well as the topic of a given sentence. It is argued that the key advantage of this algorithm is the 'naïve' assumption which simplifies the calculation of the probability and avoids the problem of multi-dimensionality (Li, 2010). Although some words are more likely to appear jointly with other words in reality, studies prove that this assumption has little effect on the classification performance (Lewis, 1998). Second, the Naïve Bayes algorithm is the most

established method for textual analysis as other machine-learning algorithms are relatively new and more akin to a “black box”, i.e. it is difficult to understand how they operate (Loughran & McDonald, 2016). Lastly, the supervised machine-learning approach allows researchers to set the rule for classification in advance and then a large amount of data can be analysed without introducing additional subjectivity during the coding process (Loughran & McDonald, 2016). However, the Naïve Bayes algorithm also suffers from some major limitations. For example, Loughran and McDonald (2016) claim that it is difficult to replicate this classification algorithm as rules used in the coding process might be unpublished. However, this limitation can be overcome by making the coding scheme and the training dataset publicly available, and by clearly stating the process of data preparation and algorithm configuration (El-Haj, Rayson, Walker, Young, & Simaki, 2019). The following sections provide more details about data preparation and algorithm training that were followed to mitigate this concern.

4.8.3 Data Preparation

In order to classify CSR-related tweets, the sample was firstly partitioned into different industry groups and then five per cent were randomly selected from each group as the training data for the Naïve Bayes classifier. This process helps to avoid under-representation of tweets posted by less active industries. The total training data amounted to 27,620 tweets (5% of total sample). Next, tweets were manually coded into CSR- or non-CSR-related messages. CSR topics that each tweet covers were also identified following the coding scheme specified in Appendix H. The classification of CSR topics is not mutually

exclusive. In other words, one CSR-related tweet can talk about more than one topic.

To prepare the training data, all URLs, non-English characters, punctuation, numbers, separators, symbols, hyphens, stop words and Twitter features (e.g. @users and hashtags) were firstly removed. Next, the corpus was separated into one to three N-grams and then converted to a document by matrix (DFM) format. Both minimum term-count frequency and minimum document-count frequency were adjusted to reduce the DFM size and increase accuracy. The prior text distribution was set to default which assumes that the unconditional probability of observing one class is identical to the probability of observing any other class. Finally, the algorithm distribution model was set to Multinomial because it considers both term presence and term frequency in a document and has a better classification performance than the Bernoulli model, which only considers term presence (Singh, Kumar, Gaur, & Tyagi, 2019). Once the training was complete, the algorithm was used to predict the remaining 95 per cent of firm-initiated tweets (N = 525,059) and stakeholder-initiated tweets (N = 288,641).

4.8.4 Ten-Fold Cross Validation

To provide a more comprehensive picture of the classification performance, the performance of both CSR-related tweets and CSR topics were assessed using in-sample, ten-fold cross validation, as well as out-sample validation (Huang et al., 2014; Li, 2010). For in-sample validation, all manually coded tweets were used to train the Naïve Bayes classifier, and then to test the model with the same sample. This validation shows an upper boundary for the

classifier performance. For ten-fold cross validation, the sample was partitioned equally into ten equal subsets and then one subset was used as a testing data and the remaining as a training data. The validation process was repeated ten times until each part of the sub-sample had been tested. At the end of the process, the performance of ten experiments was averaged and reported. For out-sample validation, one hundred tweets were randomly selected from the remaining 95 per cent test sample, and these tweets were manually coded in order to compare them with the classifier's predicted values.

Table 4.2 Panel A reports the validation outcomes of CSR-related tweets classification. Both the in-sample and ten-fold cross validation show the classification performance on the same training dataset and the out-sample validations show the performance of firm-initiated tweets and stakeholder-initiated tweets classification outside the training dataset. The accuracy rate is measured as the percentage of predicted value equals the true value. The precision rate is measured by using the true positive values divided by the total number of predicted positive values. The recall rate is computed using the total number of correctly predicted positive values divided by the total number of true values. The specificity rate measures the percentage of true negative values out of total predicted negative values. The F1 score provides an overall performance of the algorithm. As indicated in the table, the classification algorithm achieves a satisfactory performance where the accuracy rates for both in-sample and out-sample validations are above 80 per cent, and the overall F1 scores are about 85 per cent.

Table 4.2 Panel B presents the performance of CSR topic classification using in-sample validation, ten-folds cross validation, and out-sample validation

for each topic. Overall, the classifier achieves a satisfactory performance as over 80 per cent of the tweets are correctly classified as governance, employee or economic-related. Environment and customer-related tweets achieve an accuracy of over 90 per cent. Although community-related tweets achieve 83 per cent accuracy in in-sample validation, both ten-fold cross validation and out-sample validation have accuracy rates below 80 per cent. This may be due to the diversity of community activities communicated which make the algorithm difficult to classify.

Table 4.2 Performance of Naïve Bayes Machine Learning Classifications

Panel A. Performance of CSR-Related Tweets Classification

	N	Accuracy (%)	Precision (%)	Recall (%)	Specificity (%)	F1 (%)
In-Sample Validation	27,620	85.08	92.64	83.80	87.49	88.00
Ten-Fold Cross Validation	27,620	81.54	89.64	81.09	82.39	85.15
Out-Sample Validation						
Firm-Initiated Tweets	100	84.00	86.44	86.44	80.49	86.44
Stakeholder- Tweets	100	81.00	81.25	88.14	70.73	84.55

Panel B. Performance of CSR Topics Classification

	N	Accuracy (%)	Precision (%)	Recall (%)	Specificity (%)	F1 (%)
Governance						
In-Sample Validation	27,620	89.45	99.92	89.10	98.20	94.20
Ten-Fold Cross Validation	27,620	87.66	99.23	87.86	82.68	93.20
Out-Sample Validation	100	85.00	98.80	85.42	75.00	91.62
Employee						
In-Sample Validation	27,620	88.95	99.98	88.76	98.80	94.04
Ten-Fold Cross Validation	27,620	86.83	99.62	86.92	82.07	92.83
Out-Sample Validation	100	83.00	98.78	83.51	66.67	90.50
Community						
In-Sample Validation	27,620	82.64	98.52	80.82	93.06	88.80
Ten-Fold Cross Validation	27,620	78.95	95.86	78.59	80.56	86.41
Out-Sample Validation	100	74.00	88.57	77.50	60.00	82.67
Economic						
In-Sample Validation	27,620	86.36	99.88	85.95	97.28	92.39
Ten-Fold Cross Validation	27,620	84.49	99.21	84.59	81.96	91.32
Out-Sample Validation	100	82.00	98.70	81.72	85.71	89.41
Environment						
In-Sample Validation	27,620	91.89	99.18	91.56	94.35	95.22
Ten-Fold Cross Validation	27,620	89.84	98.01	90.32	86.33	94.01
Out-Sample Validation	100	91.00	98.77	90.91	91.67	94.67
Customer/Products						
In-Sample Validation	27,620	92.17	99.52	92.25	90.49	95.75
Ten-Fold Cross Validation	27,620	89.83	98.15	91.07	63.27	94.48
Out-Sample Validation	100	93.00	100.00	92.86	100.00	96.30

Notes Table 4.2 presents the performance of Naïve Bayes classification. Panel A presents the performance of CSR-related tweet classification. In-sample and ten-fold cross validation are performed within the training sample. Out-sample validation is performed on 100 randomly selected observations from the remaining sample in firm-initiated tweets, stakeholder comments, and firm replies respectively. Accuracy measures the percentage of posts that are correctly selected by the algorithm. It is computed by (Σ True Positive + Σ True Negative) / Total Population. Precision measures the number of correct posts divided by the total number of posts returned. It is computed by Σ True Positive / (Σ True Positive + Σ False Positive). Recall measures the number of correct posts divided by the number of posts that should have been returned. It is computed by Σ True Positive / (Σ True Positive + Σ False Negative). Specificity measures the number of false posts divided by the number of posts that should not have been returned. It is computed by Σ True Negative / (Σ True Negative + Σ False Positive). F1 score considers both precision and recall and is computed as 2× (precision × recall) / (precision + recall). Panel B presents the performance of CSR topic classification. In-sample and ten-fold cross validation are performed within the training sample. Out-sample validation is performed on 100 randomly selected observations in firm-initiated tweets.

4.8.5 Empirical Models

The following OLS regression models are used to examine the relationship between the extent and quality of social media engagement and B Corp governance mechanisms:

$$EXTENT_{it} = \beta_0 + \beta_1 LEGAL_{it} + \beta_2 ETHICS_{it} + \beta_3 POLICY_{it} + \beta_4 TRANS_{it} + \beta_5 CSP_{it} + \beta_6 SIZE_{it} + \beta_7 FIRM\_AGE_{it} + \beta_8 CERT\_AGE_{it} + \beta_9 TW\_AGE_{it} + Industry\ Fixed\ Effect + Year\ Fixed\ Effect + \varepsilon_{it} \quad (4.1)$$

$$QUAL_{it} = \beta_0 + \beta_1 LEGAL_{it} + \beta_2 ETHICS_{it} + \beta_3 POLICY_{it} + \beta_4 TRANS_{it} + \beta_5 CSP_{it} + \beta_6 SIZE_{it} + \beta_7 FIRM\_AGE_{it} + \beta_8 CERT\_AGE_{it} + \beta_9 TW\_AGE_{it} + Industry\ Fixed\ Effect + Year\ Fixed\ Effect + \varepsilon_{it} \quad (4.2)$$

where $EXTENT_{it}$ measures the extent of social media engagement of firm *i* in assessment year *t* using two alternative measures: CSR_TW_{it} and STK_TW_{it} (defined below). $QUAL_{it}$ is the overall quality of social media engagement of firm *i* in assessment year *t* (defined below). To mitigate the endogeneity issues regarding the relationship, this study also examines the effect of B Corp governance mechanisms on the extent ($EXTENT_{it+1}$) and quality ($QUAL_{it+1}$) of social media engagement in the year following assessment.

4.8.6 Measures of the Extent of Social Media Engagement

Two measures are constructed to capture the extent of social media engagement ($EXTENT_{it}$). First, firms may proactively communicate with stakeholders regarding their CSR-related issues (Lee et al., 2013). Therefore, the percentage of firm-initiated CSR-related tweets scaled by the total number of firm-initiated tweets in a sample year (CSR_TW_{it}) is used to capture the extent of firm-initiated engagement with stakeholders:

$$CSR\_TW_{it} = \frac{\sum_{j=1}^{m_{it}} CSR\_Tweet_{ijt}}{m_{it}}$$

where CSR_TW_{it} is the extent of firm-initiated engagement with stakeholders of firm *i* in assessment year *t*. m_{it} is the total number of tweets posted by firm *i* in assessment year *t*. CSR_Tweet_{ijt} equals one if a tweet *j* posted by firm *i* in assessment year *t* is CSR-related, and zero otherwise.

Second, due to the dialogic nature of social media engagement, stakeholders can also initiate dialogue with firms about CSR issues (Lee et al., 2013; Saxton et al., 2019; She & Michelon, 2019). Therefore, firms that are more considerate of stakeholder interests and are active on stakeholder engagement are expected to receive more stakeholder-initiated tweets regarding CSR issues. Following Lee et al. (2013), the extent of stakeholder-initiated engagement (STK_TW_{it}) is measured as follows:

$$STK\_TW_{it} = \frac{\sum_{j=1}^{p_{it}} CSR\_Stake\_Tweet_{ijt}}{p_{it}}$$

where STK_TW_{it} is the extent of stakeholder-initiated engagement to firm *i* in assessment year *t*. p_{it} is the total number of tweets posted by stakeholders to firm *i* in assessment year *t*. $CSR\_Stake\_Tweet_{ijt}$ equals one if a tweet *j* posted by a stakeholder to firm *i* in assessment year *t* is CSR-related, and zero otherwise. Examples of stakeholder-initiated CSR-related tweets are shown in Appendix I.

