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Sustainability Initiatives: Solution or Decoupling Tool?

A Natural Resource-Based View on Sustainability and Financial Performance Effects of Membership in the UN Global Compact

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Abstract

In absence of uniform global regulation for corporate sustainability conduct, initiatives such as the United Nations Global Compact (UNGC) are being established to promote voluntary ESG efforts. Although the UNGC claims to improve the ESG performance of its members, previous research suggests that lax reporting requirements, basic best practices and limited enforcement mechanisms might actually foster decoupling behaviour. To shed light on the efficacy of sustainability initiatives, we investigate whether membership in the UNGC improves corporate sustainability and financial performance. To this end, we construct a panel data set for the period 2007-2020 with 294 UNGC companies and over 12,000 control companies.

Employing difference-in-differences and instrumental variable methods, we find that membership in the UNGC has a negative effect on ESG performance, but no significant effect on financial performance. We show that companies, which exhibited an above industry average ESG conduct prior to joining drive the negative effect of ESG-performance, suggesting decoupling behaviour amongst this subgroup. At last, we explore the rationale behind the performance effects. We demonstrate the inapplicability of signaling theory in the context of the UNGC by identifying insignificant stock market reactions to joining announcements. Instead, we show that access to sustainability resources is a channel through which ESG performance is affected and thereby provide evidence for the Natural Resource-Based Theory (NRBT) (Hart, 1995). Following the NRBT, and contrary to promoted claims, UNGC membership neither builds strategic capabilities nor generates a sustainable competitive advantage.

Keywords – Sustainability, UNGC, RepRisk, ESG performance, Financial performance, NRBT

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List of Abbreviations

Abbreviation	Meaning
2SLS	Two-Stage Least Squares
AAR	Average Abnormal Return
AR	Abnormal Return
CAAR	Cumulative Average Abnormal Return
CAR	Cumulative Abnormal Return
COP	Communication on Progress
CSR	Corporate Social Responsibility
ESG	Environmental, Social, Governance
EUR	Euro
GDP	Gross Domestic Product
IV	Instrumental Variable
MDG	Millennium Development Goal
NGO	Non-Governmental Organisation
NRBT	Natural Resource-Based Theory
OLS	Ordinary Least Squares
pp	Percentage Point
RBV	Resource-Based View
RRI	RepRiskIndex
SCA	Sustainable Competitive Advantage
SDG	Sustainable Development Goal
SME	Small or Medium-Sized Enterprise
ST	Signaling Theory
UN	United Nations
UNGC	United Nations Global Compact
USD	United States Dollar

1 Introduction

”We cannot wait for governments to solve it all” (Annan, 1999, p. 1) . With »it all«, Kofi Annan referred to the most critical challenges of our time, such as climate change or social injustice. To support inert governments, Annan urged business leaders gathered at the World Economic Forum in 1999 in Davos to “initiate a global compact of shared values and principles which will give a human face to the global market“ (Annan, 1999). Since then, over 30.000 organizations followed his proposal and joined the largest and most important voluntary initiative for sustainable development, the United Nations Global Compact (UNGC). Among the members are some of the world’s most influential companies, such as BP, Nestle and Bayer, as well as some of the most influential Norwegian companies, such as Equinor, Norsk Hydro and Telenor.

Promoters of the UNGC believe that by creating a common platform for those companies to bundle their power towards shared goals, “business can be a global force for good” (Ki-moon, 2015, p. 1). Hence, the UNGC requires its signatories “to embrace, support and enact a set of core values in the areas of human rights, labor standards, and environmental practices” (Annan, 1999, p. 1). Put simply, it demands its members to become better companies. Critics, however, have questioned to which extent the UNGC influences the sustainability performance of participants. Some even argue that companies first and foremost use the membership to publish promising policy statements while simultaneously poorly implementing the initiative’s guidelines - a behavior often referred to as decoupling (Martens, 2007; Graafland & Smid, 2019). A lack of monitoring mechanisms and accountability, as well as low entry requirements potentially facilitate decoupling behavior and are hence pointed out as major design weaknesses of the UNGC (Orzes et al., 2018). The opposing views of promoters and critics highlight that even 20 years after the initiation of the UNGC, it remains unclear whether joining the UNGC is a valuable measure for companies to overcome the various sustainability challenges around the world or just a clever decoupling tool.

To determine the efficacy of the UNGC, we aim to answer three questions. First, we investigate the general sustainability and financial performance impacts of UNGC membership. Second, we determine whether performance impacts differ upon joining

the UNGC depending on the company type. Third and most importantly, we explore why a company's performance is impacted upon joining the UNGC. Thereby, we add to the extant literature by exploring explanations for performance effects. So far scholars have made use of various managerial theories, without explicitly testing their applicability in this context (see for example Arevalo & Aravind, 2017; Janney et al., 2009; Orzes et al., 2020). Investigating the appropriateness of two theories, we provide insights on the channels through which the UNGC possibly impacts performance. Consequently, we are able to infer strengths and weaknesses regarding the design and governance of the UNGC and sustainability initiatives in general.

To answer the questions raised, we build a dataset including UNGC membership data, financial fundamental and stock-market data from Compustat, and ESG incident data from RepRisk. As joining the UNGC is a voluntary decision made by the companies themselves, endogeneity poses a major challenge when trying to identify causal company performance effects upon joining UNGC. Hence, our methodology expands on regular ordinary least squares (OLS) by employing a matching approach to create a counterfactual for our difference-in-differences estimation. Moreover, we make use of a mimicking pressure instrument to further provide robustness to our results employing a two-stage least squares (2SLS) regression analysis.

As a result, we find that the average treatment effect of UNGC is negative on ESG performance and insignificant on financial performance. This result holds for our difference-in-differences and instrumental variable research methods. By dividing our sample into subgroups, we show that prior-joining "Good ESG" companies are negatively affected by UNGC membership, while prior "Bad ESG" companies remain unaffected.

In examining the reasons for the aforementioned performance effects, we show that no significant stock market reaction is associated with firms joining the UNGC, suggesting that the UNGC's inclusive design prevents the issuance of costly signals. Hence, we argue that signaling theory (ST) is not applicable in the context of the UNGC. Instead, we provide evidence for the applicability of the Natural Resource-Based Theory (NRBT) by analyzing so-called "local UNGC networks" (Hart, 1995; Hart & Dowell, 2011). The NRBT suggests, that UNGC membership provides members with access to resources (e.g., sustainability workshops), enabling the creation of strategic capabilities and a sustainable

competitive advantage (SCA). We introduce novelty by using the NRBT, as scholars have so far relied on signaling theory (see Orzes et al., 2020; Janney et al., 2009) or the resource-based view (RBV) (see Arevalo & Aravind, 2017; Orzes et al., 2020) to explain UNGC effects on member companies. We find that additionally participating in the UNGC local networks, which provides further resource access, positively mediates ESG performance, but not financial performance. We argue such participation isolates the resource effect on company performance and allows us to test the applicability of the NRBT.

Following NRBT, our findings indicate that the UNGC offers a very basic and non-targeted sustainability toolbox that cannot be leveraged by member companies to build strategic capabilities. Instead, we argue that "Good ESG" companies engage in decoupling behavior as they reduce their sustainability efforts after joining. Moreover, by introducing fixed effects, we show that contrary to findings of prior research (Arevalo & Aravind, 2017; Cettindamar & Husoy, 2007; Ortas, Álvarez, & Garayar, 2015; Orzes et al., 2020), no SCA is generated as financial performance remains unaffected by UNGC membership.

We structure our thesis as follows: Building on a literature review, we derive the research hypotheses which guide our thesis. We then explain the dataset creation, the variable selection, and the methodologies employed. Subsequently, we discuss our results. At last, we highlight the limitations and implications of the thesis for scholars and draw a conclusion from our findings.

2 United Nations Global Compact

The following section takes a process view of the UNGC and lays the foundation for our hypothesis development and use of management theory. It establishes the UNGC fundamentals, discusses the members' motivations for joining and demonstrates the difficulty of determining motivations in an empirical setting. The section establishes that due to the UNGC's lax membership requirements members can potentially engage in decoupling behavior, hampering the implementation of UNGC principles and UN Sustainable Development Goals. It introduces the rudimentary toolbox general UNGC members obtain access to and concludes by presenting the expanded tools and resources local network members can access.

2.1 Fundamentals of the Initiative

The United Nations Global Compact (UNGC) is a platform for organizations that want to interact, cooperate and learn from each other to promote sustainable behavior and serves as an inclusive partnership between the UN and the UNGC members (Arevalo & Aravind, 2017). Kofi Annan introduced the UNGC in 1999 at the World Economic Forum leading to its launch in 2000 (Ortas, Álvarez, & Garayar, 2015). Participants are, among others, companies, governments, NGOs, non-profit organizations (NPOs) and for-profit organizations (FPOs) (Barros Kimbro & Cao, 2011). Members of the UNGC may join the initiative for a variety of reasons. As of February 2022, more than 19,500 organizations have joined the UNGC as participants, including more than 15,400 companies from 164 countries (United Nations, 2022h,j). Candidates draft a letter of commitment to become members. All members report on their progress, but only large organizations are required to pay a yearly fee. These requirements are supposed to help achieve the UNGC's two goals: supporting companies in aligning their strategies and operations with the UNGC principles as well as promoting broader societal goals, such as the Millennium Development Goals (MDGs) until 2015 and thereafter the UN Sustainable Development Goals (SDGs) (United Nations, 2022i). To achieve these goals, member companies obtain access to exclusive partnerships, best practices and a range of other tools and resources.

