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# Social media dissemination of counter accounts and stakeholder support – evidence from greenpeace’s “Save the Arctic” campaign on Facebook

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## ABSTRACT

Prior studies have examined NGOs’ accounting practices and the implications of such practices within the social media realm. However, we know little about how NGOs use social media to disseminate counter accounts and the impacts of such dissemination beyond social media platforms. This paper examines whether NGOs’ dissemination of counter accounts can mobilise stakeholder support in a campaign against corporate actions. Drawing on Castells’ network-making perspective and the notion of dialogic accounting, I argue that social media dissemination of counter accounts strengthens NGOs’ network-making power so that a wide range of corporate stakeholders can be engaged, and a strong network can be potentially formed to increase the effectiveness of NGOs’ campaigns. Drawing on a unique dataset of Greenpeace “Save The Arctic” (STA) global petition signatories and stakeholder interactions from a sample of 8,336 Greenpeace Facebook messages related to the STA campaign, I find that stakeholder support is positively associated with stakeholder interactions with disseminated counter accounts and the number of Facebook accounts connected in disseminating such information. Additional analyses also reveal that Greenpeace disseminates counter accounts via social media to attract policymaker attention and the disseminated counter accounts are associated with public opinions towards climate change. Overall, this study sheds light on the implications of NGOs’ dissemination of counter accounts on social media in initiating social activism and accumulating power against irresponsible corporate practices.

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## 1. Introduction

Social media have increased the potential for pluralistic democracy and information dissemination (Gallhofer et al., 2006; Lodhia & Stone, 2017; Lynn et al., 2021; Manetti & Bellucci, 2016). Corporations use social media to communicate corporate social responsibility (CSR) information (Gómez-Carrasco et al., 2020) and stakeholders utilise these

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platforms to initiate social activism (Gómez-Carrasco & Michelon, 2017; Thomson et al., 2015) and influence CSR practices (Lyon & Montgomery, 2013; Whelan et al., 2013). Accounting practices on social media in a corporate context have so far attracted extensive academic attention (Blankespoor et al., 2014; Cade, 2018; Filip et al., 2020; Gómez-Carrasco et al., 2020; Lei et al., 2018; Lodhia & Stone, 2017; Manetti & Bellucci, 2016; She & Michelon, 2019). However, only a few studies examine its use by NGOs, and these focus mainly on the characteristics of accounting practices (Bellucci & Manetti, 2017; Denedo et al., 2019; Goncharenko, 2019) or the implications of such practices *within* social media platforms (Guo & Saxton, 2018; Lovejoy et al., 2012; Xu & Saxton, 2018).

This study aims to examine the impacts of NGOs' dissemination of counter accounts beyond the social media platform. More specifically, this study examines whether NGOs' social media dissemination of counter accounts can mobilise stakeholder support for an activism campaign against corporate actions. Understanding this question is particularly important given the emancipatory potential of counter accounts in correcting irresponsible corporate practices (Gallhofer et al., 2006; Laine & Vinnari, 2017; Thomson et al., 2015). Further, there is increasing scepticism about the ability of social media to initiate meaningful social activism (Cornelissen et al., 2013; Karpf, 2010; Kristofferson et al., 2013). Since the information environment on social media is particularly noisy and organisations often struggle to grab stakeholders' attention (Guo & Saxton, 2018, 2020), the issue of whether social media dissemination of counter accounts may mobilise stakeholder support or create meaningful campaign outcomes remains largely unclear (Neu et al., 2020).

I rely on Castells' (2011, 2012, 2013) network-making power perspective and the notion of dialogic accounting (Bebbington et al., 2007; Brown, 2009) to understand the relationship between social media dissemination of counter accounts and stakeholder support mobilisation. Network-making power reflects both the power holders' ability to frame messages and convey promoted value through stakeholder interactions and their ability to connect to, and form strategic networks with, stakeholders from a diversified background (Castells, 2011, 2012, 2013). By exercising network-making power, NGOs form strategic networks and widely disseminate counter accounts to engage with stakeholders and challenge irresponsible corporate practices (Denedo et al., 2019; Gallhofer et al., 2006; Gómez-Carrasco & Michelon, 2017; King & Soule, 2007). Drawing on this perspective, I argue that social media strengthens NGOs' network-making power by facilitating stakeholder dialogue and forming powerful stakeholder networks (Castells, 2011, 2012, 2013), which in turn mobilise stakeholder support for activism against corporations (Gómez-Carrasco & Michelon, 2017; King, 2007; King & Soule, 2007).

The empirical analyses in this study focus on Greenpeace's "Save the Arctic" (STA) campaign on Facebook. Greenpeace is considered one of the largest and most active advocacy NGOs in the world with over 2.8 million supporters (Greenpeace UK, 2018). It also heavily relies on social media to initiate social activism (Chaudhari & Purkayastha, 2011); it is, therefore, a good example for examining counter account dissemination activities. STA is a global activism campaign, which commenced in 2012, that aims to reduce irresponsible corporate environmental practices in the Arctic region (Allsopp et al., 2012; Greenpeace International, 2012). By employing a sample of 8,336 Facebook messages to aggregate stakeholder interactions at the account and network level and a unique dataset of Greenpeace's STA petition signatories (the proxy for stakeholder

support), I analyse the relationship between Greenpeace's counter accounts dissemination and the number of national and global STA petition signatories. The results show that stakeholder support is positively associated with stakeholder interactions with disseminated counter accounts and the number of social media accounts involved in disseminating such information. In particular, stakeholder comments are positively associated with stakeholder petition signatories, suggesting the importance of stakeholder dialogue in strengthening network-making power and mobilising collective action (Brown, 2009; Castells, 2013). Thus, my findings support the argument that social media dissemination of counter accounts is associated with stakeholder petition-signing behaviours beyond the social media platform.

I perform two additional analyses to explore the implications of counter accounts dissemination on alternative NGO campaign objectives, thus shedding further light on the outcome of the counter accounts dissemination process (Gómez-Carrasco & Michelon, 2017; King et al., 2007; King & Soule, 2007). The first analysis examines the relationship between social media dissemination of counter accounts and Greenpeace's government lobbying activities. The results reveal that the likelihood of Greenpeace lobbying is positively associated with stakeholder interactions with the disseminated information, suggesting that Greenpeace integrates its online and offline activism strategies by mobilising stakeholders on social media to attract policymaker attention (Guo & Saxton, 2020). The second analysis examines whether social media dissemination of counter accounts is associated with public opinion about climate change – a key problem that is caused by corporations in the Arctic region, as suggested by Greenpeace (Allsopp et al., 2012). Employing the global attitudes data surveyed by PEW Research Centre, the results show that the number of respondents who consider climate change as a major threat is positively related to stakeholder interactions with the disseminated information. These findings further support the argument that social media dissemination of counter accounts is associated with corporate stakeholders' behaviours beyond the digital platform.

My study contributes to the literature in several ways. First, this study answers the calls in counter accounting literature by illustrating the effectiveness of social media in amplifying the exposure of counter accounts from both a dialogic and structural dimension (Denedo et al., 2019; Gallhofer et al., 2006; Thomson et al., 2015). Given that social media is considered an innovative channel for disseminating counter accounts (Thomson et al., 2015), this study provides additional evidence about the potential implications of an alternative form of counter accounts (i.e. social media messages) on corporate stakeholder actions (Denedo et al., 2017, 2019; Irvine & Moerman, 2017; Laine & Vinnari, 2017; Tregidga, 2017). Next, by quantitatively analysing multiple Facebook accounts and their associated big data at both national and global levels, this study complements dialogic accounting literature by showing the importance of stakeholder dialogue during the counter accounts dissemination process, thus providing potential explanations for the lack of widespread stakeholder support identified in prior studies (Laine & Vinnari, 2017; Tregidga, 2017). Thirdly, my findings add to the emerging literature in accounting that focuses on the role of social media in building a dialogic relationship between organisations and audiences (Brennan & Merkl-Davies, 2014; Gómez-Carrasco et al., 2020). Instead of focusing on a corporation's perspective, this study sheds light on interactions between NGOs and corporate stakeholders, thus extending

the role of social media communication to a different organisational context. Lastly, my results supplement social movement studies by documenting the association between counter accounts dissemination and various campaign objectives, thus shedding light on the potential contributions of social media to social activism (Guo & Saxton, 2018; Saxton & Guo, 2020; Xu & Saxton, 2018).