4.8.7 Measures of the Quality of Social Media Engagement

The quality of social media engagement ($QUAL_{it}$) is measured using the effective communication model proposed in Brennan & Merkl-Davies (2018). Brennan & Merkl-Davies (2018) suggest that high-quality social media engagement covers textual, intertextual and relational connectivity. Therefore,

their model considers both the content and the interaction with other external parties during the engagement. In the Twitter context, this study only considers intertextual connectivity and relational connectivity as the restriction on tweet characters (i.e. 280 characters) makes it difficult to organise texts and achieve textual connectivity.

Brennan and Merkl-Davies (2018) define intertextual connectivity as the ability to connect texts from different time and topics. Typical examples of intertextual connectivity in social media are the use of hashtags ("#"), cashtags ("$"), and hyperlinks (Gómez-Carrasco et al., 2017; Saxton et al., 2019; Yang & Liu, 2017). Therefore, the intertextual connectivity ($INTER_{it}$) is measured as:

$$INTER_{it} = \frac{1}{n_{it}} \sum_{j=1}^{n_{it}} Intertext\_Tweet_{ijt}$$

where $INTER_{it}$ is the intertextual connectivity for firm i in assessment year t, n_{it} is the number of CSR-related tweets posted by firm i in assessment year t. $Intertext\_Tweet_{ijt}$ equals one if a CSR-related tweet j posted by firm i in assessment year t contains a hashtag, cashtag, or hyperlink, and zero otherwise.

Relational connectivity consists of four aspects: intentionality, informativity, acceptability and situationality (Brennan & Merkl-Davies, 2018). Intentionality refers to a firm's intention to communicate with stakeholders. In the social media context, the use of "@" allows firms to direct messages towards stakeholders to whom they intend to communicate. Therefore, intentionality ($INTEN_{it}$) is measured as:

$$INTEN_{it} = \frac{1}{n_{it}} \sum_{j=1}^{n_{it}} Intent\_Tweet_{ijt}$$

where $INTEN_{it}$ is the intentionality of firm *i* in assessment year *t*, n_{it} is the number of CSR-related tweets posted by firm *i* in assessment year *t*. $Intent\_Tweet_{ijt}$ equals one if a firm-initiated CSR-related tweet *j* posted by firm *i* in assessment year *t* contains "@" symbol, and zero otherwise. An example of a high intertextual connectivity and high intentionality tweet is displayed in Appendix I.

Informativity refers to the credibility and verifiability of information. As prior studies suggest that high quality CSR communication contains more verifiable information (Aerts & Cormier, 2009; Michelon et al., 2015), and more credible information is reflected in the number of specific information communicated (Hope et al., 2016), the informativity ($INFO_{it}$) is measured as:

$$INFO_{it} = \frac{1}{n_{it}} \sum_{j=1}^{n_{it}} \frac{ORG_{ijt} + GPE_{ijt} + TIME_{ijt} + NUM_{ijt} + MON_{ijt} + PIC_{ijt}}{6}$$

where $INFO_{it}$ is the informativity of firm *i* in assessment year *t*, n_{it} is the number of CSR-related tweets posted by firm *i* in assessment year *t*. Specific information is the arithmetic mean of the types of named entity identified using the spaCy Named Entity Recognition algorithm (Bennett, Maximilian, Arnoud, & Bruno, 2017). The named entities include organisations (*ORG*), geographical locations (*GPE*), date and time (*TIME*), numeric numbers (*NUM*), and monetary figures (*MON*). The presence of visuals in a tweet (*PIC*) is also included in the measure. The presence of each specific entity receives a score of one, and zero otherwise. An example of a high informativity tweet is shown in Appendix I.

Acceptability and situationality refer to the information being relevant for stakeholders. Since firms may engage with various stakeholder groups on a broad range of CSR topics, the breadth of CSR topics covered in social media

engagement may meet the information needs of various stakeholders. Therefore, the relevance of information ($RELEV_{it}$) is measured as the number of six CSR topics a firm covers during the engagement in the assessment year:

$$RELEV_{it} = \frac{1}{6}(GOV_{it} + EMP_{it} + COM_{it} + ECO_{it} + ENV_{it} + CUS_{it})$$

where $RELEV_{it}$ is the relevance of information communicated by firm *i* in assessment year *t*. Each of the six CSR topics: Governance (*GOV*), Employees (*EMP*), Community (*COM*), Economic impacts (*ECO*), Environment (*ENV*), and Customers/Products (*CUS*) earns a score of one if firm *i* posts at least one tweet referring to each one topic in assessment year *t*, and zero otherwise.

Following the approach in Michelon et al. (2015), a synthesis of the social engagement quality measure is constructed by computing the sum of four quality dimensions:

$$QUAL_{it} = INTER_{it} + INTEN_{it} + INFO_{it} + RELEV_{it}$$

4.8.8 Measures of B Corp Governance Mechanisms

Data on B Corp governance mechanisms were retrieved from B Corp Impact data on data.world (B Lab, 2018c). B Lab provides an overall score summarising a firm's governance characteristic as well as individual scores that capture each governance mechanism and policy.

Legal Responsibility

The level of B Corp legal responsibility to stakeholders ($LEGAL_{it}$) is measured using the BIA Mission Locked score. The Mission Locked score reflects the extent a B Corp firm integrates the consideration of stakeholders into its legal structure (i.e. through private agreement, corporate charter amendment, or the adoption of Benefit Corporation). The score ranges from

zero to ten, and scores of 2.5, 7.5 and 10 indicate signing a private agreement, amendment of corporate charter, and adoption of Benefit Corporation respectively. Zero is assigned to firms that have not incorporated stakeholder consideration into their legal structure. B Lab may also assign other scores if they think firms have additional or alternative means of incorporating stakeholder considerations.

Ethical Standards

The level of B Corp ethical standards ($ETHICS_{it}$) is measured using the BIA Ethics score. The Ethics score captures the presence of ethics compliance programmes such as policies on anti-corruption, code of ethics, training on code of ethics, and its breach policy. Since the development and implementation of various ethical programmes indicates a more comprehensive compliance system (Erwin, 2011), a high Ethics score indicates a high ethical standard in ensuring integrity, thus reflecting a high ethical responsibility towards stakeholders.

Mission-Alignment Policies

The comprehensiveness of a firm's policies in protecting stakeholder interests and preventing mission drift risk ($POLICY_{it}$) is measured using the BIA Mission & Engagement score. A high score indicates that more comprehensive policies are in place to protect stakeholder interests, thus reflecting the firm's commitments to stakeholder accountability at the strategic level.

4.8.9 Control Variables

Several control variables are included in the empirical model. First, a firm's social media engagement may be influenced by its transparency

performance as a firm may use other methods or channels to engage with stakeholders and communicate relevant corporate information. Therefore, the BIA Transparency score ($TRANS_{it}$) is used to control for firm's transparency performance during the assessment year. Next, the firm's overall BIA score (excluding governance) is used to control for CSR performance (CSP_{it}) as prior studies document that good CSR-performing firms have better stakeholder engagement activities (Cho et al., 2012; Lee et al., 2013; Mallin et al., 2013). Firm size may influence social media engagement activities since large firms face more diverse demands from external stakeholders (Saxton et al., 2019). To measure B Corp size, B Lab categorises firms into six groups based on full-time employee number: zero, 1 to 9, 10 to 49, 50 to 249, 250 to 999, and 1000+. Therefore, the firm size ($SIZE_{it}$) is measured using an ordinal variable ranging from one to six to indicate each size group. In addition, firm age ($FIRM\_AGE_{it}$) is controlled as prior studies find that company age has an impact on active stakeholder engagement (Lee et al., 2013; Roberts, 1992). A firm's founding year is identified through its website, LinkedIn profile, or filings at the State of Secretary Office. Certification age ($CERT\_AGE_{it}$) is also controlled as firms that join B Corp membership early may have more experienced practice in stakeholder engagement.[46] TW_AGE_{it} is also included to control for firms' Twitter age as studies find that firms with higher CSR performance adopt social media earlier than those with lower performance (Lee et al., 2013). Finally, industry fixed effect is used to control for time-invariant industry characteristics and year fixed effect is used to control for potential events or unobservable

[46] Minimum firm age and certification age are capped at zero.

trends that apply to all firms in a given year. Standard errors are robust. Variable definitions are summarised in Table 4.3.

Table 4.3 Summary of Variable Definitions

EXTENT	The extent of social media engagement is measured by two proxies: *CSR_TW* – the number of firm-initiated CSR-related tweets scaled by the total number of firm-initiated tweets. *STK_TW* – the number of stakeholder-initiated CSR-related tweets scaled by the total number of stakeholder-initiated tweets.
QUAL	The quality of social media engagement. It is the sum of *INTER*, *INTEN*, *INFO*, and *RELEV*.
INTER	Intertextual connectivity – the percentage of CSR-related tweets containing hashtags (#), cashtags ($), or hyperlinks.
INTEN	Intentionality – the percentage of CSR-related tweets containing @.
INFO	Informativity – the average number of named entities mentioned in a CSR-related tweet. The named entities are organisations (*ORG*), geographical locations (*GPE*), date and time (*TIME*), numeric numbers (*NUM*), monetary figures (*MON*). I also identify whether a tweet contains visuals (*PIC*).
RELEV	Relevance – the breadth of CSR topics tweeted by a firm in a year.
LEGAL	The level of B Corp's legal responsibility to stakeholders. Measured using the Mission Locked score in BIA assessment.
ETHICS	The effectiveness of B Corp's ethical programmes to protect stakeholder interests. Measured using the Ethics score in BIA assessment.
POLICY	The extensiveness of B Corp's mission-alignment policies to protect stakeholder interests. Measured using the Mission & Engagement score in BIA assessment.
TRANS	The Transparency score in BIA assessment which reflects how the firm performs in terms of disclosing relevant corporate information to external stakeholders.
CSP	BIA assessment CSR Scores excluding governance score
SIZE	Ordinal variable ranges from one to six each of the size groups based on full-time employee number: 0, 1 to 9, 10 to 49, 50 to 249, 250 to 999, and 1000+.
FIRM_AGE	Firm age.
CERT_AGE	Number of years since first certification.
TW_AGE	Twitter age.

4.9 Empirical Findings

4.9.1 Descriptive Statistics

Table 4.4 presents the descriptive statistics for variables used in the main analysis. With regard to the extent of social media engagement, on average, 42 per cent firm-initiated tweets (*CSR_TW*) and 43 per cent stakeholder-initiated tweets (*STK_TW*) are CSR-related. However, the reduced observations (N = 787) indicate that there is a lack of CSR-related engagement initiated by stakeholders. The quality of social media engagement (*QUAL*) has a mean of 2.32, suggesting that on average firms score just over half of the four quality dimensions. When breaking down the index into individual dimensions,

81 per cent of firm-initiated CSR-related tweets (*INTER*) contain intertextual connectivity features such as hashtags, cashtags and URLs; and 39 per cent firm-initiated CSR-related tweets (*INTEN*) show firms' intentions to engage with stakeholders. In addition, informativity (*INFO*) has a mean of 0.22, suggesting that firm-initiated CSR-related tweets contain little specific information. Finally, the average number of CSR topics covered by firm-initiated tweets (*RELEV*) is 0.89, suggesting a wide breadth of CSR topics covered and high relevance of information for various stakeholder groups.