2.2 Motivations for Joining

Companies voluntarily join the UNGC. However, there are some reasons, which motivate organizations to join the initiative. The United Nations, as the initiator of the UNGC, states that by joining the initiative and by adhering to its principles, companies may benefit from a healthy, qualified, and well-trained workforce as well as increased trust in the corporate brand and more support from investors (United Nations, 2022l). The extensive The UNGC literature also lists a variety of motivations for joining, with pressure among the most commonly cited reasons (see Orzes et al., 2018). They comprise external pressures from NGOs, activists, media, and competitors as well as inside pressures from employees and other stakeholders. Prior studies put a special emphasis on mimicking pressure exerted by the membership of competitors in voluntary initiatives (see Ortas, Álvarez, Jaussaud, & Garayar, 2015; Perez-Batres et al., 2010; Prakash & Potoski, 2006). Own membership likelihood is increased, the more competitors within the same industry join a voluntary initiative (Berliner & Prakash, 2015). Other motivations found by scholars are: Legitimizing corporate actions using the image of the UN or enhancing a company's reputation, network access via the inclusion in a Corporate Social Responsibility (CSR) community, company performance impacts through the improvement of sales, productivity, and stock price or the reduction of cost, as well as ethical motivations (Orzes et al., 2018). In general, when discussing motivations for joining the UNGC, most academic papers take a conceptual view (Mele & Schepers, 2013; Post, 2013; Seppala, 2009). Empirical research in this area has been mainly exploratory and focused on conducting surveys. This highlights the difficulty of assessing UNGC members' motivations for joining the initiative in an empirical rather than survey-based manner.

2.3 Membership Requirements

The design of the UNGC is intentionally inclusive, reaching a wide range of organizations. Therefore, companies can easily become members of the UNGC, and the associated administrative costs and membership fees are small. In fact, companies from the tobacco industry are the only ones restricted from joining the initiative (United Nations, 2022f). To join, a company's executive must sign and send a letter of commitment to the UN Secretary-General (Podrecca et al., 2021). After joining the UNGC, some large companies

must contribute an annual amount to support global and country-specific activities. Even the largest members, with annual revenues of more than $5 billion dollars, only have to pay a contribution of $20 thousand dollars, and smaller members usually pay no contribution at all (United Nations, 2022g). UNGC members are required to disclose yearly communications on progress (COPs) on their execution of the UNGC's principles (Martens, 2007). This is supposed to ensure that members' internal practices and policies are aligned, and the impact is thoroughly measured (United Nations, 2022a). However, it can be questioned if COPs are able to contribute to this alignment and impact measurement in their intended way, as they constitute a low effort obligation. Companies are only delisted or put on "inactive" after the second time they have failed to publish their COP (United Nations, 2022a). Moreover, until now they are easy to draft and non-standardized and have very lax hand-in deadlines (Berliner & Prakash, 2015). Above all, under some circumstances, members are able to push these deadlines to up to four years instead of two (Berliner & Prakash, 2015). In essence, due to the inclusive approach of the UNGC, the requirements for membership are very low and almost any company can join. In addition, the cost of membership in terms of annual contributions, disclosure and compliance to the Principles and SDGs is low.

2.4 The Ten Principles and Sustainable Development Goals

The UNGC aims to help companies to do responsible and sustainable business by offering them guidance and support in adhering to the initiative's ten principles and the UN Sustainable Development Goals (SDGs). The ten principles, on the one hand, constitute imprecise targets rather than direct instructions and are divided into four categories: Human Rights, Labor, Environment, and Anti-Corruption. They were derived from four UN documents: "the Universal Declaration of Human Rights, the International Labor Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption" (United Nations, 2022k, p. 1). The 17 SDGs, on the other hand, are political objectives of the UN. They aim to advance economic, social, and ecological goals. Companies that want to advance and implement SDGs should broadly incorporate

them into their strategies and operations and understand that sustainable behavior in one area does not offset negative externalities in other areas (United Nations, 2022p). In summary, as a sustainability initiative, the UNGC solely aims to help companies become more responsible, ethical, and sustainable through its ten principles and the SDGs (United Nations, 2022c). Although membership can potentially have a positive impact on the workforce, trust in the corporate brand, and investor support (United Nations, 2022g), it does not target to have a direct positive impact on its members' operational or financial performance.

2.5 The UNGC Toolbox

To support member companies in implementing the ten principles and the SDGs, the UNGC offers its members engagement platforms, access to best practices and more than 200 tools and resources (United Nations, 2022a). An exemplary resource is the "Self Assessment Tool", which helps members assess their performance on the four areas of the UNGC Principles, diagnose and address weaknesses, and develop the annual COP (United Nations, 2022o). Members also receive discounted or exclusive access to UNGC events, where they can gain insight into sustainability best practices, receive input from expert networks, or form new sustainable collaborations through the Partnership Platforms. Companies may also use events and platforms to engage with sustainability directed and long-term investors.

Two main criticisms are raised in regard to the toolbox. First, it is easy for member companies to exhibit decoupling. Decoupling refers to making promising policy statements while simultaneously poorly implementing program or initiative guidelines, e.g., the UNGC principles (Graafland & Smid, 2019). Such behavior can occur within the UNGC because the existing COP requirements represent a lack of monitoring and oversight, as discussed in Section 2.3. Member companies may therefore feel insufficiently incentivized to align their internal practices and policies with the UNGC principles and SDGs (Berliner & Prakash, 2015). In addition, the UNGC's toolbox and resources are often seen as being rather basic and providing new input and support only to those companies that have historically sought little or no improvement in their ESG performance (Berliner & Prakash, 2015). Companies that already perform well on ESG dimensions before joining the initiative, may

find the UNGC toolbox redundant because they already have access to these or similar tools from other sources.

However, if members feel that the "basic" toolbox is insufficient, they can obtain a wider one by becoming active in one of the 80 nationally organized local networks. More than 2,000 UNGC members are currently active members in these networks. Local networks support members to take the specific national contexts and cultures of companies' home markets into consideration and at the same time effectively foster collaboration (Aravind & Arevalo, 2015). By providing further tools and resources such as seminars, workshops, and pieces of training on sustainability and reporting as well as action projects, partnerships, or additional exclusive networking events, their activities are specifically geared toward the needs of the local firms (United Nations, 2022d). In summary, membership in the UNGC gives companies access to a basic set of resources, which can be further expanded by joining a local network. The toolkit for "normal" UNGC members might help only those companies that have neglected ESG orientation in the past, whereas local networks seem to offer a more comprehensive toolkit for implementing the ten principles and the 17 SDGs.

3 Explanations of UNGC Effects on Member Companies

Researchers have not yet been able to conclusively explain how the UNGC can help a member company address sustainability issues and how this may translate into improved financial performance. Selected UNGC papers try to explain the initiative‘s effects on company performance through a variety of managerial theories. These theories include "institutional theory, (...) neo-institutional theory, stakeholder theory, resource-based view (RBV) theory, signal(ing; note from the authors) theory, slack resources theory, and legitimacy theory" (Orzes et al., 2018, p 636). However, the most commonly used theories to date, ST and RBV (Orzes et al., 2020) have substantive shortcomings in accurately explaining the effectiveness of UNGC. Therefore, in the following section, we first present general findings and weaknesses of UNGC research and then argue that ST and RBV are inadequate in explaining the impact of the UNGC on member firms. Consequently, we show that the novel natural resource-based theory (NRBT) can provide a conclusive explanation in this regard.

3.1 Performance Impacts and Research Gaps

Determining whether and to what extent the UNGC is a helpful initiative to improve sustainability performance is highly relevant for the decision-making of potential joiners. Despite this great relevance and even though the UNGC literature is quite extensive, the relationship between membership and a company's sustainability performance remains unclear. This is because, first, most research fails to explain membership effects with managerial theories. Second, many papers on the UNGC are conceptual (Orzes et al., 2018) and based on surveys and self-reported data, which might be subject to methodological biases (Aravind & Arevalo, 2015). Therefore, further research is needed to assess UNGC impacts via "systematically derived concepts and empirical indicators" (Margaretha Jastram & Klingenberg, 2018, p. 782). Lastly, additional research is needed to shed more light on the interplay between sustainability and financial performance improvement (Rodriguez-Fernandez, 2016). The only existing study by Ortas, Álvarez, & Garayar (2015) that investigates both, financial and sustainability performance, offers limited

insights, as only three countries were analyzed and the identification strategy did not go beyond correlation. Despite the aforementioned shortcomings, the current body of research generally identifies a positive relationship between membership and financial performance (Arevalo & Aravind, 2017; Cettindamar & Husoy, 2007; Ortas, Álvarez, & Garayar, 2015; Orzes et al., 2020). However, the picture of the ESG performance impact is unclear and needs further investigation. Some studies find a positive link (Margaretha Jastram & Klingenberg, 2018; Ortas, Álvarez, & Garayar, 2015), while others cannot establish a significant effect of UNGC membership on ESG performance (Berliner & Prakash, 2015; Hamann et al., 2009). Li & Di Wu (2020) find positive effects on ESG performance for private companies, and negative impact of UNGC membership on ESG performance for public companies. They argue that ownership structure, and in particular the conflict of interests between shareholders and stakeholders, moderates decoupling behavior. In addition, they suggest that the position in the value chain and proximity to the end consumer influence the way companies engage in the UNGC. While downstream companies such as retailers show an improved ESG performance, upstream companies such as material producers engage in decoupling behavior (Li & Di Wu, 2020).