The remainder of this paper is structured as follows. The next section provides a background of the relationship between counter accounts, social media, and stakeholder support. Section 3 discusses the theoretical framework and hypothesis development. Section 4 presents the research design, which is followed by the discussion of the empirical findings in Section 5 and Section 6. Discussions of the results and the conclusions are presented in the final section.

## 2. Literature review

### 2.1. *The role of counter accounting in promoting CSR*

Counter accounts are defined as “accounting information produced by external individuals and/or organisations on their representation of the social and environmental impacts of others” (Dey & Gibbon, 2014, p. 109). In contrast to the conventional notion of accounting which mainly provides financial information to help investors assess economic performance, the concept of counter accounts has been expanded to include both quantitative and qualitative, and financial and non-financial, information concerning corporate practices which then allows stakeholders to make not only economic decisions but also moral and political ones (Vinnari & Laine, 2017). In other words, counter accounts can be considered “an illustration of the low epistemological threshold of accounting” (Vinnari & Laine, 2017, p. 12). Consequently, counter accounts may exist in various forms, ranging from traditional formats – such as shadow reports and social audits (Apostol, 2015; Thomson et al., 2015; Tregidga, 2017) – to innovative ones including maps (Denedo et al., 2017), videos (Laine & Vinnari, 2017; Vinnari & Laine, 2017), website blogs (Irvine & Moerman, 2017), and social media messages (Denedo et al., 2019).

Counter accounts normally originate from less powerful social groups; they problematise the social and environmental legitimacy of corporate activities (Denedo et al., 2019; Thomson et al., 2015) and advocate for progressive changes to be implemented to correct undesirable practices (Dey & Gibbon, 2014; Gallhofer et al., 2006; Thomson & Bebbington, 2005). Due to its potential to make emancipatory social changes, NGOs are increasingly relying on counter accounts to seek cooperation from corporate stakeholders (e.g. mass media, policymakers, and customers) during activism to increase collective power in confronting target corporations (Gómez-Carrasco et al., 2020; King, 2007; King & Soule, 2007) and de-legitimising their claims (Laine & Vinnari, 2017; Thomson et al., 2015).

Extensive studies have examined discourses in counter account reports (Brennan & Merkl-Davies, 2014; Rodrigue, 2014; Vinnari & Laine, 2017) and how NGOs perceive their usefulness in making the voices of marginalised people heard (Denedo et al., 2019; Laine & Vinnari, 2017; Tregidga, 2017). Some studies also explore the effectiveness of counter accounts in changing CSR practices (Apostol, 2015; Denedo et al., 2017;

Thomson et al., 2015) but evidence shows that there is still a lack of resonance generated in stakeholders regarding the issue exposed. One possible explanation is that NGOs passively place significant trust in the target corporation's stakeholders assuming that the disseminated counter accounts will win their support (Laine & Vinnari, 2017). The lack of engagement between the NGO and corporate stakeholders may cause stakeholders to either see the claim as illegitimate or not relevant (Benford & Snow, 2000; Laine & Vinnari, 2017). In this case, counter accounts may lose the potential to mobilise collective action (King, 2007; Laine & Vinnari, 2017; Tregidga, 2017). Consequently, prior studies have called for more research to investigate how alternative media channels may be mobilised to improve the effectiveness of counter accounts in amplifying large-scale stakeholder support (Denedo et al., 2019; Thomson et al., 2015).

## **2.2. Social media, information dissemination, and social activism**

Social media are increasingly considered as an alternative media channel for facilitating accounting information co-production (Denedo et al., 2019; Lodhia & Stone, 2017; Manetti & Bellucci, 2016; Unerman & Bennett, 2004) and dissemination (Blankespoor et al., 2014; Gómez-Carrasco et al., 2020; She & Michelon, 2019). Studies argue that social media empower stakeholders in relation to corporations by creating a “public arena of citizenships” (Whelan et al., 2013, p. 777) in which stakeholders can directly engage with other stakeholders regarding corporate accountability and initiate social activism to confront irresponsible practices (Gómez-Carrasco et al., 2020; Lyon & Montgomery, 2013). This notion has been supported by studies in which stakeholders actively use social media to communicate core CSR issues with corporations (Gómez-Carrasco et al., 2020), and showing that social media activism can have negative impacts on share prices (Dupire et al., 2021; Gómez-Carrasco & Michelon, 2017). Therefore, the increased power of social media will reduce the likelihood of corporate greenwashing and promote CSR (Lyon & Montgomery, 2013).

NGOs also use social media to facilitate the co-production and dissemination of counter accounts exposing irresponsible corporate practices as part of their activism strategies (Denedo et al., 2019; Thomson et al., 2015). For example, NGOs perceive social media to be a powerful mechanism for problematising irresponsible corporate practices as well as supporting the community and disseminating counter accounts in different arenas (Denedo et al., 2019). Neu et al. (2019) find that social activist groups employ social media to facilitate social accountability by exposing previously private financial information to the public and initiating accountability conversations on social media. NGOs also actively use social media for information dissemination, community building, and calling for action (Saxton & Waters, 2014). These messages are also shown to be effective in accumulating social capital on social media (Guo & Saxton, 2018; Xu & Saxton, 2018).

Despite studies stressing the usefulness of social media in facilitating information dissemination (Denedo et al., 2019; Guo & Saxton, 2018) and influencing CSR activities (Lyon & Montgomery, 2013; Thomson et al., 2015; Whelan et al., 2013), there is limited evidence documenting how the dissemination of counter accounts via social media may impact NGOs' campaigns' objectives beyond social media platforms (Guo & Saxton, 2020). Neu et al. (2020) find that while social media facilitate the participation

of pluralistic voices, it is less certain that these voices necessarily serve as an impulse for positive social change. This question has become increasingly important as the literature also question the ability of social media to sustain social movement (Halupka, 2014; Karpf, 2010; Shulman, 2009), wherein social media engagement has been turned into a “like-clicking” activity with no meaningful impact (Cornelissen et al., 2013; John et al., 2017; Kristofferson et al., 2013). Therefore, we cannot take for granted the idea that the dissemination of counter accounts via social media will lead to meaningful impacts on campaign objectives, as it is still an empirical question to be investigated (Guo & Saxton, 2018; Neu et al., 2020). Due to the importance of gaining stakeholder support in increasing the legitimacy of NGOs’ claims and its potential to exert pressure on target corporations (King, 2007; McCarthy & Zald, 1977), I turn to the question of whether the dissemination of counter accounts can mobilise stakeholder support beyond the social media platform.

### 3. Conceptual framework and hypothesis development

#### 3.1. Network-making power and dialogic accounting

I rely on Castells’ (2011, 2012, 2013) network-making power perspective and the notion of dialogic accounting (Brown, 2009; Brown & Dillard, 2013) to develop hypotheses regarding the relationship between social media dissemination of counter accounts and the mobilisation of stakeholder support during a campaign against irresponsible corporate practices. In his seminal work *Communication Power*, Castells (2013) argues that digital communication networks have become a key playground for power making. To ensure the acceptance of existing or alternative worldviews by the public, both the existing power holders (e.g. corporations) and actors of social change (e.g. NGOs) rely on network-making power to enhance their dominance over each other.