Regarding B Corp governance mechanisms, the level of legal responsibility (*LEGAL*) has a mean of 6.29 and a median of 7.5, suggesting that half of the firms have either amended their corporate charter or converted to Benefit Corporation. The level of ethical standards (*ETHICS*) has a median of zero, suggesting that half of the sample have no ethical programme. The comprehensiveness of mission-alignment policy (*POLICY*) has a mean of 1.93, suggesting that many B Corp firms lack mission-alignment policies.

Table 4.4 Descriptive Statistics

	N	Mean	SD	Min	P25	P50	P75	Max
CSR_TW	1520	0.42	0.26	0.01	0.20	0.37	0.62	1.00
STK_TW	776	0.43	0.24	0.00	0.22	0.39	0.61	1.00
QUAL	1520	2.32	0.46	0.00	2.09	2.37	2.65	3.33
INTER	1520	0.81	0.22	0.00	0.73	0.89	0.98	1.00
INTEN	1520	0.39	0.27	0.00	0.17	0.39	0.59	1.00
INFO	1520	0.22	0.08	0.00	0.17	0.22	0.27	0.67
RELEV	1520	0.89	0.22	0.00	0.83	1.00	1.00	1.00
LEGAL	1520	6.29	3.01	0.00	2.50	7.50	7.50	10.00
ETHICS	1520	0.66	0.73	0.00	0.00	0.00	1.30	2.60
POLICY	1520	1.93	1.06	0.00	1.10	1.80	2.60	6.00
TRANS	1520	3.35	1.29	0.00	2.50	3.30	4.20	7.00
CSP	1520	84.02	16.46	60.00	71.80	79.45	92.00	162.40
SIZE	1520	2.66	1.08	1.00	2.00	3.00	3.00	6.00
FIRM_AGE	1520	13.98	17.92	0.00	4.50	9.00	17.00	226.00
CERT_AGE	1520	2.16	2.57	0.00	0.00	2.00	4.00	11.00
TW_AGE	1520	5.07	2.37	0.00	3.00	5.00	7.00	10.00

Note All variables are defined in Table 4.3.

With regard to the control variables, firms on average have a transparency score (*TRANS*) of 3.35 and a CSR performance score (*CSP*) of 84.02. Firm size (*SIZE*) has a mean of 2.66 and a median of three, indicating that B Corp firms are relatively small as half of the sample have 10 – 49 full-time employees. The average firm age (*FIRM_AGE*) is 13.98 and the median value is nine, suggesting that firms are relatively young since half of them were established within the last decade. The sample also has a relatively young certification age (*CERT_AGE*) as many firms received their first B Corp certification two years prior to the observation year. Finally, half of the firms adopted Twitter five years prior to the observation year.

4.9.2 Correlation Table

Table 4.5 presents the correlation coefficients for variables used in the main analysis. The results show that the number of CSR-related tweets (*CSR_TW*) is strongly and positively correlated with both stakeholder-initiated CSR-related tweets (*STK_TW*) and the quality of social media engagement (*QUAL*). All governance mechanisms are positively correlated with the extent and quality of social media engagement except for *ETHICS* which shows a negative correlation with *CSR_TW* and *STK_TW*. In addition, no independent and control variables exhibit a pair-wise correlation coefficient in excess of ±0.5, except for *SIZE* and *ETHICS*, which have a correlation coefficient of 0.64, suggesting that larger firms have higher ethical standards. The Further Variance Inflator Factor (VIF) test shows that the maximum VIF in empirical models is 2.11 (un-tabulated), well below the rule of thumb threshold of 10

(Michelon et al., 2015). Overall, the results indicate no multicollinearity issue identified for variables included in the empirical models.

Table 4.5 Correlation Table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. CSR_TW	1															
2. STK_TW	0.76***	1														
3. QUAL	0.19***	0.10**	1													
4. INTER	0.15***	0.05	0.61***	1												
5. INTEN	0.18***	0.10**	0.64***	0.05*	1											
6. INFO	-0.02	-0.07	0.29***	0.03	0.17***	1										
7. SITU	0.05	0.07	0.59***	0.20***	0.03	0.01	1									
8. LEGAL	0.03	0.01	0.04	0	0.06*	0.01	-0.01	1								
9. ETHICS	-0.04	-0.03	0.10***	0.03	0.03	0.17***	0.08**	-0.02	1							
10. POLICY	0.25***	0.20***	0.09***	0.04	0.07**	0.03	0.05*	0.07*	-0.02	1						
11. TRANS	0.20***	0.21***	0.07**	0.05	0.06*	-0.03	0.04	0.07**	0.02	0.29***	1					
12. CSP	0.17***	0.17***	0.04	0.04	0	-0.02	0.06*	-0.04	0.02	0.14***	0.06*	1				
13. SIZE	-0.18***	-0.12**	0.07**	0.01	-0.02	0.21***	0.08**	-0.02	0.64***	-0.15***	-0.05	0.04	1			
14. FIRM_AGE	-0.11***	-0.10**	-0.02	-0.01	-0.08**	0.12***	0.02	0.04	0.29***	-0.07**	0.01	0.02	0.41***	1		
15. CERT_AGE	0.07**	0.08*	0.05	0.02	0.03	0.03	0.03	0.32***	0.13***	0.05	0.09***	0.19***	0.11***	0.15***	1	
16. TW_AGE	-0.18***	-0.15***	0.01	-0.07*	-0.01	0.16***	0.04	0.11***	0.27***	-0.07**	-0.03	-0.02	0.27***	0.24***	0.34***	1

Notes All variables are defined in Table 4.3. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

4.9.3 Regression Analysis

With respect to the effect in the assessment year, *LEGAL* and *ETHICS* have no effect on the extent of social media engagement (CSR_TW_t and $STAKE\_TW_t$). However, both mechanisms are significantly and positively related to $QUAL_t$ (p <.1 and < .05 respectively), suggesting that B Corp legal responsibility and ethical standards improve the quality of social media engagement. *POLICY* is strongly and positively related to CSR_TW_t, $STAKE\_TW_t$, and $QUAL_t$ (all at 0.01 level), suggesting that firms with more comprehensive mission-alignment policies are more active in engaging with stakeholders and the engagement are of higher quality.

With regard to control variables, *TRANS* is significantly and negatively related to CSR_TW_t (p < .01) but no effect is found on $STAKE\_TW_t$ and $QUAL_t$, indicating that firms with higher transparency have fewer firm-initiated CSR-related tweets. One possible explanation for this is that firms may use other methods such as CSR reports or focus groups to engage with stakeholders on CSR issues. *CSP* is positively and significantly related to CSR_TW_t and $STAKE\_TW_t$ but no effect is found on $QUAL_t$, indicating that better CSR performing firms are more active in engaging with stakeholders on CSR issues. *SIZE* is negatively related to CSR_TW_t (p < .05) but positively related to $QUAL_t$ (p < .1), suggesting that while larger firms tend to have fewer CSR-related tweets, the quality of engagement is relatively higher than smaller firms. Older firms have fewer firm-initiated CSR-related tweets, fewer stakeholder-initiated CSR-related tweets, and lower quality engagement (p < .01, < .05, and < .05 respectively). In addition, firms with longer certification age (*CERT_AGE*) have more firm-initiated and stakeholder-initiated CSR-related tweets than newly

certified firms (p < .01). Finally, younger Twitter adopters have more firm-initiated and stakeholder-initiated tweets than older adopters.

Since the evaluation of B Corp governance scores may be driven by firms' stakeholder engagement activities during the assessment year, the study also examines the effect of B Corp governance mechanisms on the extent and quality of social media engagement in the year following the assessment. As indicated in Columns 4 to 6, *LEGAL* still shows a positive effect on $QUAL_{t+1}$, but the coefficient is not significant. However, *ETHICS* is still significantly and positively related to $QUAL_{t+1}$ in the year following assessment and *POLICY* exhibits positive effects on CSR_TW_{t+1}, $STAKE\_TW_{t+1}$, and $QUAL_{t+1}$ in the year following assessment. Overall, the results provide support to H1b, H2b, H3a, and H3b, but not H1a and H2a.

Table 4.6 OLS Analysis of B Corp Governance Mechanisms on the Extent and Quality of Social Media Engagement

	Dependent Variables:					
	CSR_TW_t	STK_TW_t	$QUAL_t$	CSR_TW_{t+1}	STK_TW_{t+1}	$QUAL_{t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)
LEGAL	0.000	-0.000	**0.008***	-0.001	0.001	0.007
	(0.002)	(0.003)	**(0.004)**	(0.002)	(0.003)	(0.005)
ETHICS	-0.002	-0.007	**0.053****	-0.007	-0.018	**0.052****
	(0.009)	(0.012)	**(0.021)**	(0.010)	(0.013)	**(0.024)**
POLICY	**0.037*****	**0.023*****	**0.040*****	**0.028*****	**0.019****	**0.043*****
	(0.005)	**(0.007)**	**(0.012)**	**(0.006)**	**(0.008)**	**(0.014)**
TRANS	-0.014***	-0.006	-0.005	-0.017***	-0.011	-0.008
	(0.004)	(0.006)	(0.010)	(0.005)	(0.007)	(0.012)
CSP	0.002***	0.001**	0.001	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)
SIZE	-0.015**	0.006	0.025*	-0.009	0.012	0.045***
	(0.007)	(0.009)	(0.015)	(0.007)	(0.009)	(0.017)
FIRM_AGE	-0.001***	-0.001**	-0.001**			
	(0.000)	(0.000)	(0.001)			
CERT_AGE	0.008***	0.009***	0.003			
	(0.002)	(0.003)	(0.005)			
TW_AGE	-0.008***	-0.008**	0.009			
	(0.003)	(0.004)	(0.006)			
$FIRM\_AGE_{t+1}$				-0.001***	-0.001*	-0.003***
				(0.000)	(0.000)	(0.001)
$CERT\_AGE_{t+1}$				0.010***	0.007**	-0.004
				(0.002)	(0.003)	(0.006)
TW_AGE_{t+1}				-0.013***	-0.014***	0.007
				(0.003)	(0.004)	(0.007)
Constant	0.328***	0.341***	2.130***	0.338***	0.339***	1.994***
	(0.037)	(0.051)	(0.077)	(0.040)	(0.055)	(0.091)
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	1,520	776	1,520	1,338	689	1,338
Adjusted R^2	0.462	0.412	0.066	0.456	0.442	0.074

Notes Table 4.6 reports the results on the OLS analysis of B Corp governance mechanisms on the extent and quality of social media engagement in the assessment and the following year. Column 1 to 3 presents the results from regressing the assessment year percentage of firm-initiated CSR-related tweets (CSR_TW_t), percentage of stakeholder-initiated CSR-related tweets ($STAKE\_TW_t$), and the quality of social media engagement ($QUAL_t$) on B Corp's legal responsibility (*LEGAL*), ethical standards (*ETHICS*), and mission-alignment policies (*POLICY*). Column 4 to 6 presents the results from regressing the following year percentage of CSR-related tweets (CSR_TW_{t+1}), firm responsiveness to stakeholder tweets ($RESP_{t+1}$), and the quality of social media engagement ($QUAL_{t+1}$) on B Corp's legal responsibility (*LEGAL*), ethical standards (*ETHICS*), and mission-alignment policies (*POLICY*). The table reports OLS coefficient estimates and (in brackets) robust standard errors. All variables are defined in Table 3. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (twotailed), respectively.