3.2 Signaling Theory

Signaling theory is one main managerial theory used by scholars to explain the impacts of the UNGC. It is rooted in the works of Akerlof (1970) and Spence (1973) and fundamentally relates to the reduction of information asymmetries. Akerlof showed that if buyers find it difficult to assess the exact characteristics of a product, they are willing to pay less than if they could choose from a selection of high-quality products that are easy to assess. Buyers fear the risk of catching a “lemon”. Sending a costly signal is one possible measure to eliminate this information asymmetry. In his paper, Spence illustrated how highly qualified job seekers can use the costly signal of rigorous college education to distinguish themselves from inferior prospects, helping to reduce information asymmetries.

Consistent with these two papers and ST, membership in the UNGC could be interpreted as a costly signal to demonstrate a company’s willingness toward sustainable practices and sustainability orientation to customers, employees, and suppliers (Orzes et al., 2020) or shareholders (Janney et al., 2009). Following ST, Orzes et al. (2020) find UNGC

membership to increase sales growth and profitability. The authors explain the performance improvement by assessing UNGC membership as a credible signal to the sustainability-minded customer and by the development of a better image and reputation (Orzes et al., 2020). However, Orzes et al. (2020) do not investigate whether there is a stock market reaction associated with joining the UNGC, which would be necessary to determine whether a signal was emitted in the first place (see Flammer, 2021). Instead, they solely rely on a longitudinal event study, which assesses the long-term financial, but not stock market performance.

Entering the UNGC is certainly associated with costs, such as a yearly contribution and the required disclosure of a COP (United Nations, 2022g). But is the signal credible according to ST and can UNGC effects, therefore, be explained by this theory? For membership in the UNGC to serve as a credible signal, two conditions would have to be met. On the one hand, the companies that join the UNGC to signal their existing commitment to the UNGC principles ("high-type") would have to believe that the benefits of adopting the UNGC were greater than the costs they had to incur. On the other hand, those companies that do not commit to the principles ("low-type") would have to be convinced that it is not worth joining the UNGC because their benefits would not outweigh the associated costs. We argue that the costs of joining and being a member of the UNGC can be considered low. First, annual membership contributions can be as low as zero for smaller companies and only go up to $20 thousand dollars for companies with more than $5 billion dollars in annual revenues (United Nations, 2022g). Furthermore, the entry barriers for joining the UNGC are low as the UN hardly limits the profile of companies that may join, with only Tobacco companies being exempt from joining (Orzes et al., 2018). Additionally, the UNGC lacks enforcement mechanisms (Barros Kimbro & Cao, 2011), its COP disclosing requirements are very lenient and easy to implement (Berliner & Prakash, 2015) and independent monitoring does not exist (Branco & Delgado, 2012). Therefore, it can be argued that "low-types" may join the UNGC without having to send a costly and hence credible signal. Considering it is not possible to differentiate between credible and non-credible signals, we deem ST not suited to explain potential ESG performance improvements of UNGC membership.

Nevertheless, ST might be useful to explain decoupling effects, which are stated to be

among the UNGC's biggest weaknesses (Orzes et al., 2018). A credible signal is costly to imitate (Spence, 1973). A non-credible and therefore non-costly signal is easy to imitate and could be used for decoupling if membership in the UNGC is mainly used to communicate unsubstantiated or misleading claims about a company's sustainability status. Since the UNGC has the objective of improving the sustainability performance of its members, and membership is not costly, we argue that decoupling occurs when UNGC members see a reduction in their ESG performance after joining the initiative. According to the ST, member companies would be decoupling if they signaled a commitment towards sustainability, the UNGC principles, and the SDGs by joining the initiative without acting on those principles and SDGs in return.

3.3 Resource-Based View

According to the Resource-Based View (RBV), a company should succeed in creating valuable, rare, inimitable, and non-substitutable resources and capabilities to gain a sustainable competitive advantage (SCA) over its competitors in the market (Barney, 1991; Oliver, 1997). Capabilities are defined as a "special type of resource – specifically, an organizationally embedded nontransferable firm-specific resource whose purpose is to improve the productivity of the other resources possessed by the firm" (Makadok, 2001, p. 389). The RBV, therefore, argues that by cleverly combining and using the available resources and capabilities from within, a company can gain a competitive and economic advantage.

Within the UNGC literature Ayuso et al. (2016), Arevalo et al. (2013), and Arevalo & Aravind (2017) examine how the availability of firm-specific attributes, such as financial, physical, or human resources affect how efficiently a UNGC member can build up an SCA as part of the UNGC membership. Orzes et al. (2020) on the other hand use the RBV to argue that joining the UNGC leads to more effective competencies and routines, such as a forward-thinking leadership style, highly-committed employees, and deeper coordination within the organization as well as improved relations with suppliers and workers. They observe increased sales growth and increased profitability of UNGC members and explain this through an arising SCA.

The UNGC aims to be "a force for good" (Ki-moon, 2015, p. 1), and wants members

to adhere to its ten principles and SDGs (United Nations, 2022e). Following this sole sustainability focus, we argue that potential financial performance improvements as found by Arevalo & Aravind (2017); Cettindamar & Husoy (2007); Ortas, Álvarez, & Garayar (2015); Orzes et al. (2020), should therefore primarily arise from ESG performance improvements. However, the traditional RBV does not take the ecological and social boundaries of our planet into account (Hart, 1995). Hence, we argue it is not able to provide a direct link between financial performance and ESG performance and therefore is unsuited in its unadjusted form to explain the impact of the UNGC.

Nevertheless, just as with ST, which is also not able to explain potential ESG performance improvements due to a UNGC membership, the RBV offers an explanation of the phenomena of decoupling and greenwashing. UNGC membership provides companies with access to resources that could enable these organizations to develop reputation-enhancing internal practices or strategies that mislead stakeholders about sustainable practices, when in fact these practices and strategies are not focused on sustainability. Analogous to ST, we argue that under RBV, decoupling occurs when membership in the UNGC is used to communicate unsubstantiated or misleading claims about a company's sustainability status rather than acting in accordance with its ten principles and the SDGs. Decoupling is then visible when we observe a reduction in ESG performance of member companies after they have joined the initiative.

3.4 Natural Resource-Based Theory

The Natural Resource-Based Theory (NRBT) supplements the RBV by compensating for its weaknesses. This is because in contrast to the RBV, the NRBT establishes a direct link between ESG improvements and financial performance impacts. It thereby takes into account social and environmental boundaries as well as governance issues, which the RBV has ignored so far (Hart, 1995). Therefore, we argue that the NRBT is well-suited to explain performance impacts of UNGC membership. Nevertheless, to our knowledge it has not been used in the context of the UNGC. The NRBT was developed by Hart (1995) and Hart & Dowell (2011) to include the interaction between the activities of a corporation and its natural environment. In addition to the importance of resources, it introduces three main strategic capabilities: pollution prevention, product stewardship, and sustainable

development. All of these are built by having access to resources and are associated with specific SCAs. First, pollution prevention concerns avoiding waste and emissions, which can lead to lower costs. Second, product stewardship relates to a sustainable value chain, which leads to "strategic preemption" and advantageous product or production standards. Lastly, sustainable development relates to reaching an understanding of conducting business that "can be maintained indefinitely into the future" (Hart & Dowell, 2011, p 1466), resulting in long-term growth or commercialization of new or untouched customer segments.

Because the NRBT considers the interaction between a business and its natural environment, it might be well fitted to explain how a sustainability initiative such as the UNGC works and how it impacts its member companies. In this regard, we argue that the UNGC toolbox provides resource access, which member firms can use to build strategic capabilities. Exemplary capabilities may include the reduction of harmful emissions through programs that can be accessed through the UNGC, such as science-based targets (United Nations, 2022h). They could also include the identification and elimination of unsustainable weak spots in their value chain by using the UNGC poverty footprint tool (United Nations, 2022d). Last, members may align their companies towards long-term value creation by using the UNGC's network to exchange with sustainable and long-term investors (United Nations, 2022e). In general, according to the NRBT, UNGC membership should lead to "better management of ESG issues" of member companies. We use the term "better management of ESG issues" to summarize all three strategic capabilities proposed by the NRBT. According to the NRBT, improved management of ESG issues will be observable in an improved overall ESG performance. Furthermore, the improved management of ESG issues then creates an SCA, which can be observed in an improved financial performance.