Network-making power is defined as “the power to set up specific networks according to the interests and values of the programmers, and the power to switch different networks following the strategic alliances between the dominant actors of various networks” (Castells, 2011, p. 773). Network-making power is constituted of two important abilities: programming capacity and switching capacity (Castells, 2011, 2012, 2013). Programming capacity is defined as the ability to frame and (re)introduce a worldview to a network. A key factor that influences the effectiveness of such a capacity is the actors’ ability to facilitate dialogic accounting, wherein stakeholders are engaged and empowered during the dialogue process to promote mutual learning processes, recognise diverse viewpoints, and explicitly manage power dynamics (Bebbington et al., 2007; Brown, 2009; Brown & Dillard, 2013; Unerman & Bennett, 2004). By engaging with stakeholders from diversified backgrounds, NGOs would better comprehend stakeholder expectations on campaign issues (Bebbington et al., 2007; Brown, 2009; Brown & Dillard, 2013; Unerman & Bennett, 2004), thus enhancing the impact of counter accounts on movement progresses to achieve desired transformative actions (Castells, 2011). Switching capacity refers to the ability to create and switch communication networks where an alternative worldview can be disseminated to different connected entities (Castells, 2013). By strengthening switching capacity, actors of social change can form strategic communication networks with various stakeholder groups to enhance the reach of counter

accounts, bring potential stakeholders who are currently marginalised into the dialogue process, and forge alliances with powerful stakeholders such as policymakers and investors to make marginalised voices heard (Castells, 2011, 2013).

The adoption of Castells' theory is particularly relevant in this study for two main reasons. Firstly, Castells' theory recognises the power dynamics between the existing power holders and actors of social change and emphasises the role of grassroots accounting technologies such as social media in disseminating counter accounts and organising online social activism in a networked society (Castells, 2011, 2012, 2013). Both are essential elements of dialogic accounting and the promotion of pluralistic democracy (Bebbington et al., 2007; Brown, 2009; Brown & Dillard, 2013). Secondly, instead of purely focusing on the dialogic characteristics of social media (Bellucci & Manetti, 2017), Castells' theory also recognises its structural characteristics: network formation and connection play an important role in delocalising stakeholder dialogue, thereby allowing counter accounts to be disseminated without spatial restrictions (Den Hond & De Bakker, 2007). Since Castells' theory covers both the dialogic and structural dimensions of counter accounts dissemination, it offers nuanced explanations of showing how social media dissemination of counter accounts may influence stakeholder behaviours outside the social media platform.

### **3.2. Hypothesis development**

I argue that the interactivity and connectivity of social media are important mechanisms that help NGOs accumulate network-making power. Castells (2013) argues that the strength of programming capacity depends on the organisation's ability to engage with stakeholders and influence stakeholder worldviews. By exploiting social media interactivity, an NGO can frame and disseminate counter accounts that reveal the target corporation's irresponsible activities to a wide range of corporate stakeholders and, in return, these stakeholders are invited to express their opinions via social media's interactive functions (Bellucci & Manetti, 2017; Saxton et al., 2019). Through repetitive engagement, counter accounts are increasingly exposed and more stakeholder interactions can be drawn to the engagement process (Guo & Saxton, 2018). In this case, a high level of stakeholder interactions would not only reflect the degree to which the counter accounts resonate with stakeholders (Saxton et al., 2019) but also represent the extensiveness of a process "whereby people's unexamined preferences can be scrutinized and ... revised, abandoned, or retained with a deeper meaning than existed initially" (Galston, 1994, p. 361). Since the ability of an NGO to influence power dynamics and exert pressure on a target corporation is ultimately contingent on a change in individual or collective perceptions (King, 2007; King & Soule, 2007), attracting a high level of stakeholder interactions would lead to a consensual perception regarding the urgency of the exposed issue (Saxton et al., 2020), thus shaping stakeholder behaviours outside the social media platform (Castells, 2011, 2012). Indeed, prior studies show that internet activism that attracts a large amount of stakeholder attention can undermine a company's public image by generating social comparison (Luo et al., 2016). Furthermore, NGOs that frequently attract stakeholder attention to the disseminated counter accounts will accumulate a large stakeholder base (Guo & Saxton, 2018), which can be subsequently leveraged to cause severe



damage to corporate reputation (Eberle et al., 2013). Following this line of argument, the first hypothesis is:

**H1.** The level of stakeholder support is positively associated with the extent of stakeholder interactions with the disseminated counter accounts on social media.

NGOs constantly seek opportunities to increase the exposure of irresponsible corporate activities from a local to a global level to exert greater pressure on multinational corporations (Den Hond & De Bakker, 2007; Denedo et al., 2017). Castells (2013) argues that since the networks of existing power holders (e.g. multinational corporations) are usually global, while the networks of actors of social change (e.g. NGOs) and the irresponsible corporate activities they try to expose are often local, a strategic question for NGOs is how to expand the dissemination of counter accounts beyond spatial restrictions. Indeed, prior studies on counter accounting find that there is a lack of widespread stakeholder support on the exposed issue, as counter accounts are often confined to a local area and do not reach a global level (Denedo et al., 2017; Laine & Vinnari, 2017). Consequently, the connectivity of social media plays a determining role in strengthening NGOs' switching capacity by disrupting the dominant networks while replacing these with networks of resistance and social change (Castells, 2013). Disseminating counter accounts via personal networks allows individual stakeholders and grassroots activist groups who are not directly connected to establish a direct connection with the NGO (Diani & McAdam, 2003). By linking up these entities, the NGO can form a strategic network with local stakeholders and this network may further expand the scale of future engagement (Diani & McAdam, 2003; Saxton & Guo, 2020). However, information dissemination through local networks may lead to the formation of a network comprised of many loosely connected groups (Diani & McAdam, 2003) that fails to create a unified global influence (Den Hond & De Bakker, 2007). To overcome this limitation, NGOs may exploit the connectivity of social media by allying themselves with other social media account holders to widely disseminate counter accounts and engage with corporate stakeholders globally (Castells, 2013). Ensuring the dissemination of such information on different stakeholder networks would help delocalise the exposed issue and invite more stakeholder groups, both powerful and marginalised, into the dialogue process, thus resulting in more stakeholder support (Castells, 2013; Xu & Saxton, 2018). Following this line of argument, the second hypothesis is formulated as follows:

**H2.** The level of stakeholder support is positively associated with the number of social media accounts connected in disseminating counter accounts.

## 4. Research design

### 4.1. Sample and data collection

The empirical setting of this study is Greenpeace's "Save the Arctic" (STA) campaign on Facebook. I rely on a unique dataset of the Greenpeace STA online petition signatories as a direct measure for stakeholder support outside social media platforms and use it to assess the effects of Greenpeace's counter accounts on stakeholder support both nationally and globally. The proprietary data is contributed by Greenpeace and contains weekly

STA signatories from countries and regions across the globe between 1st January 2015 and 12<sup>th</sup> February 2018.<sup>1</sup>

The sample includes all Greenpeace's international and national Facebook accounts and messages related to the STA campaign between 1st January 2015 and 12<sup>th</sup> February 2018. The reasons for choosing Facebook are: 1) it is widely used for stakeholder engagement and such usage has also been confirmed by the Greenpeace social media team; 2) its emoticons such as love, sad, wow, and angry can capture different sentiments of stakeholder reactions (She & Michelin, 2019); and 3) it contains richer and more detailed counter accounts than Twitter, as there is no restriction on the length of the text (Zhou et al., 2015).