Table 4.7 presents an analysis of the effect of B Corp governance mechanisms on each individual quality dimension. As indicated in Columns 1 to 4, *LEGAL* and *ETHICS* is significantly and positively ($p < .05$ and $p < .1$ respectively) related to $INTEN_t$, suggesting that firms with a higher level of legal responsibility and higher level of ethical standards show strong intentions to engage with stakeholders on Twitter. *POLICY* is significantly and positively associated with all four dimensions, suggesting that firms with more comprehensive mission-alignment policies use more intertextual features, show strong intentions to engage with stakeholders, communicate more specific information, and cover more CSR topics in social media engagement.

The effect of B Corp governance mechanisms is also analysed on each quality dimension for the following year. Consistent with the findings in the assessment year, *LEGAL* is significantly and positively related to $INTEN_{t+1}$ ($p < .05$). Although *ETHICS* shows a positive direction on $INTEN_{t+1}$, it is not significant. However, it is significantly and positively related to $INTER_{t+1}$ ($p< .05$) and $INFO_{t+1}$ ($p < .01$), suggesting that firms with high ethical standards use more intertextual connectivity features and communicate more specific information in the year following assessment. *POLICY* still shows positive directions on all four quality dimensions. However, it is only significantly related to $INTEN_{t+1}$ ($p < .05$) and $RELEV_{t+1}$ ($p <.01$), suggesting that firms with more comprehensive mission-alignment policies show strong intentions to engage with stakeholders and cover more CSR topics during the engagement in the year following assessment.

Table 4.7 OLS Analysis of B Corp Governance Mechanisms on Individual Component of Social Media Engagement Quality

	Dependent Variables:							
	$INTER_t$	$INTEN_t$	$INFO_t$	$RELEV_t$	$INTER_{t+1}$	$INTEN_{t+1}$	$INFO_{t+1}$	$RELEV_{t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LEGAL	0.003	**0.005****	-0.001	0.001	0.001	**0.006****	0.001	-0.001
	(0.002)	**(0.002)**	(0.001)	(0.002)	(0.002)	**(0.002)**	(0.001)	(0.002)
ETHICS	0.016	**0.021***	0.004	0.012	**0.029****	0.002	**0.013*****	0.008
	(0.010)	**(0.012)**	(0.004)	(0.010)	**(0.012)**	(0.013)	**(0.004)**	(0.011)
POLICY	**0.011****	**0.014***	**0.005****	**0.011***	0.009	**0.016****	0.001	**0.016*****
	(0.006)	**(0.007)**	**(0.002)**	**(0.006)**	(0.006)	**(0.008)**	(0.003)	**(0.006)**
TRANS	-0.003	-0.001	-0.001	0.000	-0.003	-0.007	-0.001	0.003
	(0.004)	(0.006)	(0.002)	(0.004)	(0.005)	(0.006)	(0.002)	(0.005)
CSP	0.000	0.000	0.000	0.001*	0.001**	0.000	0.000**	0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SIZE	-0.002	0.002	0.014***	0.011	-0.003	0.016*	0.016***	0.015*
	(0.007)	(0.009)	(0.003)	(0.008)	(0.009)	(0.009)	(0.003)	(0.008)
FIRM_AGE	-0.000	-0.001***	0.000	-0.000				
	(0.000)	(0.000)	(0.000)	(0.000)				
CERT_AGE	0.002	0.002	-0.001	-0.001				
	(0.003)	(0.003)	(0.001)	(0.003)				
TW_AGE	0.003	-0.000	0.000	0.006*				
	(0.003)	(0.004)	(0.001)	(0.003)				
$FIRM\_AGE_{t+1}$					-0.001	-0.001**	-0.000	-0.000
					(0.001)	(0.001)	(0.000)	(0.000)
$CERT\_AGE_{t+1}$					0.001	-0.000	-0.003**	-0.001
					(0.003)	(0.003)	(0.001)	(0.003)
TW_AGE_{t+1}					0.005	0.003	0.000	-0.001
					(0.004)	(0.004)	(0.001)	(0.004)
Constant	0.851***	0.360***	0.156***	0.763***	0.759***	0.325***	0.148***	0.762***
	(0.036)	(0.050)	(0.013)	(0.040)	(0.045)	(0.051)	(0.016)	(0.039)
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	1,520	1,520	1,520	1,520	1,328	1,328	1,328	1,328
Adjusted R^2	0.095	0.042	0.122	0.020	0.114	0.039	0.133	0.028

Notes Table 4.7 reports the results on the OLS analysis of B Corp governance mechanisms on individual component of social media engagement quality in the assessment and the following year. Column 1 to 4 presents the results from regressing current year intertextual connectivity ($INTER_t$), intentionality ($INTENT_t$), informativity ($INFO_t$), and relevance ($RELEV_t$) on B Corp's legal responsibility (*LEGAL*), ethical standards (*ETHICS*), and mission-alignment policies (*POLICY*) Column 5 to 8 presents the results from regressing the following year intertextual connectivity ($INTER_{t+1}$), intentionality ($INTEN_{t+1}$), informativity ($INFO_{t+1}$), and relevance ($RELEV_{t+1}$) on B Corp's legal responsibility (*LEGAL*), ethical standards (*ETHICS*), and mission-alignment policies (*POLICY*). The table reports OLS coefficient estimates and (in brackets) robust standard errors. All variables are defined in Table 3. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (twotailed), respectively.

4.9.4 Additional Analysis

4.9.4.1 Effect of Different Legal Structures

Since the Benefit Corporation legislation assigns directors a legal obligation to consider stakeholders, it is interesting to examine whether this legal form can enhance the extent and quality of social media engagement. Table 4.8 presents an analysis of the effect of different legal structures on social media engagement extent and quality. *BC* is a dummy variable equal to one if the firm is also a Benefit Corporation, and zero for others. *CHARTER* is a dummy variable set to one if the firm amended the corporate charter, and zero otherwise. The baseline of comparison is those without substantial integration of stakeholder interests into their legal structure (i.e. no integration or only signing a private agreement). As indicated in the table, *BC* and *CHARTER* have no effect on CSR_TW_t and $STAKE\_TW_t$, suggesting that Benefit Corporation status and the amendment of corporate charter do not improve the extent of social media engagement. Although both *BC* and *CHARTER* have a positive effect on $QUAL_t$, only *CHARTER* shows a significant relationship, suggesting that corporate charter amendment improves the quality of social media engagement.

Table 4.8 Additional Analysis – Effect of Different Legal Structure on Social Media Engagement

	Dependent Variables:		
	CSR_TW	STK_TW	QUAL
	(1)	(2)	(3)
BC	-0.002	-0.012	0.050
	(0.014)	(0.020)	(0.032)
CHARTER	-0.005	-0.008	**0.051***
	(0.012)	(0.016)	**(0.028)**
ETHICS	-0.002	-0.007	**0.052****
	(0.009)	(0.012)	**(0.021)**
POLICY	**0.037*****	**0.023*****	**0.042*****
	(0.005)	**(0.008)**	**(0.012)**
TRANS	-0.014***	-0.006	-0.004
	(0.004)	(0.006)	(0.010)
CSP	0.002***	0.001*	0.001
	(0.000)	(0.000)	(0.001)
SIZE	-0.015**	0.006	0.026*
	(0.007)	(0.009)	(0.015)
FIRM_AGE	-0.001***	-0.001**	-0.001**
	(0.000)	(0.000)	(0.001)
CERT_AGE	0.008***	0.009***	0.002
	(0.002)	(0.003)	(0.005)
TW_AGE	-0.008***	-0.008**	0.009
	(0.003)	(0.004)	(0.006)
Constant	0.333***	0.344***	2.141***
	(0.037)	(0.052)	(0.078)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	1,520	776	1,520
Adjusted R^2	0.462	0.411	0.066

Notes Table 4.8 reports additional analysis results on the effect of different legal structure on the extent and quality of social media engagement in the assessment and the following year. *BC* is a dummy variable which equals one if the firm is a benefit corporation and zero others. *CHARTER* is a dummy variable if the firm amended its corporate charter and zero otherwise. Column 1 to 3 presents the results from regressing current year percentage of firm-initiated CSR-related tweets (*CSR_TW*), percentage of stakeholder-initiated CSR-related tweets (*STK_TW*), and the quality of social media engagement (*QUAL*) on B Corp's legal responsibility (*BC* and *CHARTER*), ethical standards (*ETHICS*), and mission-alignment polices (*POLICY*). The table reports OLS coefficient estimates and (in brackets) robust standard errors. All variables are defined in Table 3. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (twotailed), respectively.

4.9.4.2 Moderating Role of Legal Responsibility and Ethical Programmes

Since mission-alignment policies are set and overseen by directors, and their actions are guided by the firm's legal responsibility and ethical standards, it is interesting to examine whether legal responsibility and ethical standards play a moderating role on the relationship between mission-alignment policies and the extent and quality of social media engagement. The following models are used to explore this question:

$$EXTENT_{it} = \beta_0 + \beta_1 BC_{it} + \beta_2 ETHICS\_DUM_{it} + \beta_3 POLICY_{it} + \beta_4 BC_{it} \times ETHICS\_DUM_{it} + \beta_5 BC_{it} \times POLICY_{it} + \beta_6 ETHICS\_DUM_{it} \times POLICY_{it} + \beta_7 BC_{it} \times ETHICS\_DUM_{it} \times POLICY_{it} + \Sigma\, Controls + Industry\ Fixed\ Effect + Year\ Fixed\ Effect + \varepsilon_{it} \quad (4.3)$$

$$QUAL_{it} = \beta_0 + \beta_1 BC_{it} + \beta_2 ETHICS\_DUM_{it} + \beta_3 POLICY_{it} + \beta_4 BC_{it} \times ETHICS\_DUM_{it} + \beta_5 BC_{it} \times POLICY_{it} + \beta_6 ETHICS\_DUM_{it} \times POLICY_{it} + \beta_7 BC_{it} \times ETHICS\_DUM_{it} \times POLICY_{it} + \Sigma\, Controls + Industry\ Fixed\ Effect + Year\ Fixed\ Effect + \varepsilon_{it} \quad (4.4)$$

where BC_{it} is equal to one if the firm is a Benefit Corporation, and zero otherwise. $ETHICS\_DUM_{it}$ is equal to one if the firm has ethical standards (BIA Ethics score greater than zero), and zero otherwise. $BC_{it} \times ETHICS\_DUM_{it} \times POLICY_{it}$ is the variable of interest as it shows the moderating effect of the firm's legal responsibility and ethical standards on the relationship between the comprehensiveness of mission-alignment policies and the extent and quality of social media engagement.

As indicated in Table 4.9, only CSR_TW_t is weakly and positively related to *BC×ETHICS_DUM×POLICY*, suggesting that when a firm is a Benefit Corporation and has ethical standards, more comprehensives mission-alignment policies lead to more firm-initiated CSR-related tweets. In spite of the fact that *BC×ETHICS_DUM×POLICY* shows a positive direction on both STK_TW_t and $QUAL_t$, the coefficients are not significant, suggesting that

Benefit Corporation status and the presence of ethical standards have no moderating effect on the extent of stakeholder-initiated engagement and the quality of social media engagement.