Lastly, the NRBT can explain the potential decoupling behavior of member companies. If upon joining no improvement in ESG performance is observable, this can be due to either unsuitability of the resources provided or the company's unwillingness to leverage available resources to build strategic capabilities. These effects can be differentiated through the impact analysis of local network membership. Such membership is not associated with additional costs and thus does not require increased motivation but provides improved

access to resources.

Compared to the ST and the RBV, we argue that the NRBT is best suited to explain membership performance effects. By introducing three sustainable strategic capabilities, it manages to establish the missing link between financial and ESG performance, which the RBV lacks. Furthermore, the NRBT does not depend on member firms sending a credible, i.e. costly, signal upon joining, which is arguably lacking for the UNGC. Most importantly, by focusing on the emergence of strategic capabilities through resource access, the NRBT can explain the membership effects in a novel and unprecedented way. This makes it possible to explore two additional questions: Who benefits most from membership and how do companies improve their company performance due to UNGC membership?

4 Hypotheses Development

As shown, the NRBT offers a novel and promising framework to investigate how joining the UNGC affects the sustainability and financial performance of its member companies. Considering this management framework, we use this chapter to derive our hypotheses that guide the remaining thesis. First, we hypothesize that no stock market reaction is associated with companies joining the UNGC, to strengthen our argumentation that ST is unsuited in the context of the UNGC. Building upon this, our following hypotheses aim to answer what the performance effects of joining the UNGC are, whether they differ depending on company type, and if access to the UNGC toolbox is the channel through which company performance is affected.

4.1 Do Investors Perceive Joining the UNGC as a Credible Signal?

Following ST, companies could join the UNGC to signal their sustainability commitment toward investors. In order to test whether ST could explain potential performance improvements of companies joining the UNGC, we need to establish if investors receive a signal and react to it. Generally, scholars find that announcements of sustainable actions by companies are associated with positive abnormal stock market reactions (Flammer, 2021; Krüger, 2015; Klassen & McLaughlin, 1996). Those positive reactions imply that investors receive new information from the announcements, and assess these sustainable actions to be value-enhancing.

However, in the case of the UNGC, we argue that joining the UNGC does not reveal any new information to investors, and hence does not function as a signal. Functioning signals require that investors are able to differentiate between credible and non-credible signals. Analogously to Akerlof (1970), such differentiation necessitates that companies willing to commit to UNGC principles ("high-type") can afford to send this costly signal, whereas companies not willing to commit to UNGC principles ("low-type") expect higher costs or lower benefits and hence will not join. We argue, that due to low joining costs as well as missing enforcement mechanisms, joining the UNGC does not provide a costly signal. Thus, both "high-type" and "low-type" can join the UNGC as the signal is not costly

enough to deter "low-type" companies, rendering the signal irrelevant. In result, we expect that joining the UNGC does not reveal any new information about the sustainability commitment of a company. Consequently, we hypothesize that investors do not react to the announcement. Following our argumentation, we postulate:

H1: *Upon joining the UNGC, there is no significant stock-market reaction*

4.2 Does Joining Affect Company Performance?

According to the NRBT, UNGC members gain access to the UNGC toolbox, consisting of a variety of resources, such as engagement platforms and sustainability best practices. This access should enable UNGC members to acquire the previously introduced key strategic capabilities. These key strategic capabilities closely resemble the capabilities defined by Hart (1995); Hart & Dowell (2011), and we argue that they can be summarized as "successful management of ESG issues". Further, ownership of valuable strategic capabilities should lead to an SCA, which should manifest itself in improved financial performance. In short, if the UNGC is in general effective in promoting its ten principles and SDGs amongst its members, we expect that UNGC membership enables companies to build strategic sustainability capabilities, which we proxy by improved ESG performance. The capabilities then create an SCA, which we proxy by improved financial performance. H2 and H3 establish the average treatment effects of UNGC membership on ESG and financial performance, unconditional on company type or ability to make use of resources. Conditional effects are further explored in H4-H7. We therefore postulate the following two hypotheses:

H2: *Upon joining the UNGC, member companies improve ESG performance*

H3: *Upon joining the UNGC, member companies improve financial performance*

4.3 Does the Company Type Affect Performance Effects upon Joining?

For both, UNGC aspirants and the UNGC itself, it is of great importance to determine whether the impact of the UNGC is dependent on characteristics of the aspirant.

Companies could assess ex-ante whether and to what extent they might benefit from participation in the UNGC. The UNGC on the other hand could learn which company type currently benefits from the program and hence be able to tailor the design of the UNGC toolbox to needs of individual companies.

According to the NRBT, the more strategic capabilities a company possesses, the greater the SCA. As the UNGC provides access to resources, members should be able to build up strategic capabilities and hence develop an SCA. However, as the resources provided by the UNGC are limited and not equally relevant for each member, the benefit a particular member can derive from those resources is dependent on the company's characteristics. Such reasoning is in line with criticism voiced over the UNGC, namely that the UNGC toolbox is basic and only valuable to those companies that before joining the initiative have sought little or no improvement in their ESG performance. This raises the question, which type of company can make greater use of the resources provided and is in result more likely to build strategic capabilities and an SCA. Since the UNGC primarily targets sustainability improvements, we choose to differentiate companies by the prior to joining sustainability performance. We believe that the initial level of sustainability is a valid predictor of whether the UNGC provides helpful resources to companies. Thus, we divide UNGC aspirants into groups of companies that perform better or worse compared to their country-sector average.

In current research, it remains unclear, which company type is benefiting more from joining the UNGC. One could argue that companies with ex-ante high ESG performance have already proven to being capable in building sustainability directed strategic capabilities and hence are more likely to benefit from the resources provided by the UNGC. Low-ESG companies on the other hand might not be capable of converting access to UNGC resources into strategic capabilities. Nevertheless, we hypothesize that high-ESG companies are benefiting less from joining the UNGC. This is because the UNGC provides resources targeting "basic" improvements, which have likely already been achieved by high-ESG companies independent from a UNGC membership. As Hart (1995) points out, implementing "low hanging fruit" sustainability measures often leads to substantial ESG improvements, especially relative to related costs. An example for such basic but impactful improvements enabled by UNGC resources would be the introduced "Self-

Assessment Tool". Arguably, the tool is more valuable for companies just starting to improve sustainability performance, as it allows them to understand their most relevant shortcomings. Companies on the other hand, which have already spent considerable time and efforts in improving their ESG performance and are already aware of their strengths and weaknesses. Hence, they are unlikely to gain additional strategic capabilities from using the tool. Consequently, we argue, that companies with above-average ex-ante ESG performance benefit less from UNGC resources compared to below average ESG companies. Following H2 and H3, companies with an above-average ex-ante ESG performance should thus also be less likely to gain an SCA from joining the UNGC, as they build fewer additional strategic capabilities. In result, we hypothesize the following:

H4: *Upon joining the UNGC, ex-ante below average ESG performing member companies improve ESG performance stronger than ex-ante above-average ESG performing member companies*

H5: *Upon joining the UNGC, ex-ante below-average ESG performing member companies improve financial performance stronger than ex-ante above-average ESG performing member companies*

4.4 Why is Company Performance Affected upon Joining?

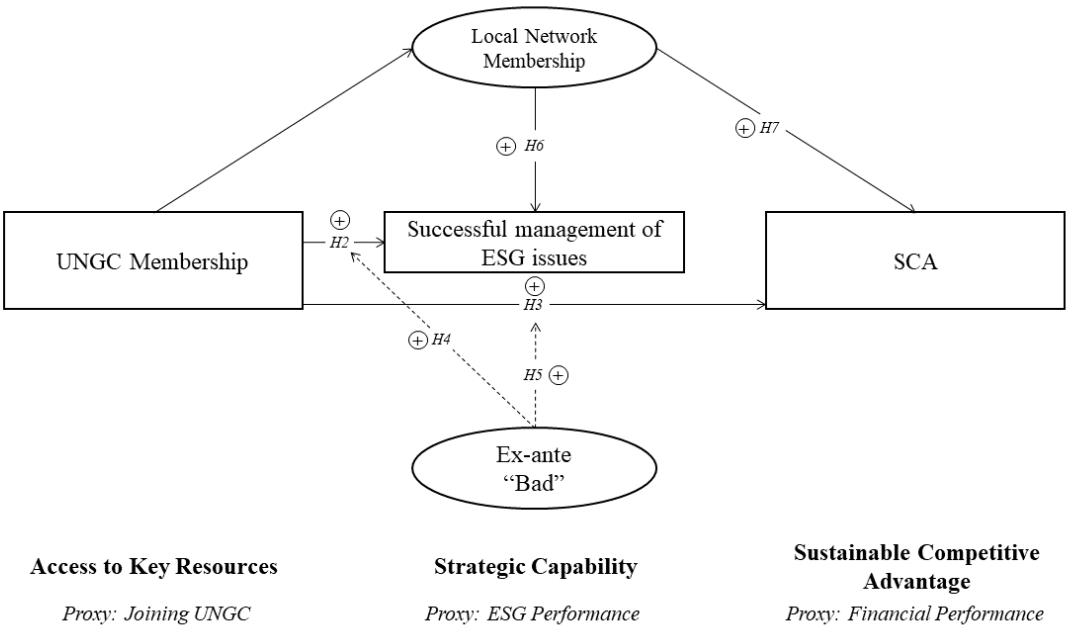
If companies understand how UNGC membership leads to sustainability improvements, joining companies can adjust their behavior to maximize their ESG and financial performance. We argue that the voluntary and non-costly decision of companies to additionally enter local UNGC networks represents such a change in behavior. The local networks allow companies to engage beyond the scope of the "general UNGC". In alignment with the NRBT this is because membership in a local network is associated with access to an enlarged toolbox, e.g., through additional seminars, workshops, and pieces of training on sustainability and reporting (United Nations, 2022b). The tools of the UNGC local networks are thereby more specifically geared toward the needs of the member companies and take national contexts and cultures of companies' home markets into consideration (Aravind & Arevalo, 2015). Moreover, as joining local UNGC networks is not associated

with additional costs of membership nor additional publicity and scrutiny, we argue that joining local networks produces no signal. As only the enlarged toolbox can hence explain potential effects on company performance, we are able to test if the NRBT holds and the access to resources is the channel through which company performance is improved. Based on these considerations we postulate that:

H6: *Upon joining the UNGC member companies improve ESG performance more when engaging in local UNGC networks*

H7: *Upon joining the UNGC member companies improve financial performance more when engaging in local UNGC networks*

Figure 4.1: The NRBT in Interplay with our Hypotheses 2-7



5 Data and Sample Construction

In this paper, we use UNGC member data, Compustat Global and North America Financial Fundamentals Data, RepRisk Issue & Index Data and Country Level Data. After describing the different data sources and respective selection motives, we explain the sample creation process.

5.1 UNGC Data

We obtained a dataset from UNGC containing among others the member organizations' names, their respective joining dates, and their general and local membership status. The most recent data entries are dated the first of February 2022. The dataset comprises 36,319 unique companies, NGOs, public sector organizations, business associations, and cities, of which 19,357 organizations are listed as active members of the initiative. Companies and SMEs thereby make up over 79% of all organizations, indicating a strong business focus of the UNGC. Of the more than active 19,000 UNGC members, 2,110 companies and 252 SMEs are publicly listed UNGC members.

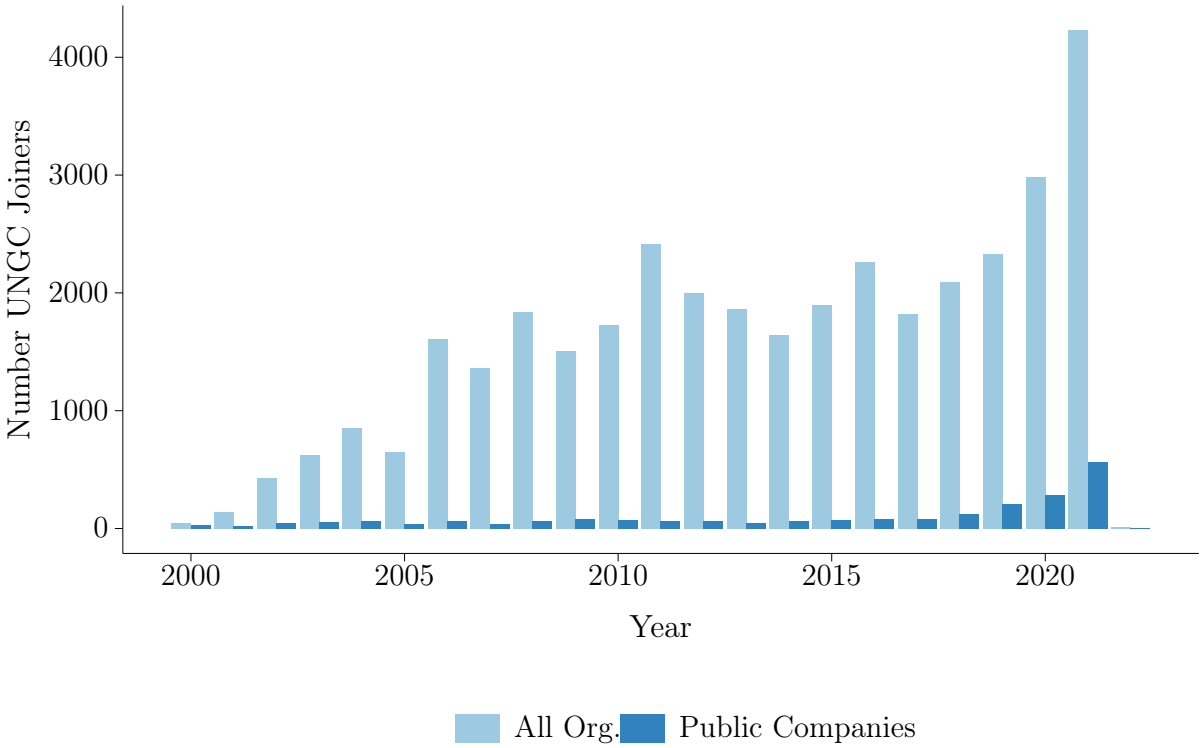
Figure 5.1 highlights the number of joining organizations and the number of joining public companies and SMEs which are still active members over time[1]. Especially the strong growth of joining organizations and companies from 2016 on is noteworthy, suggesting an increased interest of companies to be part of the UNGC.

5.2 Event Study Data

We used Compustat Global's International Event Study tool and Capital IQ's U.S. Daily Event Study tool to collect stock market data around the date UNGC members joined the initiative. The data collected includes the respective stock data and value-weighted market indices calculated by Compustat for individual countries (e.g., for the United Kingdom, Germany, or the United States). We were able to download stock data for 218 UNGC member companies. For 76 UNGC member companies, Compustat and Capital

[1]Generally, analysis of the data was performed using R v.4.1.3. Packages employed were ggplot2 v.3.3.2, tidyverse v.1.3.1, stargazer v.5.2.3 and plm v.2.6.1 (R Core Team, 2021; Wickham, 2016; Wickham et al., 2019; Hlavac, 2022; Croissant & Millo, 2008)

Figure 5.1: Joining Organizations and Public Active Companies over Time



IQ did not provide any stock market data and we hence did not include those companies. The time frame of downloaded data includes 300 days before and 40 days after the joining date for each of the 218 UNGC members. In total, we collected 71,651 observations, which amounts to an average of 329 observations per company.

5.3 ESG Data

ESG scores are frequently used by both scholars and practitioners to assess ESG and CSR performance (Hübel & Scholz, 2020). ESG scores quantify the environmental, social, and governance performance of a company, often relative to its peers. To this mean, a multitude of ESG data input factors get measured, assessed, and weighted to form a single ESG score (Hübel & Scholz, 2020). However, the validity of ESG-scores is questionable, mainly due to the scores' lack of convergence across different ESG score providers (Dorfleitner et al., 2015). Different scoring approaches and varying CSR definitions are the driving forces of the missing convergence of scores (Dorfleitner et al., 2015). As result, the findings of a study can be influenced by the choice of the ESG-score provider.

Due to the shortcomings of traditional ESG-scores, we select RepRisk as an ESG data provider. RepRisk does not provide ESG-scores but variables that indicate the number and severity of ESG-incidents associated with companies. Thus, RepRisk data is less subject to bias and subjectivity than the weighting and scoring mechanisms employed by ESG-score providers, yielding more robust proxies of the ESG-conduct of companies. RepRisk screens daily over 100,000 public sources for negative ESG incidents and subsequently links those incidents to companies. The screening is thereby conducted in 23 of the most common languages, and no exclusion criteria regarding size, public trading, country, or sector are in place for companies associated with risk incidents (RepRisk, 2022). As result, over 180,000 public and private companies have already been associated with ESG-risk incidents between 2007 and 2020.