Greenpeace's Facebook accounts are identified through links on Greenpeace's international and national websites. After excluding offices that are no longer in existence or have no Facebook account, the final sample consists of 51 Greenpeace Facebook accounts around the globe in 50 countries and territories.<sup>2</sup> I used a python script to scrape a total of 76,670 messages from these accounts using the Facebook Application Programme Interface (API) on 13<sup>th</sup> February 2018. Following prior studies (Cannon et al., 2020; She & Michelin, 2019), I employ a dictionary-based approach to identify STA-related messages among other Greenpeace activities. The final sample constitutes 8,336 STA-related Facebook messages.<sup>3</sup>

#### 4.2. Empirical models

Following prior studies (Saxton & Waters, 2014; She & Michelin, 2019), I use the negative binomial (NB) model to test the hypotheses. Since Greenpeace's dissemination of counter accounts may happen at both national (via each national social media account) and global levels (via both national and global social media accounts), while connections to multiple social media accounts mainly happen at a global level, I use model (1) to test H1 at the national level and use models (1) and (2) to test H1 and H2 at the global level:

$$\begin{aligned} Nat\_Petition_{nt} = & \beta_0 + \beta_1 Nat\_Reactions_{nt} + \beta_2 Num\_Posts_{nt} + \beta_3 Nat\_GoogleTrend_{nt} \\ & + \beta_4 Nat\_News\ Article_{nt} + \beta_5 Economic\ Develop_{nt} + \beta_6 Political\ Freedom_{nt} \\ & + Country\ Fixed\ Effect + Week\ Fixed\ Effect + \varepsilon \end{aligned} \quad (1)$$

Where  $nt$  denotes country  $n$  in week  $t$ .

The unit of analysis in this model is national-level stakeholder support and individual national Greenpeace Facebook accounts that disseminate STA messages in a week. Since the sample contains 46 national Greenpeace Facebook accounts and there is a total of 166 weeks covered in the sample period, this results in 8,300 country-week observations.<sup>4</sup> I use the weekly number of Greenpeace STA petition signatories received in a sample country to measure national stakeholder support ( $Nat\_Petition$ ). Stakeholder

<sup>1</sup>The data only contains statistical information, and no information is provided regarding supporters' identities.

<sup>2</sup>Some Facebook accounts are shared by several national offices; hence, the number of nations covered is greater than the number of sampled accounts. The complete list is available in the online supplementary materials.

<sup>3</sup>The detailed process and examples of STA messages are available in the online supplementary materials.

<sup>4</sup>Some Facebook accounts are used in more than one country or territory. The week number used by Greenpeace in the STA dataset is calculated by grouping every seven days from the first day of the year into a week and grouping the remaining days as the last week of the year. Weekly stakeholder reactions to Facebook messages are also computed and aggregated using the same time frame to ensure consistency.

interactions with disseminated counter accounts (*Nat\_Reaction*) are measured using the natural logarithm of the aggregated weekly number of emoticons (*Nat\_Emoticon*), shares (*Nat\_Share*), comments (*Nat\_Comment*), positive emoticons (*Nat\_PosEmoticon*), and negative emoticons (*Nat\_NegEmoticon*) received in response to STA Facebook messages posted by a national Facebook account alternatively.<sup>5</sup>

*Control Variables.* Since the level of stakeholder interactions is positively associated with the number of messages posted (Guo & Saxton, 2018), I include the number of STA Facebook messages posted (*Num\_Posts*) to control for the frequency of dissemination. Following prior studies on the role of media in agenda setting (Yekini et al., 2017), I use Google Trends Volume Search Indicator (SVI) to capture online media exposure (*Nat\_GoogleTrend*) and the number of newspaper articles as a measure of offline media exposure (*Nat\_NewsArticle*). I retrieve weekly Google Trends data by searching “Arctic” in each sample country. I retrieve local newspaper articles containing the keyword “Arctic”, or its translated phrase, 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 (*EconomicDevelop*) and the political freedom (*PoliticalFreedom*) of each country following prior studies (Sofie et al., 2010). The level of economic development is the natural logarithm of a country’s annual GDP per capita.<sup>6</sup> Political freedom is the annual Freedom House Index, where a higher score indicates a higher level of political freedom (Sofie et al., 2010). Finally, I include country fixed effect to control for other unaccounted time-invariant and country-level characteristics such as culture and people’s habits in using social media. I also include week fixed effect to account for unobserved events that may arise in a particular week.

I use the following NB model to test H1 and H2 at the global level:

$$\begin{aligned} Int\_Petition_t = & \beta_0 + \beta_1 Int\_Reactions_t + \beta_2 Account\_Involved_t + \beta_3 Int\_Google\ Trend_t \\ & + \beta_4 Int\_News\ Article_t + \beta_5 STA\_Event_t + Year\ Fixed\ Effect + \varepsilon \end{aligned} \quad (2)$$

Where  $t$  denotes week  $t$  during the sample period.

The unit of analysis in this model is the global level of stakeholder support and the global Greenpeace network that disseminate STA messages in a week. Since I focus on all Greenpeace’s Facebook accounts (i.e. both national and international accounts) during the sample period, this results in 166 observations. Global stakeholder support (*Int\_Petition*) is measured using the global weekly number of Greenpeace STA petition signatories. Stakeholder interactions with disseminated counter accounts at the global level (*Int\_Reaction*) are measured using the natural logarithm of the weekly number of emoticons (*Int\_Emoticon*), shares (*Int\_Share*), comments (*Int\_Comment*), positive emoticons (*Int\_PosEmoticon*), and negative emoticons (*Int\_NegEmoticon*) received in response to the STA Facebook messages disseminated by all Greenpeace Facebook accounts alternatively. *Accounts\_Involved* is the weekly number of Greenpeace Facebook

<sup>5</sup>A value of one is added before taking natural logarithm transformation for metrics with a zero value. To ensure the robustness of the results, 0.0001 is also used as an alternative constant before taking natural log transformation. The results (un-tabulated but available on request) are consistent with the main findings.

<sup>6</sup>GDP data is retrieved from the International Monetary Fund database. 2018 GDP per capita is estimated as of 18th May 2018.

**Table 1.** Descriptive statistics.

Variables	N	Mean	St. Dev.	Min	P25	Median	P75	Max
<b>Panel A. National Level</b>								
Nat_Petition	8,300	459.75	2,105.17	0	10	45	233	111,337
Nat_Reaction								
Nat_Emoticon	8,300	2.77	3.45	0	0	0	6.30	12.38
Nat_Share	8,300	2.12	2.86	0	0	0	4.73	11.46
Nat_Comment	8,300	1.21	1.77	0	0	0	2.49	9.29
Nat_PosEmoticon	8,300	2.72	3.40	0	0	0	6.16	12.38
Nat_NegEmoticon <sup>(1)</sup>	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
Nat_GoogleTrend	8,300	43.20	21.20	0	30.96	44.71	57.57	100
Nat_NewsArticle	8,300	1.28	4.03	0	0	0	1	103
EconomicDevelop	8,300	9.77	1.10	6.82	9.08	9.95	10.69	11.70
PoliticalFreedom	8,300	81.76	18.96	20	77	89	96	100
<b>Panel B. Global Level</b>								
Int_Petition	166	24,772.52	27,913.19	122	7,499	14,807	32,257	187,533
Int_Reaction								
Int_Emoticon	166	10.74	1.52	0	10.28	10.97	11.50	13.61
Int_Share	166	9.67	1.52	0	9.075	9.81	10.54	12.79
Int_Comment	166	6.99	1.26	0	6.47	7.06	7.72	9.91
Int_PosEmoticon	166	10.59	1.57	0	10.01	10.76	11.45	13.61
Int_NegEmoticon <sup>(1)</sup>	105	8.41	1.57	0	7.90	8.66	9.23	10.75
Account_Involved	166	0.42	0.16	0	0.31	0.41	0.53	0.94
Int_GoogleTrend	166	73.10	10.49	57	65	71.64	80.11	98.86
Int_NewsArticle	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 Appendix A. <sup>(1)</sup> Observations reduced because Facebook introduced 5 additional emoticons after 26th February 2016. Positive emoticons have a full sample because the number of likes is available before February 2016.

accounts that were connected in disseminating counter accounts scaled by the total number of Facebook accounts handled by Greenpeace.