Table 4.9 Additional Analysis – Moderating Role of Legal Responsibility and Ethical Standards

	Dependent Variables:		
	CSR_TW	STK_TW	QUAL
	(1)	(2)	(3)
BC	0.016	0.012	0.005
	(0.030)	(0.052)	(0.087)
ETHICS_DUM	0.010	-0.016	0.034
	(0.026)	(0.033)	(0.063)
POLICY	**0.038*** **	**0.029*** **	**0.031*** *
	(0.007)	**(0.011)**	**(0.018)**
BC×ETHICS_DUM	-0.073	-0.038	-0.135
	(0.049)	(0.078)	(0.138)
BC×POLICY	-0.010	-0.012	0.007
	(0.011)	(0.019)	(0.031)
ETHICS_DUM×POLICY	-0.004	-0.009	0.013
	(0.012)	(0.016)	(0.028)
BC×ETHICS_DUM×POLICY	**0.042*** *	0.024	0.068
	(0.022)	(0.035)	(0.057)
TRANS	-0.014***	-0.009	-0.006
	(0.004)	(0.006)	(0.010)
CSP	0.001***	0.001**	0.001
	(0.000)	(0.000)	(0.001)
SIZE	-0.017**	0.014	0.031*
	(0.007)	(0.010)	(0.017)
FIRM_AGE	-0.001***	-0.001**	-0.002**
	(0.000)	(0.000)	(0.001)
CERT_AGE	0.008***	0.010***	0.003
	(0.002)	(0.003)	(0.005)
TW_AGE	-0.008***	-0.008**	0.009
	(0.003)	(0.004)	(0.006)
Constant	0.354***	0.261***	2.177***
	(0.043)	(0.061)	(0.090)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	1,520	776	1,520
Adjusted R^2	0.462	0.411	0.062

Notes Table 4.9 reports the additional analysis results on the interaction effect of governance mechanisms on the extent and quality of social media engagement. Column 1 to 3 presents the results from regressing the assessment year percentage of firm-initiated CSR-related tweets (*CSR_TW*), percentage of stakeholder-initiated CSR-related tweets (*STAKE_TW*), and the quality of social media engagement (*QUAL*) on the three-way interactions among B Corp's BC status (*BC*), a dummy variable indicating the presence of ethical standards (*ETHICS_DUM*), and mission-alignment policies (*POLICY*). The table reports OLS coefficient estimates and (in brackets) robust standard errors. All variables are defined in Table 3. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (two tailed), respectively.

4.9.4.3 Heckman Model

Since not all B Corps use Twitter to engage with stakeholders, the regression analyses on a subsample may cause potential selection bias (Lennox, Francis, & Wang, 2011). Following prior studies (Lee et al., 2013; Michelon et al., 2015; Osma & Guillamón-Saorín, 2011), Heckman's (1979) two-step model as a robustness test. In the first stage, the Probit model in Equation 4.5 is used to calculate the Inverse Mill's ratio ($INVERSE\_MILLS_{it}$) which is then controlled in the OLS model in Equation 4.6 and Equation 4.7:

$$TWEET_{it} = \gamma_0 + \gamma_1 GOODGOV_{it} + \gamma_2 GOODCSR_{it} + \gamma_3 FACEBOOK_{it} + \gamma_4 SIZE_{it} + Industry\ Fixed\ Effect + Year\ Fixed\ Effect + \varepsilon_{it} \quad (4.5)$$

$$EXTENT_{it} = \beta_0 + \beta_1 LEGAL_{it} + \beta 2 ETHICS_{it} + \beta_3 POLICY_{it} + \beta_4 TRANS_{it} + \beta_5 CSP_{it} + \beta_6 SIZE_{it} + \beta_7 FIRM\_AGE_{it} + \beta_8 CERT\_AGE_{it} + \beta_9 TW\_AGE_{it} + \beta_{10} INVERSE\_MILLS_{it} + Industry\ Fixed\ Effect + Year\ Fixed\ Effect + \varepsilon_{it} \quad (4.6)$$

$$QUAL_{it} = \beta_0 + \beta_1 LEGAL_{it} + \beta 2 ETHICS_{it} + \beta_3 POLICY_{it} + \beta_4 TRANS_{it} + \beta_5 CSP_{it} + \beta_6 SIZE_{it} + \beta_7 FIRM\_AGE_{it} + \beta_8 CERT\_AGE_{it} + \beta_9 TW\_AGE_{it} + \beta_{10} INVERSE\_MILLS_{it} + Industry\ Fixed\ Effect + Year\ Fixed\ Effect + \varepsilon_{it} \quad (4.7)$$

where $TWEET_{it}$ equals one if a firm has at least one tweet during the year, and zero otherwise. $GOODGOV_{it}$ is a dummy variable that equals one if the firm's governance score is above median, and zero otherwise. $GOODCSR_{it}$ is a dummy variable that equals one if CSP is above median, and zero otherwise. Since firms may use alternative social media platforms such as Facebook to engage with stakeholders, a dummy variable ($FACEBOOK_{it}$) is included if the firm has a Facebook account, and zero otherwise. The study also controls for firm size.

Table 4.10 presents the results for the Heckman model. Consistent with the main analysis, *LEGAL* and *ETHICS* are positively and significantly associated with the $QUAL_t$, but no significance is found on CST_TW_t and STK_TW_t. *POLICY* is positively and significantly associated with CSR_TW_t, STK_TW_t, and $QUAL_t$. The *INVERSE_MILLS* is not significant, indicating that the model should have addressed the selection bias concern.

Table 4.10 Additional Analysis – Heckman Two-Step Model

	Dependent Variables:					
	TWEET	CSR_TW	TWEET	STK_TW	TWEET	QUAL
	(1)	(2)	(3)	(4)	(5)	(6)
LEGAL		0.000		-0.000		**0.008***
		(0.002)		(0.002)		**(0.004)**
ETHICS		-0.001		-0.007		**0.054****
		(0.009)		(0.012)		**(0.021)**
POLICY		**0.037*****		**0.023*****		**0.040*****
		(0.005)		**(0.007)**		**(0.012)**
TRANS		-0.013***		-0.007		-0.005
		(0.004)		(0.006)		(0.010)
CSP		0.002***		0.001**		0.001
		(0.000)		(0.000)		(0.001)
FIRM_AGE		-0.012*		-0.001*		0.025
		(0.007)		(0.000)		(0.016)
CERT_AGE		-0.001***		0.009***		-0.001**
		(0.000)		(0.003)		(0.001)
TW_AGE		0.008***		-0.008**		0.003
		(0.002)		(0.004)		(0.005)
INVERSE_MILLS		0.044		-0.029		0.012
		(0.029)		(.032)		(0.067)
SIZE	0.149***	-0.014**	0.158***	0.003	0.149***	0.021
	(0.033)	(0.007)	(0.039)	(0.009)	(0.033)	(0.016)
GOODGOV	0.158**		0.167**		0.158**	
	(0.068)		(0.081)		(0.068)	
GOODCSR	-0.048		-0.037		-0.048	
	(0.069)		(0.081)		(0.069)	
FACEBOOK	1.067***		1.148***		1.067***	
	(0.079)		(0.096)		(0.079)	
Constant	0.036	0.216***	-0.601	0.192**	0.036	1.989***
	(0.311)	(0.052)	(0.386)	(0.077)	(0.311)	(0.120)
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	1,999	1,520	1,255	776	1,999	1,520

Notes Table 4.10 reports additional analysis results using Heckman two-step model. The first stage I ran a probit model by regressing the likelihood to post at least one tweet during the sample year (*TWEET*) on *SIZE*, *GOODGOV*, *GOODCSR*, and *FACEBOOK*. *GOODGOV* is a dummy variable that equals one if the firm governance score is above median and zero otherwise. *GOODCSR* is a dummy variable that equals one if the *CSP* is above median and zero otherwise. *FACEBOOK* is a dummy variable if the firm also has a Facebook account. Then I use the inverse mill ratio obtained from the first stage as a control in the second stage regression. Column 1 and 2 presents the Heckman two-step model by regressing current year percentage of CSR-related tweets (*CSR_TW*) on B Corp's legal responsibility (*LEGAL*), ethical programmes (*ETHICS*), and mission-alignment policies (*POLICY*). Column 3 and 4 presents the Heckman two-step model by regressing current year percentage of stakeholder-initiated CSR-related tweets (*STK_TW*) on B Corp's legal responsibility (*LEGAL*), ethical standards (*ETHICS*), and mission-alignment policies (*POLICY*). Column 5 and 6 presents the Heckman two-step model by regressing current year social media engagement quality (*QUAL*) on B Corp's legal responsibility (*LEGAL*), ethical standards (*ETHICS*), and mission-alignment policies (*POLICY*). The table reports Probit and OLS coefficient estimates and (in brackets) standard errors. Variables that are not defined in this note are summarised in Table 3. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01 (twotailed), respectively.

4.10 Conclusion, Discussions, Limitations, and Future Research

This study examines the effect of B Corp legal responsibility, ethical standards and mission-alignment policies on the extent and quality of social media engagement. Since B Corp firms are held accountable to both shareholders and stakeholders and face a mission drift risk where the financial objective may crowd out CSR objectives, they are expected to undertake more extensive and high-quality engagement with stakeholders on social media to communicate and seek stakeholder opinions on CSR issues. Focusing on the social media engagement activities of a sample of U.S. B Corp firms certified between 2014 and 2018 on Twitter, the findings show that although B Corp legal responsibility and ethical standards have no effect on the extent of social media engagement, both mechanisms improve the quality of social media engagement. In particular, quality is mainly driven by the firm's intention to engage with stakeholders on CSR-related issues. These findings indicate that firms with high legal responsibility and ethical standards emphasise quality rather than the extent of engagement on social media. Furthermore, although legal responsibility and ethical standards have no effect on the content of CSR-related tweets (i.e. using intertextual connectivity features, disclosing specific information, and communicating a wide range of CSR topics), both mechanisms improve a firm's intention to engage with stakeholders. These findings are consistent with prior studies in which scholars argue that legal and ethical mechanisms reflect the tone and principal set at the top (Schwartz et al., 2005) and these mechanisms determine the firm's institutional environment in considering stakeholders (Arjoon, 2005; Rossouw, 2005b). As a result, these

instruments may have more influence on improving stakeholder engagement at an institutional level, rather than on a day-to-day basis (Schwartz et al., 2005). Instead of regulating the content of social media engagement, legal and ethical mechanisms determine whether the firm takes an active approach in stakeholder engagement and mitigating mission drift risk.

In addition to legal responsibility and ethical standards, firms with more comprehensive mission-alignment policies have more firm-initiated CSR-related tweets and receive more stakeholder-initiated CSR-related tweets. These firms also have higher quality social media engagement regarding the use of more intertextual connectivity features, showing a strong intention to engage with stakeholders, disclose more specific information, and communicate a range of CSR topics during the engagement. Since mission-alignment policies are specifically established to achieve a CSR mission and mitigate mission drift risk, they have a more direct impact on social media engagement activities than the legal and ethical mechanisms. These findings are consistent with prior studies in which the establishment of CSR policies and strategies can improve CSR practices and generate positive organisational outcomes (Dixon-Fowler et al., 2017; Mallin et al., 2013; Peters & Romi, 2014; Shaukat et al., 2016). Overall, the findings show that B Corp governance mechanisms can positively influence social media engagement activities and enhance stakeholder accountability.