5.3.1 RepRisk Issue Dataset

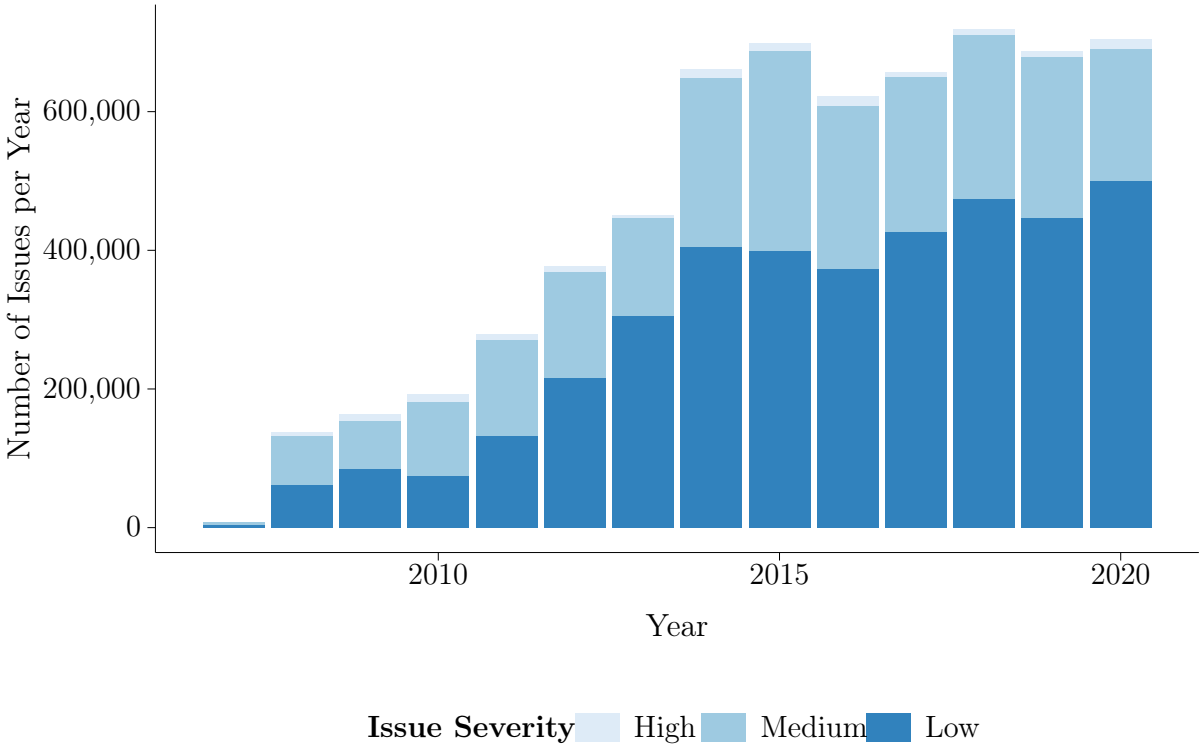
The RepRisk Issue dataset provides on a monthly basis between 2007 and 2020 the number, severity, and source of associations between a company and one of the 28 distinct RepRisk ESG issues (e.g., local pollution, child labor, or tax evasion) (FactSet Research Systems Inc, 2018). The issues are defined by RepRisk in a "broad, comprehensive, and mutually-exclusive" (RepRisk, 2022, p. 1) manner, structured along the environmental, social, and governance dimensions.

The issue dataset comprises 17,277 distinct public companies. It is structured in an annual panel format, meaning that only the companies that have been associated with an incident in the respective year are included for that year. Thus, for more than 7,000 companies only 12 months of data are present, while only 431 companies are featured throughout the whole period. As RepRisk's screening methodology is event or issue-driven instead of being company-driven (RepRisk, 2022), the missing observations for a specific company do not imply that that company was not included in RepRisk's screening process, but rather that no incidents could be associated with that company in the specific year. This allowed us to complete the panel by replacing missing observations with values equaling 0.

Generally, the number of issues per year grew strongly from 2007 until 2014. This growth is likely due to RepRisk updating its issue detection algorithms over time (RepRisk, 2022), instead of underlying growth in issues committed by companies. Since 2015, issues

per year have been relatively constant with around 650,000 (see Figure 5.2), indicating that the detection process probably improved more in the first years. On average, each company is associated with 40 issues per year. While 74.5% of the reported issues are of low severity in 2020, only 1.4% of the reported issues are of high severity. Severity is rated factoring in the consequences and extent of the incident's impact and the intention that led to the negative ESG event (RepRisk, 2022).

Figure 5.2: Total Number of RepRisk Issues per Year, Split after Severity



5.3.2 RepRisk Index Dataset

The RepRisk Index (RRI) dataset covers the period between 2007 and 2020 on a monthly basis. However, instead of providing absolute values of issues per month and company, the RepRisk Index ranges from 0 to 100, with 100 indicating an extremely high-risk exposure and 0 indicating very low-risk exposure (RepRisk, 2022). The index is calculated based on multiple parameters. Incident frequency, timing, severity, and novelty are key input factors for the index. Hence, the index provides further information compared to the issue count per company and month, as it also incorporates the relevant dimensions of severity and novelty. The RRI decays over time if no new risk exposure is detected. At most, it

takes 42 months without any incidents that the RRI returns to 0 for any given company.

5.4 Financial Data

We collect financial data from Compustat – Capital IQ, a product of S&P Global Market Intelligence as well as from Refinitiv Eikon. We access the Compustat Global Financial Fundamentals and the Compustat North America Financial Fundamentals datasets via WRDS. The datasets provide balance sheets, income statements, cash flows, and other company information data items on an annual basis. We obtain additional financial data of companies' market capitalization, book values of equity as well as total liabilities values from Refinitiv Eikon. As the Compustat datasets are initially separate, the files were combined and duplicates were deleted. In total, the combined dataset comprises 65,477 unique companies and 722,417 company-year observations. In a next step, we completed the dataset with the financial data from Refinitiv Eikon. To ensure comparability of financial data items, they were translated from local currency to EUR based on average annual exchange rates issued by the ECB.

5.5 Country-Level Data

At last, we collect country-level data on population and Gross Domestic Product per capita (GDPpc) from UNdata, an Internet search engine that retrieves and provides data from statistical databases of the United Nations (UNdata, 09.04.2022). We access data on countries' human development indices from the Human Development Report Office of the United Nations Development Programme (UNDP) (United Nations Development Programme, 10.04.2022). We add population, GDPpc, and HDI data to our dataset by matching these three variables to the values of companies' home markets.

The combined annual Compustat Global and Compustat North America Financial Fundamentals dataset from 2004 to 2021 represents our initial sample. Both datasets provide the default Compustat database company identifier called gvkey. After exclusion of duplicate observations in the Global and North America set as well as the exclusion of observations without available FX-rates, 64,747 unique companies, and 714,380 company-year observations remain (see Table 5.1 for our sample creation process). RepRisk lists ISINs, company names, and an internal RepRiskID as identifiers in the RepRisk Identifier

dataset. Since companies can have multiple financial instruments, multiple ISINs can be linked to one gvkey. To merge the RepRisk issue and index data with the created financial fundamentals dataset, gvkeys as unique company identifiers were added to the RepRisk identifier set. To do so, all gvkey ISIN combinations according to the Compustat fundamentals data were used to join RepRisk issue and RepRisk index data on the sample. In this process, 59,674 companies were excluded, as the RepRisk identifiers could not be matched to the financial data, either due to non-inclusion by RepRisk of those companies or matching issues due to e.g., wrongly recorded ISINs. Another 534 companies were excluded since they did not have any observations in the RepRisk issue dataset. 574 sample companies had to be excluded due to missing RepRisk index data. The merged financial and RepRisk dataset entails 180,875 company-year observations and 12,927 unique companies. As the financial fundamental dataset is on an annual basis, the RepRisk issue data had to be aggregated from monthly to annual. Following Berliner & Prakash (2015), companies that went bankrupt, were acquired, or went public during our sample period were not excluded, to avoid selection issues of deleting non-random, missing observations. This results however in an unbalanced panel. Subsequently, UNGC data was merged on the financial and RepRisk dataset. Because the UNGC data file does not include any company identifiers, gvkeys had to be added to the UNGC data. To this mean, the company names of UNGC members according to the UNGC file were matched to all distinct company names of the financial and RepRisk dataset. At last, companies that joined the UNGC before 2007 and after 2020 were excluded. In this period, no RepRisk data is available, making it impossible to measure the sustainability effect of joining UNGC for those companies. As result, our final sample of UNGC member companies consists of 294 companies and 4,830 company-year observations.

Table 5.1: Sample Selection and Creation

Step in Sample Creation	**Obs**	**Unique Companies**
Compustat Glob. and North America Fin. Fund. annual data '04 -'21	722,417	65,477
Exclude duplicate observations per gvkey-fyear combination	(8,047)	(730)
Compustat Financial Fundamental Data	**714,380**	**64,747**
Exclude observations without FX-rate	(8,686)	(38)
Compustat Financial Fundamentals Data	**705,694**	**64,709**
Matchable with RepRisk Identifier data	(510,584)	(50,674)
Matchable with RepRisk Issue data	(6,884)	(534)
Matchable with RepRisk Index data	(7,351)	(574)
Financial and RepRisk Data	**180,875**	**12,927**
Exclude UNGC companies which joined before 2007 or after 2020	(3,082)	(187)
Complete Sample	**177,793**	**12,740**
Thereof Non-UNGC companies	(172,963)	(12,446)
Complete UNGC Company Sample	**4,830**	**294**
Exclude not-matchable companies	(1,145)	(78)
Complete Matchable UNGC Company Sample	**3,685**	**216**

6 Methodology

In the following section, we derive our methodology that allows to identify a causal relationship between UNGC membership and company performance. First, we define our dependent variables to proxy ESG and financial performance, before introducing explanatory and control variables. Second, we detail our event study setup, which aims to determine whether a significant stock market reaction is associated with joining the UNGC. Third, to build a valid counterfactual, we explain the selected nearest neighbor matching. By including only control firms in our sample that are similar to UNGC participants in the observed covariates we reduce endogeneity, a major source of bias associated with the UNGC. At last, we detail various difference-in-differences specifications which aim to measure the UNGC-treatment effect (i.e., joining the UNGC). To this mean, we compare UNGC-joiners' ESG and financial performance impacts to the matched control companies.