*Control variables.* I include global Google Trends (*Int\_GoogleTrend*) and global newspaper articles (*Int\_NewsArticle*) to control for both online and offline media exposure. Global Google Trends are measured using the global search volume for “Arctic” during the sample period. I retrieve global newspaper articles from Nexis UK by searching for “Arctic” in major newspaper publications worldwide. I include special STA events (*STA\_Event*) to control for any sudden surge in petition signing. I identify these major events from Greenpeace International press releases by searching for the keyword “Arctic”. I include year fixed effect to account for any unobserved events that may arise in a particular year. All the variables employed in the empirical models are defined in Appendix A.

## 5. Empirical findings

### 5.1. Descriptive statistics

Table 1 provides descriptive statistics for the variables analysed at the national and global levels. As indicated in Table 1 Panel A, Greenpeace’s national accounts received a mean of 460 petition signatories each week. Concerning stakeholder interactions at the national level, STA messages received on average 15.89 emoticons, 8.29 shares, and 3.35 comments every week.<sup>7</sup> In Table 2 Panel B, the mean weekly number of global STA petition

<sup>7</sup>Values are presented before taking natural log transformation.

**Table 2.** Correlation table.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<b>Panel A. National Level</b>										
1. Nat_Petition	–									
2. Nat_Emoticon	0.23***	–								
3. Nat_Share	0.26***	0.96***	–							
4. Nat_Comment	0.27***	0.93***	0.95***	–						
5. Nat_PosEmoticon	0.23***	1***	0.96***	0.93***	–					
6. Nat_NegEmoticon	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. Nat_GoogleTrend	0.08***	0.14***	0.15***	0.16***	0.15***	0.1***	0.1***	–		
9. Nat_NewsArticle	0.07***	0.12***	0.15***	0.16***	0.12***	0.1***	0.18***	0.15***	–	
10. EconomicDevelop	0.06***	0.22***	0.19***	0.2***	0.21***	0.17***	0.21***	0.29***	0.14***	–
11. PoliticalFreedom	0.05***	0.1***	0.1***	0.12***	0.1***	0.07***	0.14***	0.16***	0.14***	0.66***
<b>Panel B. Global Level</b>										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Int_Petition	–									
2. Int_Emoticon	0.25**	–								
3. Int_Share	0.31***	0.9***	–							
4. Int_Comment	0.29***	0.77***	0.81***	–						
5. Int_PosEmoticon	0.29***	0.98***	0.87***	0.75***	–					
6. Int_NegEmoticon	–0.07	0.72***	0.75***	0.59***	0.61***	–				
7. Account_Involved	0.59***	0.45***	0.45***	0.43***	0.5***	0.07	–			
8. Int_GoogleTrend	–0.09	0.15	0.01	0.06	0.2*	–0.19	0.03	–		
9. Int_NewsArticle	–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 Appendix A. \*, \*\*, and \*\*\* represent significance levels of 0.10, 0.05, and 0.01, respectively

signatories amounts to 24,772. STA Facebook messages received on average 46,027.76 total emoticons, 15,756.37 shares, and 1,088.98 comments.<sup>8</sup> These results suggest that while most stakeholders react to STA messages via emoticons, there is still extensive dialogue regarding STA messages. Moreover, 42.2% of Greenpeace accounts on average participated in disseminating STA information every week, suggesting that Greenpeace actively employs its switching capacity to delocalise stakeholder engagement and disseminate counter accounts globally.

Table 2 provides the Pearson correlation matrices of the variables used in the analyses. Most pairs of independent and control variables have correlation coefficients lower than  $\pm 0.5$ . However, the number of posts (*Num\_Posts*) has a high correlation with social media engagement at the national level. This is because the number of messages is directly linked to the number of stakeholder interactions with the disseminated counter accounts information. Variance inflation factors (VIF) are computed for each regression analysis and the results (untabulated) indicate no presence of multicollinearity.<sup>9</sup>

## 5.2. The effect of counter accounts on mobilising stakeholder support

Table 3 reports the results examining the relationship between stakeholder support and stakeholder interactions with disseminated counter accounts at the national level. As indicated by the table, the number of national petition signatories is positively associated with all five measures of stakeholder interactions.<sup>10</sup> When analysing the effect individually, comments (*Nat\_Comment*) have the strongest association with national petition signatories, followed by message shares (*Nat\_Share*) and negative emoticons (*Nat\_NegEmoticon*). One possible explanation that comments have the strongest association is that they reflect the extent of dialogue and debate among stakeholders, including with Greenpeace, regarding counter accounts that reveal irresponsible corporate activities – or perhaps because more stakeholders are willing to express their support via comments. This finding is consistent with the concept of programming capacity and dialogic accounting: extensive stakeholder dialogue will lead to a consensual perception regarding the urgency of the exposed issue, thus shaping stakeholder behaviours outside the social media platform.

Shares also have a strong association with stakeholder support because counter accounts can be further disseminated via stakeholder networks; hence, more stakeholders will see and join the campaign. A high level of sharing would not only reflect the resonance among stakeholders regarding the exposed accounts (Saxton et al., 2019); it would also signal the credibility of counter accounts information (Cade, 2018). Since one of the objectives for employing programming capacity is to reintroduce alternative worldviews and change stakeholder perceptions (Castells, 2013), it is necessary to supply credible information to gain stakeholder trust (Laine & Vinnari, 2017; Tregidga, 2017).

Emoticons have a weaker association than comments and shares, probably because stakeholders may simply acknowledge their support for the campaign via emoticons

<sup>8</sup>Values are presented before taking natural log transformation.

<sup>9</sup>The highest VIF in national and global level analysis is 2.34 and 2.49, respectively (untabulated).

<sup>10</sup>Alternative measures of stakeholder interactions are run separately in regression models due to their conceptual differences and because the high correlation may cause multicollinearity, driving spurious results.

**Table 3.** NB regression analysis of the effect of social media dissemination of counter accounts on stakeholders' support at the national level.