Several additional analyses are also performed to reveal more details about B Corp governance mechanisms and increase robustness. Firstly, the study examines the effect of different legal structures on the extent and quality of social media engagement as prior studies suggest that Benefit Corporation

status gives the highest legal protection to stakeholder interests (B Lab, 2016; Hiller, 2013). However, Benefit Corporation status has no effect on either the extent or the quality of social media engagement. In contrast, corporate charter amendment has a positive effect on the quality of social media engagement, suggesting that firms which amend charter provisions place more emphasis on social media engagement quality than those with a term sheet or those that have yet to incorporate a legal responsibility. This finding raises an interesting question as to whether Benefit Corporation status is a necessary mechanism in promoting stakeholder accountability as claimed by B Lab. One view is that Benefit Corporation status may play a more important role during major corporate events such as mergers and acquisitions in which stakeholder welfare is likely to be compromised and directors need to exercise fiduciary duty based on stakeholder interests (Alexander, 2017). As a result, Benefit Corporate status may be more useful when defending legal claims filed by shareholders rather than having a direct impact on stakeholder engagement activities (Arjoon, 2005). However, the Benefit Corporation legislation states that a director's fiduciary duty towards stakeholders should be exercised whenever they are making business decisions. In this case, directors and managers are expected to be active in engaging with stakeholders at all times in the day-to-day decision-making process, rather than simply engaging with them during major events. Therefore, the current findings suggest that there is still a lack of active stakeholder engagement by Benefit Corporations on social media both in terms of its extent and quality. Such findings reinforce the concerns raised by prior studies which question the sufficiency of legal formats in strengthening stakeholder power and meeting firm committed purpose

(André, 2012; Levillain & Segrestin, 2019). To prevent mission drift and enhance stakeholder accountability, Benefit Corporations need to pay more attention to social media engagement activities, ensure stakeholder opinions are promptly sought, and information about the firm's CSR practice is widely communicated.

Next, the study explores the moderating role of legal responsibility and ethical standards on the relationship between the comprehensiveness of mission-alignment policies and the extent and quality of social media engagement. The results show that when firms have a Benefit Corporation status and implement ethical standards, the comprehensiveness of mission-alignment policies leads to more firm-initiated CSR-related tweets. However, no interaction effect is found between governance mechanisms and the level of stakeholder-initiated engagement and the quality of social media engagement. These findings suggest that when a firm's CSR policies and strategies are consistent with its overall institutional environment, a high extent of social media engagement can be achieved. Therefore, Benefit Corporation status, ethical standards and mission-alignment policies may jointly mitigate mission drift risk and improve stakeholder accountability.

Lastly, a Heckman two-step model is employed to address the issue of selection bias. The results are consistent with main findings, thus suggesting no presence of selection bias.

Limitations and Further Research Opportunities

Like all studies, this paper is not without limitations. Firstly, this study only examines the effect of governance mechanisms on the extent and quality

of social media engagement within B Corp firms. Whether social media engagement activities differ between B Corp firms and non-B Corp peers remains unanswered, and future research may provide more insights on this question. Second, due to the inaccessibility of B Corp's financial information, this study cannot fully control for the impact of financial performance on the extent and quality of social media engagement. Although the range of full-time employee numbers is used as a proxy for firm size, this measure is not very precise. Future research may consider analysing the relationship between B Corp financial performance and social media engagement activities. Lastly, although the performance of the Naïve Bayes classifier is considered to be reasonable, supervised machine learning still has its limitations in classifying tweets, and some classification errors may be still present. Future research may propose more advanced methods to improve the performance of machine learning classification.

5 Conclusions, Limitations, and Future Research Opportunities

The overall aim of this thesis is to examine the use of social media in stakeholder engagement and its implications on stakeholder accountability across different types of organisations. To meet this research aim, this study focuses on corporations, A-NGOs and hybrid organisations and develop research objectives accordingly. First, this study considers how corporations use social media to engage with stakeholders and how stakeholders react to the disclosure of CSR practices. Second, the study investigates how an advocacy NGO uses social media to generate stakeholder support and the implications on downward accountability. Lastly, this paper explores the impact of B Corp governance mechanisms on social media engagement activities. Empirical studies are presented in Chapters 2, 3, and 4 respectively to address these research objectives.

5.1 Research Findings and Implications

Chapter 2 examines stakeholder perceptions regarding the legitimation strategies employed in corporate CSR disclosures on Facebook. By focusing on the dynamic interactions between corporate disclosure strategies and stakeholder subsequent reactions at a Facebook message level, it is found that stakeholders exhibit diverse reactions towards corporate CSR hypocrisy and façade disclosures, and the intensity and sentiment of their reactions also have an effect on corporate post-disclosure responses to stakeholder comments. Overall, the results suggest that corporations employ hypocrisy and façade

strategies in social media CSR disclosures to manage stakeholder perceptions, and there is a disengagement between companies and stakeholders who express concerns or criticism about corporate CSR practices, as companies only engage with stakeholders who exhibit positive reactions. The chapter concludes that corporations mainly use social media to maintain legitimacy instead of improving transparency and accountability.

Chapter 3 examines how A-NGOs communicate advocacy information with stakeholders in social media to attract their engagement, and whether such engagement can obtain large-scale stakeholder support beyond social media platforms. By focusing on the Greenpeace “Save the Arctic” campaign and its social media engagement at the message-, account-, and network-level, the findings show that Greenpeace communicates advocacy information that appeals to logic and emotions to attract stakeholder engagement on social media, and the effectiveness and dissemination of advocacy information can help Greenpeace obtain large-scale stakeholder support beyond social media platforms. Overall, this chapter highlights the potential of social media in helping A-NGOs identify and engage with stakeholders and enhance downward accountability.

Chapter 4 examines the effect of B Corp governance mechanisms on social media engagement activities. More specifically, this study investigates the effect of B Corp legal responsibility, ethical standards and mission-alignment policies on the extent and quality of social media engagement. The results show that B Corp legal responsibility and ethical standards have no effect on the extent of social media engagement, but they improve the quality of social media engagement. In contrast, mission-alignment policies improve

both the extent and quality of social media engagement. Further analyses reveal that Benefit Corporation status does not lead to any improvement on social media engagement activities, but Benefit Corporation status and the presence of ethical standards can moderate the positive relationship between mission-alignment policies and the extent of social media engagement. Overall, the chapter concludes that B Corp governance mechanisms play a positive role in improving social media engagement activities and promoting greater stakeholder accountability, but some challenges remain for Benefit Corporations.

5.2 Implications for Relevant Organisations

These findings provide important implications for relevant organisations. For corporations, the findings suggest that despite the dialogic feature of social media, they are still being used to maintain legitimacy rather than enhance transparency and accountability to stakeholders. Managers should not over-use hypocrisy talk and decisions, or reputational façade strategies in CSR disclosures to manage stakeholder perceptions, as the results reveal that divergent stakeholder interests are also accommodated by the presence of actions as well as the demonstration of progression in CSR commitments. The mere use of talk, decisions and reputational façade may increase the risk of exposing hypocrisy and hindering stakeholder accountability.

For A-NGOs, the findings show that social media may facilitate large-scale stakeholder engagement, and social media engagement measures such as emoticons, shares and comments may be used as indicators for accounting the impact of advocacy campaigns and evaluating campaign outcomes.

However, NGOs should bear in mind that over-emphasis on the quantitative measurement of social media indicators may lead to myopia where the fundamental purpose for stakeholder engagement and its impact on long-term mission achievements are undermined. In addition, NGOs should always communicate authentic and fair information on social media to help stakeholders assess and make better decisions on advocated issues.

For hybrid organisations, the results show that B Corp governance plays an important role in improving the extent and quality of social media engagement activities. Therefore, B Corp should establish good practice in corporate governance to ensure stakeholders are sufficiently informed and engaged so that mission drift risk can be mitigated. The results also reveal that there is still a lack of stakeholder engagement in Benefit Corporations. Since directors and managers have an obligation to consider stakeholder interests in this legal setting, the lack of stakeholder engagement may cause an under-representation of stakeholder voices during the decision-making process. Benefit Corporation managers should further improve social media engagement activities so that their fiduciary duties to stakeholders can be fulfilled.

5.3 Research Limitations

There are several limitations in the study. Firstly, Chapter 2 only focuses on the largest corporations in the U.S.; it is less clear how corporations in other countries use social media to engage with stakeholders on CSR issues. Future research may investigate social media engagement activities in a different country setting or even on an international basis to understand the effect of

country-level characteristics such as culture, governance systems and institutional views towards corporate social responsibility (Matten & Moon, 2008) on social media engagement activities.

Secondly, Chapter 3 only focuses on a single A-NGO and the results may not be generalizable to other A-NGOs in social media. Future research may use a bigger sample size and examine whether the effectiveness of advocacy information in attracting stakeholder engagement can lead to any real effect beyond social media platforms (e.g. improvement in the practices of targeted organisations). Further studies may also examine the inter-organisational effect on information dissemination among A-NGOs to better understand the concept of switching capacity.

Thirdly, due to data availability, the models used in Chapter 4 have limited controls for B Corp financial performance. Future studies may provide more insight into the relationship between B Corp financial performance and social media engagement activities. In addition, Chapter 4 only focuses on social media engagement activities among B Corp firms, while it is unknown how these activities differ from non-B Corp peers. Future studies may compare the extent and quality of social media engagement activities between hybrid and traditional corporations to provide more insights about the benefits of B Corp certification.

Lastly, this thesis uses dictionary-based textual analysis and machine-learning-based textual analysis to identify and analyse relevant social media messages. While the validation process reveals reasonable performance for both techniques, some inherent limitations in algorithm specification and

classification errors are still present. Future research may employ more advanced algorithms to further improve the performance of textual analysis.

5.4 Future Research Opportunities

While the focus of this thesis is on the organisational use of social media and stakeholder reactions to the information communicated during the engagement process, it does not examine how stakeholders use social media to make organisations more accountable. Since social media are famous for features such as high interactivity, high autonomy and wide dissemination, stakeholders can also produce, disseminate and debate on issues regarding a firm's social and environmental practice. While several studies have examined the word-of-mouth effect of social media on predicting corporate quarterly earnings and financial performance (Bartov et al., 2017; Hales et al., 2018), the ability of stakeholder-initiated messages in influencing corporate CSR policies and practices remains unknown (Blankespoor, 2018). Therefore, it would be interesting to examine the impact of social media on corporate social and environmental responsibility from a stakeholder perspective.

Because social media users enjoy high autonomy in producing and disseminating information, it is inevitable that some of the messages about organisations are subjective and biased (Etter et al., 2019). These messages may have a negative impact on stakeholders' assessment of organisational performance and organisational reputation. Therefore, it is also important to understand the characteristics of credible information on social media, its impact on organisational practices and reputation, as well as its impact on stakeholder decision-making. Furthermore, it is also interesting to examine

managerial response to biased or even misleading information about corporate social and environmental practices.