6.1 Variable Selection

To test H1, we use stock market data from UNGC member companies provided by Compustat Global and Capital IQ. For H2-H7, we use two different dependent variables depending on whether we observe the impact of membership on ESG or financial performance. For the hypotheses examining ESG performance, we opt for RepRisk as an ESG data provider. By collecting information on negative ESG news coverage, RepRisk constitutes an objective data source avoiding many of the subjective weaknesses of conventional ESG scores. Despite RepRisk's long-term approach and data scope, it has been used only once in the UNGC literature (Li & Di Wu, 2020). For hypotheses examining the financial performance impacts, we use return on assets (ROA), a measure well established in the SCA literature (see for example Eriksen & Knudsen, 2003; Huang et al., 2015). This subsection explains the dependent and explanatory variables, which we use in H2-H7.

6.1.1 Dependent Variables

One of the dependent variables we analyze is ESG performance, which we measure using the RepRisk Risk Index (RRI), which can compensate for many of the shortcomings

of other ESG measures. Next to the RRI, RepRisk provides us with the number and severity of negative ESG incidents per company per year[2]. Ideally, ESG-performance would be approximated using negative and positive ESG incidents. However, since there is no comprehensive database entailing positive incidents, we resort to RepRisk's negative incidents, which other scholars argue to cover the management of ESG issues sufficiently well (Li & Di Wu, 2020). The use of RepRisk in academic papers is relatively new and many existing studies use the ESG incident count to determine ESG performance (Derrien et al., 2021; Li & Di Wu, 2020). However, this measure has shortcomings as it fails to take into account the frequency and timing of negative ESG incidents as well as their severity and novelty. In opting for the RRI, we therefore choose a metric that takes into account all the relevant criteria mentioned above in relation to negative ESG incidents (RepRisk, 2022). Especially the differentiation regarding severity provides a better reflection of ESG performance, as minor incidents have less impact on stakeholders than serious ones.

Return-on-assets (ROA) is a financial performance indicator widely accepted in the literature (Eriksen & Knudsen, 2003). Moreover, it has before been used as a measure for competitive advantage (Huang et al., 2015) and financial performance improvements through UNGC membership (Orzes et al., 2020). It describes a company's ability to generate net income (NI) relative to its average assets (TA). We argue that it serves as a good proxy for achievement of an SCA according to the NRBT.

$$ROA_{it} = \frac{NI_{it}}{(TA_{i(t-1)} + TA_{it})/2} \tag{6.1}$$

To examine the robustness of our results, we test our hypotheses using several additional ESG and financial performance dependent variables. As a further proxy for good management of ESG issues, we use company CO2 emissions[3] (see Flammer, 2021). Moreover, we test the robustness of our financial performance results using three supplementary financial performance measures; return on investment (ROI), revenue growth and Tobin's Q. The three measures cover the different components of SCA and are deeply rooted in the literature (see Bharadwaj, 2000; Zhu, 2004; Orzes et al., 2020).

[2]For a complete overview of our variables, their definition, measurement units and sources see Tables A0.5 and A0.6 in Section 11

[3]We retrieve data on a company's CO2 equivalent emissions from Refinitiv Eikon

6.1.2 Explanatory Variables

Depending on the hypothesis being tested, we select from two different explanatory dummy variables. To test the effect of UNGC membership on our dependent variables, we introduce a dummy variable $UNGC_{it}$, which is one for a year t in which company i is a UNGC member and zero otherwise. We introduce a dummy variable LN_{it} to test H6 and H7, which is one if company i is a member of a UNGC local network in year t and zero otherwise. The specification of explanatory variables is analogous to Flammer (2021).

6.2 Event Study

To investigate the stock market reaction to companies joining the UNGC and to test whether entering the UNGC is perceived as a credible signal by investors, we perform an event study. An event study analyzes the stock market reaction of an event around the announcement of the event. Event studies are firmly established in financial research (see Flammer, 2021; Binder, 1998). However, to the best of our knowledge, no event study has been conducted to determine whether joining the UNGC poses a credible signal to investors.

To conduct our event study, we would ideally use the announcement date as the event date, as this constitutes the date when the information of a company joining the initiative reaches the market (see for example Armitage, 1995). However, in the case of the UNGC, there is no official announcement mechanism from the United Nations. In addition, when we examined press releases and other forms of communication from UNGC member companies around their joining date, we could not find any announcements about their plans to join the initiative or whether they had already done so. Nevertheless, as the joining date is published on the UNGC website on the day of joining or one day after, we argue that this date can be understood as a reasonable announcement date. We, therefore, use the joining date (day 0) as a proxy for the announcement date. To derive our event window, we follow Krüger (2015) and Flammer (2021) and include the five days before a company joins the UNGC, thereby accounting for the possibility that information on UNGC joining may have reached the market in advance. We account for the possibility of a staggered response by including the five days after the joining date. In addition, a wider event window allows us to absorb the potential uncertainty associated with our proxied

announcement date. Consequently, our event window is [-5, 5]. To observe whether other return trends are exhibited around the announcement date, we also consider the time intervals [-20, -11] and [-10, -6] before and the time intervals [6, 20] and [21, 40] after the event window.

We use the market model to estimate the relationship between the return on stock i on day t and the market return (R_m), given by:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \tag{6.2}$$

with R_{mt} as the daily market return and ϵ_{i_t} as the residual. We estimate the counterfactual expected return ($\hat{R}_{it}$) of a firm i on day t using an estimation window of 200 days prior to the first event window, resulting in an estimation window of $[-220, -21]$:

$$\hat{R}_{it} = \hat{\alpha}_i + \hat{\beta}_i R_{mt} \tag{6.3}$$

The abnormal daily return (AR) for firm i and day event day t and the average abnormal return (AAR) for form i are defined as:

$$AR_{it} = R_{it} - \hat{R}_{it} \tag{6.4}$$

$$AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{it} \tag{6.5}$$

Based on the abnormal returns we calculate the cumulative abnormal returns (CAR) for firm i in the time interval $[T_1, T_2]$ as well as cumulative average abnormal return ($CAAR$):

$$CAR_i = \sum_{t=T_1}^{T_2} AR_{it} \tag{6.6}$$

$$CAAR = \frac{1}{N} \sum_{i=1}^{N} CAR_i \tag{6.7}$$

To test the robustness of the results of our event study specification in the event window $[-5, 5]$ as well as within the additional time intervals, we perform two significance tests. The cross-sectional test (CSect T) calculates a test statistic t_{CARR} using the number of

firms i, the $CAAR$ as well as standard deviation of the cumulative abnormal returns (S_{CARR}):

$$t_{CAAR} = \sqrt{N} \times \frac{CAAR}{S_{CAAR}} \tag{6.8}$$

As Brown & Warner (1985) have shown that this test is sensitive to event-induced volatility, we provide robustness to our results by performing a standardized cross-sectional test, also called BMP test. Boehmer et al. (1991) recommended the BMP test as it is robust against (additional) event-induced volatility. The test statistic is thereby given as:

$$z_{BMP} = \sqrt{N} \times \frac{\overline{SCAR}}{S_{\overline{SCAR}}} \tag{6.9}$$

In order to adjust the test statistics for serial correlation in the returns for each firm i and to calculate the forecast-error-corrected standard deviations, we perform the Mikkelson-and-Partch correction, using the market model specification (Mikkelson & Partch, 1988). Based on these results, $\overline{SCAR}$ is then defined as the averaged standardized cumulated abnormal returns across the N firms.

6.3 Nearest Neighbor Matching

One challenge that arises when examining the impact of the UNGC on members is that joining the UNGC is voluntary and non-random, introducing endogeneity bias. There are unobservable characteristics like a company's motivation to improve their sustainability performance, which determine the likelihood of UNGC membership and the outcome variables of interest. The research challenge is to control for these unobservable variables and thereby avoid endogeneity. We, therefore, create a plausible counterfactual that establishes how company performance of UNGC members would have evolved, if they had not joined the initiative.

To build this counterfactual we use nearest neighbor matching. We match each joining company with a control company based on firm and performance characteristics in the year prior to joining. For instance, if a company joins the UNGC in 2011, we consider data from 2010 relevant for the matching. We require two matching criteria to be met. Companies are matched from the same years and from the same industries. The first requirement ensures that time-dependent effects, such as economic expansions or recessions, affect

both treatment and counterfactual. The latter requirement is implemented by obliging matched pairs to have the same two-digit SIC code, as firms from similar industries are more likely to join at similar times (Berliner & Prakash, 2015).

Next, we use country- and firm-level characteristics from the year prior to joining as covariates for the matching procedure. A country's income, its propensity for CSR, the UN and UNGC, and the level of democracy, societal factors, and population size affect a company's likelihood to join the UNGC (Orzes et al., 2018). Ideally, we would match upon the exact same country. However, due to the global scope of our dataset, many companies from smaller countries could not be matched to suitable control firms given this restrictive condition. Nevertheless, to incorporate national characteristics, we include population size, gross domestic product per capita (GDPpc), and human development index (HDI) of a company's home market as covariates. Moreover, because size has a significant impact on ESG and financial performance (Li & Di Wu, 2020; Lo et al., 2014; Orzes et al., 2020), we also include assets, revenue, and number of employees as covariates. Next, we use the absolute value of the outcome variables as covariates in our matching model, i.e., ESG performance and return on assets. Lastly, we account for trends in our outcome variables by considering the change in ESG performance and ROA in the two-year window before joining the UNGC. Including the absolute values and trends of our pre-joining outcome variables guarantees that treated and control companies have close ESG and financial performance before joining the UNGC (see Flammer, 2021). Treated or control companies, which lack values for one of the covariates within the observed period are excluded. We opt for nearest neighbor matching without replacement since our control sample is sufficiently large and we are only interested in finding well-matched groups (Gu & Rosenbaum, 1993). Finally, we select the one nearest neighbor as the control company with the closest Mahalanobis distance to the treated firm (Flammer, 2021).