	<i>Dependent variable:</i>				
	Nat_Petition				
	(1)	(2)	(3)	(4)	(5)
Nat_Reaction					
Nat_Emoticon	<b>0.072***</b> (0.013)				
Nat_Share		<b>0.094***</b> (0.016)			
Nat_Comment			<b>0.155***</b> (0.029)		
Nat_PosEmoticon				<b>0.072***</b> (0.014)	
Nat_NegEmoticon					<b>0.085***</b> (0.015)
Num_Posts	0.112*** (0.028)	0.103*** (0.027)	0.102*** (0.027)	0.114*** (0.028)	0.161*** (0.034)
Nat_GoogleTrend	0.005** (0.002)	0.005** (0.002)	0.005** (0.002)	0.005** (0.002)	0.001 (0.002)
Nat_NewsArticle	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.005 (0.003)
EconomicDevelop	0.013 (1.726)	-0.044 (1.693)	-0.113 (1.684)	-0.003 (1.725)	-1.128 (1.643)
PoliticalFreedom	0.006 (0.022)	0.007 (0.022)	0.005 (0.022)	0.006 (0.022)	0.028 (0.021)
Constant	5.912 (15.475)	6.304 (15.193)	7.112 (15.123)	6.057 (15.461)	14.643 (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
Pseudo R <sup>2</sup>	0.143	0.143	0.143	0.143	0.154
Log-Likelihood	-43842	-43830	-43829	-43846	-26436

Table 3 reports the results on Negative Binomial analysis of the effect of stakeholder interactions with disseminated counter accounts on stakeholders' support outside the social media platform at the national level. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors clustered at the country level. All variables are defined in Appendix A. \*, \*\*, and \*\*\* represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

without engaging with the issue; hence, they are less likely to sign a petition outside the social media platform. This finding further supports the necessity of stakeholder dialogue in mobilising collective actions. When separating emoticons into positive and negative sentiments, the results show that negative sentiment has a stronger association than positive sentiment with stakeholder support. This prediction is consistent with Castells' (2012) prediction that anger and outrage play an important role in driving social movements. Overall, the results support H1 in that NGOs employ programming capacity to attract stakeholder interactions with counter accounts, thus influencing their petition-signing behaviours outside social media platforms.<sup>11</sup>

<sup>11</sup>I acknowledge that messages that specifically call for people to visit the petition website may partially drive the results. However, since NGOs disseminate counter accounts for multiple reasons (e.g., information sharing, community building, and calls for action), it is unlikely that these messages will only call for action without providing any counter accounts information to expose the issue. We cannot assume that stakeholders will always respond to a call for action message, given that the social media information environment is extremely noisy. It is also possible that stakeholders may firstly visit the website and then come back to Facebook to interact with the messages. To improve the robustness, I exclude messages that contain the petition website link ([www.savetheartic.org](http://www.savetheartic.org)) and re-run the analyses at both the national and global level to eliminate these possibilities. The results (untabulated but available on request) remain qualitatively the same.

**Table 4.** NB regression analysis of the effect of stakeholder interactions and the number of social media accounts involved in disseminating counter accounts on stakeholders' support at the global level.

	Dependent variable:				
	Int_Petition				
	(1)	(2)	(3)	(4)	(5)
Int_Reaction					
Int_Emoticon	<b>0.264***</b> (0.039)				
Int_Shars		<b>0.256***</b> (0.047)			
Int_Comment			<b>0.262***</b> (0.099)		
Int_PosEmoticon				<b>0.286***</b> (0.040)	
Int_NegEmoticon					0.062 (0.085)
Account_Involved	<b>3.008***</b> (0.610)	<b>3.014***</b> (0.614)	<b>2.990***</b> (0.700)	<b>2.839***</b> (0.609)	<b>4.738***</b> (0.729)
Int_GoogleTrend	-0.010 (0.007)	-0.006 (0.007)	-0.007 (0.007)	-0.011* (0.007)	-0.014* (0.008)
Int_NewsArticle	-0.014 (0.010)	-0.015 (0.010)	-0.015 (0.011)	-0.013 (0.010)	-0.020 (0.014)
STA_Event	-0.038 (0.175)	-0.033 (0.174)	-0.079 (0.170)	-0.049 (0.172)	-0.160 (0.231)
Constant	6.650*** (0.573)	6.734*** (0.598)	7.512*** (0.743)	6.548*** (0.565)	8.770*** (0.965)
Year FE	YES	YES	YES	YES	YES
Observations	166	166	166	166	105
Pseudo R <sup>2</sup>	0.0431	0.0427	0.0409	0.0439	0.0475
Log-Likelihood	-1766	-1766	-1770	-1764	-1096

Table 5 reports the results on Negative Binomial analysis of the effect of stakeholder interactions and the number of social media accounts involved in disseminating counter accounts on stakeholder support outside the social media platform at the global level. The table reports negative binomial coefficient estimates and (in brackets) robust standard errors. All variables are defined in Appendix A. \*, \*\*, and \*\*\* represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

Table 4 reports the results examining how NGOs employ programming capacity and switching capacity on social media to mobilise stakeholder support at the global level. Consistent with the hypothesis, the level of global stakeholder support is positively associated with most stakeholder interactions that the Greenpeace network receives globally in a particular week. However, no significant relationship is found between the number of global petition signatories (*Int\_Petition*) and negative emoticons (*Int\_NegEmoticon*). This is probably due to the reduced number of observations for negative emoticons. Among these interactions, emoticons have the strongest association with global petition signatories, followed by comments and shares, although their coefficients are very similar. The strong association of emoticons is probably because that the meaning of emoticons is intuitive and stakeholders who speak different languages can easily understand the emoticons posted by others. Comments also have a strong association illustrating the effectiveness of programming capacity in involving stakeholders in the dialogue process and allowing them to express their opinions and discuss issues exposed by counter accounts (Brown, 2009; Castells, 2012, 2013). Consequently, stakeholders will reach a consensual view and change their behaviours outside the social media platform. Again, the findings support H1: counter accounts that are effective in attracting stakeholder interactions can encourage them to sign petitions against corporations.



Regarding the employment of switching capacity, the number of global petition signatories is positively associated with the number of Greenpeace Facebook accounts connected in disseminating counter accounts across all the models, suggesting that connections and co-productions of counter accounts among social media accounts can delocalise the exposed issue while attracting more petition signatories around the world. Switching capacity also amplifies the scale of stakeholder engagement by inviting both powerful and marginalised stakeholder groups into the dialogue process. In this case, marginalised groups who are experiencing irresponsible corporate practices in the Arctic can make their voices heard via comments, thus further stimulating stakeholder interactions and convincing powerful stakeholders such as investors and policymakers to act. Hence, the results support H2, according to which the connectivity of social media strengthens NGOs' switching capacity, thus leading to more stakeholder support globally.<sup>12</sup>

## 6. Additional analysis

Having documented the relationship between social media dissemination of counter accounts and stakeholder support, some may still consider online stakeholder support as a form of clicktivism (Cornelissen et al., 2013; John et al., 2017; Kristofferson et al., 2013). It is also possible that online petition is used for marketing instead of social movement purposes (Dauvergne & LeBaron, 2014). Thus, it is important to explore any real effect of social media engagement on the achievement of NGOs' campaign objectives (Denedo et al., 2017; Gómez-Carrasco & Michelon, 2017; Guo & Saxton, 2018; Laine & Vinnari, 2017). Addressing this question could offer more insights on the potential role of counter accounts in influencing corporate practices (Dey & Gibbon, 2014; Gallhofer et al., 2006; Laine & Vinnari, 2017). To address this additional question, I perform two analyses that consider the relationship between counter accounts dissemination and Greenpeace's political lobbying and public perceptions of climate change, respectively. Policymakers are considered important corporate stakeholders that NGOs may ally with to promote CSR (Denedo et al., 2019). Therefore, stakeholders on social media may be mobilised by Greenpeace to gain regulatory attention and exert pressure on corporations regarding their irresponsible activities in the Arctic region (King et al., 2007). If so, we would expect a positive association between stakeholder interactions with counter accounts and the likelihood of Greenpeace undertaking political lobbying. Therefore, the following Probit model is proposed to test this hypothesis:

$$Pr(Lobby)_{it} = \beta_0 + \beta_1 Reaction_{it} + \beta_2 Political Freedom_{it} + Year Fixed Effect + \varepsilon \quad (3)$$

Where  $it$  denotes country  $i$  in quarter  $t$  during the sample period.