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Appendices

Appendix A List of Sample Companies

Firm	Ticker	Industry Sector	Observations	%
AbbVie Inc.	ABBV	Biotechnology	66	0.31
Abbott Laboratories	ABT	Healthcare Equipment	224	1.06
Accenture plc	ACN	IT Consulting and Other Services	610	2.88
American International Group, Inc.	AIG	Multi-line Insurance	370	1.75
The Allstate Corporation	ALL	Property and Casualty Insurance	403	1.9
Amazon.com, Inc.	AMZN	Internet and Direct Marketing Retail	771	3.64
American Express Company	AXP	Consumer Finance	185	0.87
The Boeing Company	BA	Aerospace and Defence	103	0.49
Bank of America Corporation	BAC	Diversified Banks	568	2.68
Biogen Inc.	BIIB	Biotechnology	160	0.76
The Bank of New York Mellon Corporation	BK	Asset Management and Custody Banks	172	0.81
BlackRock, Inc.	BLK	Asset Management and Custody Banks	28	0.13
Bristol-Myers Squibb Company	BMY	Pharmaceuticals	201	0.95
Citigroup Inc.	C	Diversified Banks	85	0.4
Caterpillar Inc.	CAT	Construction Machinery and Heavy Trucks	214	1.01
Celgene Corporation	CELG	Biotechnology	208	0.98
Comcast Corporation	CMCSA	Cable and Satellite	61	0.29
Capital One Financial Corporation	COF	Consumer Finance	161	0.76
ConocoPhillips	COP	Oil and Gas Exploration and Production	157	0.74
Costco Wholesale Corporation	COST	Hypermarkets and Super Centers	586	2.77
Cisco Systems, Inc.	CSCO	Communications Equipment	641	3.03
CVS Health Corporation	CVS	Drug Retail	8	0.04
Chevron Corporation	CVX	Integrated Oil and Gas	168	0.79
E. I. du Pont de Nemours and Company	DD	Diversified Chemicals	139	0.66
The Walt Disney Company	DIS	Movies and Entertainment	304	1.44
The Dow Chemical Company	DOW	Diversified Chemicals	197	0.93
Duke Energy Corporation	DUK	Electric Utilities	479	2.26
Emerson Electric Co.	EMR	Electrical Components and Equipment	235	1.11
Ford Motor Company	F	Automobile Manufacturers	246	1.16
Facebook, Inc.	FB	Internet Software and Services	5	0.02
FedEx Corporation	FDX	Air Freight and Logistics	151	0.71
Twenty-First Century Fox, Inc.	FOXA	Movies and Entertainment	212	1
General Electric Company	GE	Industrial Conglomerates	427	2.02
General Motors Company	GM	Automobile Manufacturers	265	1.25
The Goldman Sachs Group, Inc.	GS	Investment Banking and Brokerage	74	0.35
Halliburton Company	HAL	Oil and Gas Equipment and Services	280	1.32
The Home Depot, Inc.	HD	Home Improvement Retail	132	0.62
International Business Machines Corporation	IBM	IT Consulting and Other Services	280	1.32
Intel Corporation	INTC	Semiconductors	495	2.34
Johnson & Johnson	JNJ	Pharmaceuticals	183	0.86
JPMorgan Chase & Co.	JPM	Diversified Banks	154	0.73
The Kraft Heinz Company	KHC	Packaged Foods and Meats	708	3.34
Kinder Morgan, Inc.	KMI	Oil and Gas Storage and Transportation	195	0.92
The Coca-Cola Company	KO	Soft Drinks	228	1.08
Eli Lilly and Company	LLY	Pharmaceuticals	383	1.81
Lockheed Martin Corporation	LMT	Aerospace and Defence	588	2.78
Lowe's Companies, Inc.	LOW	Home Improvement Retail	185	0.87
Mastercard Incorporated	MA	Data Processing and Outsourced Services	268	1.27
Mondelez International, Inc.	MDLZ	Packaged Foods and Meats	152	0.72
Medtronic plc	MDT	Healthcare Equipment	116	0.55
MetLife, Inc.	MET	Life and Health Insurance	131	0.62
3M Company	MMM	Industrial Conglomerates	194	0.92
Monsanto Company	MON	Fertilizers and Agricultural Chemicals	235	1.11
Merck & Co., Inc.	MRK	Pharmaceuticals	466	2.2
Microsoft Corporation	MSFT	Systems Software	692	3.27
NextEra Energy, Inc.	NEE	Electric Utilities	22	0.1
NIKE, Inc.	NKE	Footwear	53	0.25
Oracle Corporation	ORCL	Systems Software	465	2.2
The Priceline Group Inc.	PCLN	Internet and Direct Marketing Retail	183	0.86
Pepsico, Inc.	PEP	Soft Drinks	168	0.79
Pfizer Inc.	PFE	Pharmaceuticals	688	3.25
PayPal Holdings, Inc.	PYPL	Data Processing and Outsourced Services	49	0.23
QUALCOMM Incorporated	QCOM	Semiconductors	185	0.87
Raytheon Company	RTN	Aerospace and Defence	607	2.87
Starbucks Corporation	SBUX	Restaurants	22	0.1
The Southern Company	SO	Electric Utilities	233	1.1

Simon Property Group, Inc.	SPG	Retail REITs	185	0.87
AT&T Inc.	T	Integrated Telecommunication Services	339	1.6
Target Corporation	TGT	General Merchandise Stores	84	0.4
Time Warner Inc.	TWX	Movies and Entertainment	237	1.12
Texas Instruments Incorporated	TXN	Semiconductors	679	3.21
UnitedHealth Group Incorporated	UNH	Managed Healthcare	206	0.97
Union Pacific Corporation	UNP	Railroads	257	1.21
United Parcel Service, Inc.	UPS	Air Freight and Logistics	145	0.69
U.S. Bancorp	USB	Diversified Banks	217	1.03
United Technologies Corporation	UTX	Aerospace and Defence	200	0.94
Verizon Communications Inc.	VZ	Integrated Telecommunication Services	180	0.85
Walgreens Boots Alliance, Inc.	WBA	Drug Retail	536	2.53
Wells Fargo & Company	WFC	Diversified Banks	101	0.48
Wal-Mart Stores, Inc.	WMT	Hypermarkets and Super Centers	112	0.53
Exxon Mobil Corporation	XOM	Integrated Oil and Gas	64	0.3
Total			21,166	100

Appendix B Dictionary for Identifying CSR Facebook Posts

Categories	Lexicons
Environmental	air; animal; animals; bees; benthos; bionomics; bioclimatic; biodegradable; biodiversities; biodiversity; biogenic; biome; bioremediation; biosphere; bird; birds; carbon; carcinogenic; cfc; clean; cleaner; cleanest; cleaning; cleans; climate; co2; composting; conservancy; conservation; conservationist; conservations; contaminate; contamination; cooling; deforest; deforests; desertification; dioxides; discharge; discharges; earth; ecologies; ecology; ecosystem; ecosystems; effluents; electricities; electricity; emission; emissions; endangered; energy; environment; environmental; eutrophic; eutrophication; extinction; fish; footprint; footprints; forest; forests; gas; gases; ghg; green; ground; habitat; habitats; heating; heatings; hydric; incineration; insect; insects; lake; lakes; landfill; marine; material; materials; msc; natural; nature; nitrogen; nuclear; ocean; oceans; ods; oxides; ozone; ozonsphere; pathogens; pests; planet; pollutants; pollute; pollutes; pollution; protected; rainwater; recyclable; recycle; recycled; recycles; recycling; rehabilitate; rehabilitates; remediation; renew; renewable; renews; reserve; reserves; reused; river; rivers; solar; species; steam; sulfur; sustainability; sustainable; toxic; unforest; warming; waste; water; wetlands; wildlife
Diversity	african; black; chinese; discriminate; discrimination; diverse; diversity; equal; equality; ethnic; ethnicdiversity; ethnicity; female; females; feminine; gender; genderdiversity; girl; girls; indian; jew; lady; male; males; man; men; minorities; minority; negro; racial; sex; sexual; woman; women; woman; women
Human Rights	biased; child; dictator; disability; disable; discrimination; forced; freedom; gay; gays; genocide; homosexual; human; inclusion; inclusive; indigenous; labor; labour; lesbian; lesbians; lgbt; lgbtq; prejudice; pride; racism; rights; slave; slavery
Employees	bargaining; benefits; care; career; careers; collective; compensate; compensated; compensation; compensations; crew; crews; development; developments; disease; diseases; employ; employabilities; employability; employee; employees; employment; employments; engagement; engagements; fatalities; health; injuries; injury; intern; internship; internships; involvement; involvements; job; jobs; labor; labour; maternal; maternity; occupation; occupational; paid; parental; paternal; paternity; pay; pays; profession; professional; remunerated; remuneration; remunerations; retire; retirement; safe; safety; salaries; salary; satisfaction; skill; skills; staff; team; teams; training; trainings; unions; wage; wages; welfare; worker; workers; working conditions; workplace; workplaces
Community	aids; charitable; charities; charity; communities; community; contribute; contribution; contributions; donate; donated; donation; donations; educate; education; education; educational; educations; engagement; famine; fight; fund; funding; funds; hunger; local; medical; medicine; medicines; malnutrition; obesities; obesity; people; philanthropic; philanthropy; poverty; public; school; schools; social; societal; society; sponsor; sponsored; sponsoring; sponsorship; stem; student; students; veteran; veterans; voluntary; volunteer; volunteered; volunteering; volunteers; welfare
Product	product; products; service; services; recalls; components; component; production; process; raw; testing; tests; test; customer; customers; privacy; confidentiality; confidential; quality; qualities; client; clients
Governance	accountability; accountable; acquisition; annual; corrupt; corruption; csr; disclosure; disclosures; ethic; ethical; ethics; governance; gri; guideline; guidelines; market; missions; performance; policies; policy; board; directors; ceo; report; reporting; reports; strategies; strategy; transparency; transparent; visions; volatility; citizen; citizens; citizenship; citizenships; responsibilities; responsibility; political

Appendix C Guidelines on Coding CSR Organised Hypocrisy and Façade Disclosures

Organised Hypocrisy	
Talk	• The message shows a statement on company's commitments, visions, missions, goals, and values regarding its economic, social, and environmental issues. • The message shows a quote from a stakeholder of organisation (e.g. managers, employees, or customers etc.) regarding company's economic, social, and environmental issues. • The message shows past experience or a story of a stakeholder of organisation (e.g. managers, employees, or customers etc.) regarding company's economic, social, and environmental issues. • The message shows an organisational activity without supplying details such as parties involved, time, location, contents of activities, quantitative measures • The message demonstrates a history of activities done by the organisation. • The message invites stakeholders to participate in the conversation. • The message is often written in present tense. • Keywords example: committed, commitments, vision, mission, goal, value, believe, recognise, acknowledge, emphasise, understand, know, aware, always, why, say, speak, talk, etc.
Decision	• The message shows an organisation's decisions on economic, social, and environmental policies, strategies, and practices. • The message shows an organisation's activity that is scheduled in the future. The message often contains a future date and time. • The message outlines an organisation objective or targets for the future • The message is often written in future tense, and the subject of the sentence is the organisation. • Keywords example: will, won't, would, going to, schedule, plan, decide, determine, pledge (verb), arrange, introduce, reveal, intend, propose, choose, agree, disagree, etc.
Action	• The message shows an organisation's actions and performance on economic, social, and environmental issues. • The message is often written in continuous tense, past tense, or perfect tense, and the subject of the sentence is the organisation. • The message shows an organisation's activity with factual evidence, such as parties involved, time, location, contents of activities, quantitative measures • Keywords example: accomplish, achieve, implement, obtain, succeed, establish, reach, realise, acquire, collaborate, collaboration, partner, partnership, agreement, contract, donate, donation, volunteer, etc.
Organisational Façade	
Rational	• It presents a façade that the management is running the firm in a rational manner with objectives to sustain firm's growth, create opportunities, increase efficiencies, reduce costs, maximise revenues, profits, and shareholder values. It highlights that managers will consider any specific demand based on a cost and benefit assessment and ensure shareholders' value is sustained. Keywords example: growth, opportunity, risk, threat, efficiency, cost, benefit, profit, revenue, shareholder value, merger, acquisition, economy, economic, etc.
Progressive	• It presents a façade that the organisation is tackling economic, social and environmental issues and close gaps through continuous investments, carrying out researching activities, presenting research results at conferences, innovating new approaches, implementing state-of-the-art technologies, collaborating and forming partnerships with other organisations in developing new initiatives and programs (excluding volunteering and donation programs). • It also presents a façade that the organisation is progressing, transforming, and evolving by showing future objectives and targets, changes undergoing over the past years, and targets achieved recently. • Keywords example: investment, research, innovation, technology, collaboration, partnership, initiative, programs, progress, change, transform, evolve, etc.
Reputational	• This façade displays companies' ethical principles, codes of conduct, awards, quality of products and services. • It presents the organisation in a positive manner which is often accompanied by symbols, stories, and attributes that can convince stakeholders that organisations are acting ethically. Being included in sustainability index and rankings and receiving awards in social and environmental areas can be considered as reputational symbols. • It also shows organisation engagement in philanthropic activities such as volunteering activities, making donations, and sponsoring social- and environmental-related events.