$Lobby_t$  is a dummy variable that equals one if Greenpeace has engaged in political lobbying activities related to climate change in the current quarter and zero otherwise.<sup>13</sup> I also examine the effect of stakeholder interactions on the likelihood of lobbying in the following quarter ( $Lobby_{t+1}$ ) to mitigate potential endogeneity. Since lobbying data

<sup>12</sup>Following Guo and Saxton (2018), I re-run models using OLS models with dependent variables measured using the natural logarithm of petition signing at the national and global level. A constant of one is added to zero values before the logtransformation. The results (not tabulated) are consistent with the main findings.

<sup>13</sup>Government lobbying activities here refer to meetings and communication that Greenpeace arranged with government officials regarding climate change and Arctic-related issues.

**Table 5.** The effect of social media dissemination of counter accounts on the likelihood of Greenpeace government lobbying in the EU, USA, and Canada

	Dependent variable:					
	Lobby <sub>t</sub> (1)	Lobby <sub>t+1</sub> (2)	Lobby <sub>t</sub> (3)	Lobby <sub>t+1</sub> (4)	Lobby <sub>t</sub> (5)	Lobby <sub>t+1</sub> (6)
Emoticon	<b>0.991***</b> (0.320)	<b>0.725***</b> (0.275)				
Share			<b>0.720***</b> (0.268)	<b>0.419*</b> (0.223)		
Comment					<b>0.788**</b> (0.308)	<b>0.439*</b> (0.244)
PoliticalFreedom	0.166* (0.099)	0.115* (0.068)	0.078 (0.079)	0.030 (0.029)	0.075 (0.082)	0.029* (0.016)
Constant	-25.959** (12.068)	-18.490** (8.526)	-13.982 (9.363)	-6.659* (3.979)	-12.438 (9.420)	-5.715** (2.728)
Year FE	YES	YES	YES	YES	YES	YES
Observations	39	39	39	39	39	39
pseudo-R-squared	0.469	0.320	0.424	0.253	0.416	0.247
Log-Likelihood	-14.02	-17.31	-15.22	-19.02	-15.41	-19.17

Note Table 5 reports the effect of social media dissemination of counter accounts on the likelihood of Greenpeace government lobbying in the EU, USA, and Canada during the sample period. *Emoticon*, *Share*, and *Comment* is the natural log of the quarterly total number of emoticons, shares, and comments received from STA messages respectively. *Lobby<sub>t</sub>* and *Lobby<sub>t+1</sub>* is the likelihood of Greenpeace government lobbying in the same quarter and the following quarter. The table reports Probit coefficient estimates and (in brackets) robust standard errors clustered at the country level. \*, \*\*, and \*\*\* represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

is limited in most countries, I only focus on a subsample in the EU, USA, and Canada. I manually collect EU, USA, and Canada lobbying data from the European Commission Transparency Register, ProPublica, and the Office of the Commissioner of Lobbying of Canada, respectively.

*Reaction* is the extent of stakeholder interactions with counter accounts in each geographical region, measured using the natural log of the quarterly total number of emoticons (*Emoticon*), shares (*Share*), and comments (*Comment*), respectively. The extent of stakeholder interactions for the whole EU region is computed as the total number of interactions obtained from 21 member countries. I include the Freedom House Index (*Political Freedom*) to control for the potential influence of the political system on the easiness of lobbying (Sofie et al., 2010). *Political Freedom* for the EU is the mean value of all member countries. The model also includes year fixed effect to control for unobservable events that may affect regulatory attention.

Table 5 presents the results examining the effect of social media dissemination of counter accounts on Greenpeace's government lobbying. Consistent with the hypothesis, I find that the likelihood of Greenpeace lobbying is positively associated with the number of emoticons, shares, and comments received in response to STA messages in both the current quarter and the following quarter. The findings, therefore, suggest that Greenpeace integrates its online and offline activism strategies by disseminating counter accounts via social media to gain policymakers' attention, hence influencing climate change-related policies and exerting pressure on corporate practices.

My second investigation examines the relationship between counter accounts and public opinion about climate change. Since one objective of the STA campaign is to educate stakeholders about the impact of target corporations on climate change (Allsopp et al., 2012), it is expected that stakeholder interactions, gained via social

media dissemination, is positively related to public opinion about climate change. Therefore, the following OLS regression model is proposed to test this hypothesis:

$$\begin{aligned} PublicOpinion_{it+1} = & \beta_0 + \beta_1 Reactions_{it} + \beta_2 PoliticalFreedom_{it} \\ & + \beta_3 EconomicDevelopment_{it} + Year\ Fixed\ Effect + \varepsilon \end{aligned} \quad (4)$$

Where  $it$  denotes country  $i$  in year  $t$  during the sample period.

Public opinion data is gathered from the PEW Research Centre Global Attitudes Surveys conducted between 2016 and 2018 (Fagan & Huang, 2019).<sup>14</sup> In the questionnaire, respondents are asked to rate the level of threat (i.e. *major threat*, *minor threat*, *not a threat*, or *refused to answer*) that they believe climate change is causing to the surveyed country. I use the percentage of respondents who consider climate change a major threat to each surveyed country as a proxy for public opinion ( $PublicOpinion_{t+1}$ ). The independent variable is the extent of stakeholder interactions with disseminated counter accounts in each geographical region (*Reaction*), measured using the natural log of the lagged annual total number of emoticons (*Emoticon*), shares (*Share*), and comments (*Comment*), respectively. I use the lagged value (i.e. stakeholder interactions in 2015 are used to examine the effect of stakeholder interactions on public opinion surveyed as in Spring 2016) to mitigate potential endogeneity. I include the Freedom House index (*PoliticalFreedom*) and the level of economic development (*EconomicDevelopment*) to control citizens' ability to protest and their income level. The model also includes year fixed effect to control for unobservable events that may affect public opinion.

Table 6 presents the results examining the relationship between social media dissemination of counter accounts and public opinion. The results show that the number of respondents who consider climate change a major threat to the surveyed country is positively associated with the extent of stakeholder interactions with disseminated counter accounts in that country. These findings suggest that the dissemination of counter accounts on social media can indeed generate a lasting effect on stakeholder perceptions and behaviours. Overall, the results from the additional analyses support the argument that social media dissemination of counter accounts can help NGOs achieve campaign objectives and generate real effects beyond the social media platform.

## 7. Discussion and conclusions

Drawing on Castells' (2011, 2012, 2013) network-making power perspective, I examine whether the dissemination of counter accounts on social media can mobilise stakeholder support for NGOs' campaigns against corporate actions beyond the social media platform. By focusing on Greenpeace's "Save the Arctic" campaign and its social media data at the national and global level, my findings support Castells' (2011, 2012, 2013) prediction that social media dissemination of counter accounts strengthens NGOs' network-making power so that a wide range of corporate stakeholders can be engaged and a strong network can be potentially formed to increase the effectiveness of NGO campaigns (Denedo et al., 2019; Guo & Saxton, 2020; Laine & Vinnari, 2017; Tregidga, 2017). When

<sup>14</sup>PEW Research Centre is a nonpartisan think tank that conducts public opinion polling, demographic research, media content analysis, and other empirical social science research. The Global Attitudes Survey is conducted in the spring of every year. The data contain an unbalanced panel data of 28 unique surveyed countries covering the period between 2016 and 2018.

**Table 6.** The effect of social media dissemination of counter accounts on public opinions towards climate change.

	Dependent variable: PublicOpinion <sub>t+1</sub>		
	(1)	(2)	(3)
Emoticon	<b>5.274***</b> (1.292)		
Share		<b>3.985***</b> (0.986)	
Comment			<b>3.172**</b> (1.398)
PoliticalFreedom	0.402*** (0.087)	0.365*** (0.093)	0.324*** (0.108)
EconomicDevelop	-8.015*** (2.084)	-6.657*** (2.172)	-5.505** (2.531)
Constant	51.912*** (12.330)	59.841*** (13.034)	67.784*** (14.529)
Observations	64	64	64
Year FE	YES	YES	YES
Adjusted-R-squared	0.28	0.23	0.12

Note Table 6 reports the effect of social media dissemination of counter accounts on public opinions towards climate change. *Emoticon*, *Share*, and *Comment* is the natural log of the annual total number of emoticons, shares, and comments received from STA messages respectively. *PublicOpinion<sub>t+1</sub>* indicates the percentage of respondents considering climate change as a major threat to the surveyed country. The table reports OLS regression coefficient estimates and (in brackets) robust standard errors. \*, \*\*, and \*\*\* represent significance levels of 0.10, 0.05, and 0.01 (two-tailed), respectively.

examining the individual effect of stakeholder interactions on stakeholder support, the results reveal that comments have the strongest association with petition signatories, illustrating the importance of stakeholder dialogue during the counter accounts dissemination process. The results provide support for Castells' network-making power perspective and dialogic accounting: the two-way communication of counter accounts may enhance the effectiveness of programming capacity, thus resulting in collective action and changing stakeholder behaviours outside the social media platforms. The association between Greenpeace Facebook accounts involved in disseminating counter accounts and stakeholder support also demonstrates the importance of switching capacity: diverse stakeholder groups will be reached and engaged, thereby leading to global exposure of the campaign issue.

Additionally, I examine the association between social media dissemination of counter accounts and the achievement of NGOs' campaign objectives; namely, undertaking government lobbying and influencing public opinion about climate change. I find that Greenpeace leverages stakeholder interactions with disseminated counter accounts on social media to attract policymakers' attention. The findings also reveal that social media dissemination of counter accounts is associated with stakeholder opinions about climate change, thus potentially creating a lasting effect on stakeholder perceptions and behaviours. Overall, these analyses provide additional evidence that the dissemination of counter accounts can generate meaningful social impacts beyond social media platforms (Denedo et al., 2019; Dupire et al., 2021; Gómez-Carrasco & Michelin, 2017; Guo & Saxton, 2018; Thomson et al., 2015).

### 7.1. Counter accounts and social media activism – real power or an illusion?

While this study shows the power of social media in driving collective stakeholder action, questions remain as to whether the dissemination of counter accounts and its related

activism may bring about changes to irresponsible corporate practices (Neu et al., 2020). Some anecdotal evidence reveals that Greenpeace has made progress in changing corporate actions (Hocevar, 2019). However, corporations may act temporarily or strategically to maintain the status quo. Thus, the impacts of counter accounts dissemination on target corporations cannot be fully understood until further research digging deeper into this process (Lyon & Montgomery, 2013; Whelan et al., 2013).

Recent studies argue that the increasing platformisation of communications (Gillespie, 2010; Nieborg & Poell, 2018) and the data-intensive infrastructure that social media platforms built have contributed to a “Like Economy” (Gerlitz & Helmond, 2013). NGOs may also use social media engagement to build publicity, rather than using it for dialogic accountability purposes (Bellucci & Manetti, 2017). This view has gained increasing attention from scholars criticising the marketisation of NGOs (Dauvergne & LeBaron, 2014; Nickel & Eikenberry, 2009) and the negative implications of accountability practices for social movement outcomes (Martinez & Cooper, 2017; Michelon et al., 2020). While this study cannot rule out such possible explanations, the findings do show that stakeholder dialogue (as reflected in comments) plays an important role in mobilising stakeholder support. Thus, NGOs need to encourage stakeholder dialogue during the counter accounts dissemination process to enhance network-making power and ensure accountability.

This study also raises a cautionary note on how NGOs could use social media to disseminate counter accounts. Since NGOs have the power to influence stakeholder perceptions and behaviours (Unerman & O’Dwyer, 2006), there is a danger where exaggerated or misleading information is disseminated to attract stakeholder interactions and influence decision-making. Therefore, NGOs should ensure that appropriate governance mechanisms are in place to guard information credibility (Arnaboldi et al., 2017; Flyverbom et al., 2019). While questions as to what governance mechanisms NGOs may employ are beyond the scope of this study, future studies may provide more insights in this area.

## **7.2. Limitations**

My study is not without limitations. Firstly, due to limited publicly available data, the focus on a single NGO may not lead to the generalisability of the findings across NGOs on social media. Future studies may consider more or other NGOs and the impact of their campaigns on irresponsible corporate activities. Secondly, despite the efforts made to identify Arctic-related messages, textual analysis inherently contains classification errors. Future research may use more sophisticated algorithms to reveal more nuanced details of the narratives in NGOs’ social media communications. Thirdly, while I use network-making theory to gauge the relationship between social media dissemination of counter accounts and stakeholder support and use lagged independent variables in additional analyses to mitigate endogeneity, reversal causal relationship cannot be completely ruled out. Future studies may employ a more sophisticated research design to establish the causal relationship between social media dissemination of counter accounts and NGO campaign objectives. Lastly, the research design cannot exclude the possibility that other unobservable factors that are both internal and external to Greenpeace are also driving the documented relationships. Future research may use qualitative methodologies to better understand the processes and dynamics at play in relation to NGOs’ social media engagement and how these are then used to deliver the desired objectives.

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## Appendix A. Variable definitions

Variables	Definition
<b>National Level</b>	
<i>Nat_Petition</i>	Stakeholder support at the national level, measured using the natural logarithm of the weekly number of signatories to Greenpeace STA petition in a country/territory.
<i>Nat_Reaction</i>	Stakeholder interactions with disseminated counter accounts at the national level, measured using the natural logarithm of the weekly total number of emoticons ( <i>Nat_Emoticon</i> ), shares ( <i>Nat_Share</i> ), comments ( <i>Nat_Comment</i> ), positive emoticons ( <i>Nat_PosEmoticon</i> ), and negative emoticons ( <i>Nat_NegEmoticon</i> ) received by all STA Facebook messages disseminated by a national Facebook account respectively.
<i>Num_Posts</i>	The weekly number of STA Facebook messages disseminated by a Greenpeace account.
<i>Nat_GoogleTrend</i>	The weekly Google Trends SVI searching "Arctic" in a country/territory.
<i>Nat_NewsArticle</i>	The weekly number of newspaper articles containing the keyword "Arctic" or translated phrase in a given country/territory.
<i>EconomicDevelop</i>	The natural logarithm of annual GDP per capita (GDP) of a country/territory between 2015 and 2018.
<i>PoliticalFreedom</i>	The annual Freedom House Index (FHI) of a country/territory between 2015 and 2018.
<b>Global Level</b>	
<i>Int_Petition</i>	Stakeholder support at the global level, measured using the natural logarithm of the weekly number of signatories to Greenpeace STA petition across the world.
<i>Int_Reaction</i>	Stakeholder interactions with disseminated counter accounts at the global level, measured using the natural logarithm of the weekly total number of emoticons ( <i>Int_Emoticon</i> ), shares ( <i>Int_Share</i> ), comments ( <i>Int_Comment</i> ), positive emoticons ( <i>Int_PosEmoticon</i> ), and negative emoticons ( <i>Int_NegEmoticon</i> ) received by all STA Facebook messages disseminated across the world respectively.
<i>Account_Involved</i>	The number of Greenpeace Facebook accounts that connected in disseminating counter accounts divided by the total number of Greenpeace Facebook accounts in a particular week.
<i>Int_GoogleTrend</i>	Global weekly Google Trends SVI searching "Arctic".
<i>Int_NewsArticle</i>	The number of world major publication newspaper articles containing the keyword "Arctic" in a week.
<i>STA_Event</i>	A dummy variable that equals one if any major STA event happens in a week and zero otherwise.