Appendix D Examples of Hypocrisy and Façades Strategies

Strategies	Example
Organised hypocrisy	
Talk disclosure	*Happy World Environment Day today and every day! We're committed to fostering sustainable growth for our company, clients and in our communities. Learn more: http://bddy.me/1ta6zmL #WED2016 (Accenture, 5th June 2016)*
Decision disclosure	*We're looking to a cleaner future after increasing our 2020 renewable energy goal by 33 percent. (Duke Energy, 21st June 2016)*
Action disclosure	*Building on the legacy of its groundbreaking work in HIV/AIDS, the BMS Foundation is leveraging the HIV experience and infrastructure to create Global HOPE, pediatric hematology-oncology initiative in partnership with Texas Children's Hospital and BIPAI. (Bristol-Myers Squibb, 21st February 2017)*
Organisational façades	
Rational façade	*Learn how we all can enjoy both a clean and safe environment and abundant and affordable energy: http://bit.ly/29ljQ68 (Kinder Morgan, 26th September 2016)*
Progressive façade	*We're in the business of progress. See how we strive to create prosperity in the communities we call home. (Chevron, 6th June 2016)*
Reputational façade	*We're committed to diversity and inclusion for all and we're proud to celebrate the amazing LGBT community. (Bank of America, 17th June 2016)*

Appendix E Sample Facebook Accounts

International and Regional Offices

Offices	Account Name[1]	Language	No. STA Posts	Fans Size[2]
International	greenpeace.international	English	256	2903428
Save the Arctic	arctic.rising[3]	English/Spanish	1006	1634799
Arabic	GreenpeaceAR	Arabic	133	3469475
East Asia	gpchina	English	30	16684
Southeast Asia	GreenpeaceSEA	English	10	1104
	National and Territorial Offices			
Congo	GreenpeaceAfrique	French	9	64499
Senegal	GreenpeaceAfrique	French	9	64499
South Africa	GreenpeaceAfrica	English	46	213782
Argentina	GreenpeaceArg	Spanish	233	2965856
Australia	greenpeaceaustraliapacific	English	137	364825
Austria	GreenpeaceAT	German	164	105086
Belgium	greenpeace.belgium	Dutch/French	98	133186
Brazil	GreenpeaceBrasil	Portuguese	99	3276714
Bulgaria	greenpeacebg	Bulgarian	47	15333
Canada	greenpeace.canada	English/French	448	212765
Chile	greenpeace.chile	Spanish	240	731905
Colombia	greenpeaceencolombia	Spanish	269	639954
Croatia	greenpeace.hr	Croatian	20	15955
Czech Republic	greenpeace.cz	Czech	197	56169
Denmark	greenpeacedanmark	Danish	338	61410
Fiji	greenpeaceaustraliapacific	English	137	364825
Finland	greenpeacesuomi	Finnish	421	60488
France	greenpeacefrance	French	43	560624
Germany	greenpeace.de	German	219	293158
Greece	greenpeace.gr	Greek	163	410959
Greenland	greenpeacedanmark	Greenlandic/Danish	338	61410
Hong Kong	greenpeace.china	Chinese	204	173777
Hungary	greenpeace.hu	Hungarian	51	110844
India	greenpeaceindia	English	17	344783
Indonesia	GreenpeaceIndonesia	Indonesian	22	779165
Israel	greenpeace.il	Hebrew	103	145176
Italy	GreenpeaceItalia	Italian	80	699468
Japan	GreenpeaceJapan	Japanese	66	147829
Korea	greenpeacekorea	Korean	181	196939
Luxembourg	greenpeaceluxembourg	French	23	12516
Mexico	greenpeacemexico	Spanish	170	955596
Netherlands	greenpeacenederland	Dutch	126	124212
New Zealand	greenpeace.nz	English	426	196543
Norway	greenpeacenorge	Norweign	329	30172
Papua New Guinea	greenpeaceaustraliapacific	English	137	364825
Peru	greenpeacepe	Spanish	99	6384
Philippines	greenpeaceph	English	67	296375
Poland	greenpeacepl	Polish	26	195070
Romania	greenpeace.ro	Romanian	40	82091
Russia	GreenpeaceRussia	Russian	183	104749
Slovakia	Greenpeace.sk	Slovak	26	31385
Slovenia	greenpeacesi	Slovene	62	8321
Spain	greenpeace.spain	Spanish	146	571306
Sweden	greenpeace.sverige	Swedish	259	124207
Switzerland	greenpeace.ch	German	83	57683
Taiwan	greenpeace.org.tw	Chinese	177	485640
Thailand	greenpeaceseath	Thai	79	310096
Turkey	Greenpeace.Akdeniz.Turkiye	Turkish	127	1587914
UK	greenpeaceuk	English	207	684355
USA	greenpeaceusa	English	331	648034
Total			8336[4]	

[1] Some Facebook accounts are used for more than one nation/territory.

[2] Fan size is the number of fans following each Greenpeace Facebook account as of 13th February 2018.

[3] The account name has been changed to *peoplevsoil*

[4] After removing duplicate posts that come from shared Facebook accounts, the final sample constitutes 8,336 unique of Facebook messages that are related to STA.

Appendix F English Arctic-Related Dictionary Used for Selecting STA Facebook Messages

Arctic Lexicons

alaska, alaskan, amsterdam, arctic, baffin, bear#, beluga, beringia, blast#, bowhead, bowheadwhal#, canada, chevron, circumpolar, copenhagen, crude, denmark, diesel, drift#, drill#, driller#, drillship#, emma, explor#, extract#, exxon#, exxonmobil#, fasiata, finland, finnish, finnmark, firstarcticoil, fossil, fox#, freethearct, freez#, frozen, fuel, gas, gazprom, glacier, greenland, groenlandicus, harp, historiophoca, ice, iceberg, icebreak#, icecrust, iceland, ici, indigen#, inuit, lagopus, lego, maritimus, melt#, moscow, narwhal#, noarcticoil, nordic, northward, norway, norwegian, obama, odobenus, offshor#, oil, oslo, pagophilus, peoplevsarcticoil, peoplevsoil, petroleum, polar, pole, porpois, reindeer, ribbon, rig#, rosmarus, russia, russian, savethearct#, wwwsavethearcticorg, scandinavia, seal#, seismic, shell, siberia, siberian, snow#, spill, statoil, stockholm, svalbard, sweden, switzerland, thompson, trump, tundra, ursus, walrus#, whale#

Complete dictionary related to Arctic in different languages can be are available on request.

Appendix G Performance of Textual Analysis on Selecting STA Facebook Posts

Language	Source	N	Accuracy	Error	Recall	Precision	Specificity	F1	Inter-coder Agreement
English	Crowdsourcing	441	0.95	0.05	0.73	0.84	0.98	0.78	96.97
Spanish	Crowdsourcing	210	0.96	0.04	0.94	0.94	0.97	0.94	96.83
German	Crowdsourcing	120	0.97	0.03	0.82	0.93	0.99	0.88	96.97
Others	Manual	300	0.96	0.04	0.78	0.81	0.98	0.79	-

This table presents the performance of textual analysis on selecting messages related to STA campaign. Accuracy measures the percentage of posts that are correctly selected by the program. It is computed by (Σ True Positive + Σ True Negative) / Total Population. Error measures the percentage of posts that are falsely selected by the program. It is computed by (Σ False Positive + Σ False Negative) / Total Population. Recall measures the number of correct posts divided by the number of posts that should have been returned. It is computed by Σ True Positive / (Σ True Positive + Σ False Negative). Precision measures the number of correct posts divided by the total number of posts returned. It is computed by Σ True Positive / (Σ True Positive + Σ False Positive). Specificity measures the number of false posts divided by the number of posts that should not have been returned. It is computed by Σ True Negative / (Σ True Negative + Σ False Positive). F1 score considers both precision and recall and is computed as 2× (precision × recall) / (precision + recall). Inter-coder agreement measures the degree of agreement among coders.

Appendix H CSR-Related Tweets Coding Scheme

CSR Topics	Coding Items	Source
Governance (*GOV*)	• Firm ethics, missions, and values • Stakeholder engagement • Materiality assessment • Corporate reporting • Information for shareholders (e.g. financial performance, corporate events) • Corporate governance (founder, co-founder, CEO, board of directors, audit, etc.) • Anti-corruption • General information on CSR, SDG, or ESG	• B Lab Assessment • GRI G4
Employees (*EMP*)	• Employee wages and benefits • Employee welfare, safety, health and wellness • Training and development • Internships • Parental leave • Employee engagement	• B Lab • GRI G4
Community (*COM*)	• Diversity, inclusion, & equality • Charitable donations & partnerships • Community engagement / discussions (e.g. attending talks, events, conferences, and workshops) • Event sponsorships • Support local neighbourhood & local businesses • Child labour • Human rights • Education engagement	• B Lab • GRI G4
Economic impacts (*ECO*)	• Job creation • Local purchasing and hiring policies • Supply chain management & supplier engagement • Socially Responsible Investments & Impact Investment • Sustainable Financing & financial inclusions • Foreign aids / investment • Economic development • Affordable housing • Poverty & low-income groups	• B Lab • GRI G4 • Gomez-Carrasco et al 2016 • Gomez-Carrasco et al 2017
Environment (*ENV*)	• Environmental policy • Pollution control • Environmental regulations / certifications • Capital expenditures for pollution control	• B Lab • GRI G4 • Cho & Patten 2007

	• Carbon Emission • Renewable energy use/installation • Environmental remediation • Waste & Recycling • Water, Air, Land Management • Agriculture & food system • Biodiversity • Green constructions / materials • Sustainable sourcing	• Aerts & Cormier 2009
Customers/Products (*CUS*)	• Animal welfare • Locally-sourced / traceable products • Fair trade • Organic food • Food Quality and Safety • Healthy product options (vegan) • Product Labelling • Health supplements, nutrition, and ingredients • Food allergies and intolerances (gluten free) • Customer health and well-being • Use of Biotechnology (e.g. antibiotics, pesticides, GMO, etc.) • Low-alcohol content product options • Eco-products / services • Responsible marketing • Customer privacy	• B Lab • GRI G4 • Cuganesan et al. 2010

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Appendix I Illustrative Examples of B Corp Tweets

1) *Examples of Firm-Initiated CSR-Related Tweets with High Quality Social Media Engagement*

Example tweet with high intertextual connectivity and high intentionality

Example tweet with high informativity

Example tweet with high social media engagement quality.

2) *Examples of Stakeholder-Initiated CSR-Related Tweets*

@AlphaVerde fund top 1% of funds in its category, according to @MorningstarInc Sustainability Rating. 5 Globes!!!!! (@shafroth, 6 April 2016)

@AlterEcoSF @FairTradeUSA yes we can! #BeFair (@is4drea12, 9 October 2015)

Today's final #mouselink workshop of the 2015 spring term sponsored by @EmmysOrganics. Thank you, everyone! (@mouselink, 15 May 2015)

OTA kicks off #biofach2015! 14 suppliers promoting USDA organic @lukesorganic @earthcircle @gomacro @goodcleanlove (@OrganicTrade, 11 February 2015)

@kleankanteen @GoalZeroSolar @KEEN @IbexBuzz Pleas share! New blog post: #Oceans & #PlasticPollution Connect Us All. http://seatrash.blogspot.com/2014/01/what-do-china-hawaii-washington-and.html (@teamOSOM, 2 January 2014)