The matched sample consists of 216 UNGC member companies and 216 control companies. The member companies joined the initiative anytime between 2008 and 2020. We were not able to match 78 UNGC firms as they either lacked 1) a matchable company with sufficient data or 2) data for one or more matching covariates. Table 6.1 reports on the quality and balance of our matched sample, for each of the 10 matching covariates and 5 non-matched covariates. The set is split between treatment and control firms. As

Table 6.1: Balance of Matched Samples for Treatment and Control Firms One Year prior to Joining

	Variable Name	Mean		Median		Obs.	p-Value
		T	C	T	C		
Panel A: Matching Covariates							
1	lag.At	11,324.06	9,518.43	2,826.47	1,710.20	432	0.49
2	lag.Rev	5,947.98	5,314.20	2,264.48	1,435.86	432	0.52
3	lag.Emp	23.49	17.09	8.10	5.50	432	0.08*
4	lag.ROA	0.04	0.05	0.04	0.04	432	0.96
5	lag.RRI	11.45	10.15	4.00	0.00	432	0.32
6	lag.HDI	0.91	0.91	0.92	0.92	432	0.70
7	lag.Population	98.28	101.99	60.56	61.06	432	0.74
8	lag.GDPpc	49.16	48.13	48.67	48.37	432	0.54
9	trend.ROA	-0.01	-0.01	-0.00	-0.00	432	0.95
10	trend.RRI	1.41	2.54	0.00	0.00	432	0.27
Panel B: Other Covariates							
11	lag.CO2E_emissions	2.48	1.64	0.22	0.28	432	0.32
12	lag.TQ	2.30	2.13	1.42	1.35	432	0.67
13	lag.Count	7.07	6.83	0.00	0.00	432	0.90
14	lag.Rev.Growth	0.10	0.06	0.05	0.03	432	0.14
15	lag.ROI	0.07	0.06	0.07	0.07	432	0.45

Note: T = Treatment (Member UNGC), C = Control (No Member UNGC). All observations are from the 216 treatment and 216 control companies in the year prior to a treatment companies' joining of the UNGC. The p-Value is computed based on a t-test on differences on means. Variables 1-10 are matched upon. Variables 11-15 are relevant variables but not matched upon, instead, they are later used for robustness checks. Variables are defined in A0.5 & A0.6.

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

the p-values on differences in means are non-significant, ranging from 8% to 95%, our treatment and control groups are sufficiently similar in terms of matching characteristics, especially since they are within the same industry. We, therefore, proceed in using our control sample as a reliable counterfactual for the "treated" UNGC companies.

6.4 Difference-in-Differences

To investigate how sustainability and financial performance evolve after UNGC memberships, we estimate several variants of a difference-in-differences model of the treated and matched firms. Such models are widely accepted in the sustainable finance literature (see Flammer, 2021; Berliner & Prakash, 2015), as they allow to isolate the treatment effect. For all specifications we use ESG_{it} and $ROA_{i(t+1)}$, for company i in time

period t as outcome variables Y_{it}. We use the leaded ROA, as according to the NRBT, the SCA is built only after strategic capabilities have been formed. This means upon joining the UNGC, companies obtain access to the UNGC toolbox and may build capabilities within the first year, but the sustainable competitive advantage is only formed within the second year.

For the first and base-case difference-in-differences specification we estimate the following regression:

$$Y_{it} = \alpha + \gamma_1 \, POST_{it} + \gamma_2 \, UNGC_i + \delta_{dd} \, (UNGC_i \times POST_{it}) + \epsilon_{it} \tag{6.10}$$

Under this specification, we introduce two dummy variables. $POST_{it}$, represents those time periods, in which a company is a member of the UNGC or in which a control company's matched treated firm is a member. $UNGC_i$ is a dummy variable ("treatment dummy"), which turns 1 when company i is affiliated with the UNGC and 0 otherwise. In addition, we include an interaction variable $UNGC_i$ x $POST_{it}$, which equals 1 for observations in the treatment group in the periods after joining the initiative. γ_1 then captures the average change in outcome between the pre-treatment period and the post-treatment period, which is the same for both groups. γ_2 calculates the average difference in the dependent variable between the treatment and control groups that is the same across all time periods. δ_{dd} then captures the average differential change in the outcome variable between the periods before and after UNGC membership for the treatment group compared to the control group. α represents the intercept and ϵ the error term.

In the second specification of our difference-in-differences model, we add controls[4]. Theoretically, we would do this to account for possible bias due to omitted variables. However, since we performed nearest neighbor matching to identify control firms, we have already identified firms that are similar based on covariates congruent to the control variables. Therefore, we include the matching covariates as controls in this specification to verify that our estimations are not significantly biased (Flammer, 2021).

$$Y_{it} = \alpha + \gamma_1 \, POST_{it} + \gamma_2 \, UNGC_i + \delta_{dd} \, (UNGC_i \times POST_{it}) + \gamma_3 \, Controls_{it} + \epsilon_{it} \tag{6.11}$$

[4]We include a company's assets, revenues, employees as well as industry (two-digit-SIC) and country as controls for the difference-in-differences specifications 2, 3 and 4.

In our third specification we include firm and time fixed effects:

$$Y_{it} = \alpha_i + \lambda_t + \beta \text{ UNGC}_{it} + \gamma_3 \, Controls_{it} + \epsilon_{it} \tag{6.12}$$

Noteworthy, $UNGC_{it}$ in equation 6.12 is analogously defined to the interaction variable $UNGC_i \times POST_{it}$ in equation 6.11. Firm fixed effects, α_i, ensure that firm-specific unobservable characteristics such as initial willingness to join the initiative do not distort the estimates of the model (Berliner & Prakash, 2015). Time fixed effects, λ_t, eliminate bias due to unobservable variables that change over time but are constant across firms, such as general changes in boardroom attitudes toward corporate responsibility or sustainability. The difference-in-difference of the dependent variable ESG_{it} or $ROA_{i(t+1)}$ between UNGC member firms and control firms is estimated in the coefficient of interest, β.

Our last specifications are adaptions of equations 6.11 and 6.12, which are supplemented by our mediator dummy "local network membership" (LN):

$$\begin{aligned} Y_{it} = \; & \alpha + \gamma_1 \, LN_i + \gamma_2 \, POST_{LNit} + \delta_{LNdd} \, (LN_i \times POST_{LNit}) + \\ & \gamma_3 \, UNGC_i + \gamma_4 \, POST_{it} + \delta_{dd} \, (UNGC_i \times POST_{it}) + \epsilon_{it} \end{aligned} \tag{6.13}$$

$$Y_{it} = \alpha_i + \lambda_t + \beta_1 \, LN_{it} + \beta_2 \text{ UNGC}_{it} + \gamma_3 \, Controls_{it} + \epsilon_{it} \tag{6.14}$$

The dummy variable LN_i of equation 6.13 turns 1 for all UNGC member companies, which are also local network members. $POST_{LNit}$, stands for those periods, in which a company or a control company's matched treated firm is a local network member. The interaction variable $LN_i \times POST_{it}$, equals 1 for observations of local network members in the periods after joining the local network. The coefficient δ_{LNdd} shows the average differential change in the outcome variable before and after membership in the local network for those members compared UNGC but non-local-network members. LN_{it} of equation 6.14 is defined analogously $UNGC_{it}$ in equation 6.12, turning 1 for the time periods t in which company i is a local network member. The coefficient of interest β_1 of equation 6.14 then captures the average differential change in the outcome variable between the periods before and after local network membership for the local network member group compared to UNGC but non-local-network members.

The difference-in-differences method assumes that the trends between the treatment and

control groups develop in parallel (Angrist & Pischke, 2009). To ensure that our setup meets the parallel trend requirement, we use nearest neighbor matching. We run several tests to investigate whether the parallel trend assumption of our research design actually holds. First, table 6.1 shows that of the covariates we used for nearest neighbor matching, only the lagged number of workers is significant at the 10% level. However, since we include this covariate as a control variable in the 6.11 - 6.13 specifications, we account for this slight bias. In addition, to ensure that the common trend assumption holds, we perform a visual inspection of the means of our dependent variables in the pre-joining time window in Section 7.1. This allows us to analyze whether treatment and control firms have similar trends in RRI and leaded ROA, respectively. Lastly, following Autor (2003), we perform a common trend analysis test in Section 7.2. For all specifications of our difference-in-differences setup, we adjust standard errors to control for heteroscedasticity by clustering observations by time following the White method (White, 1980).

7 Results

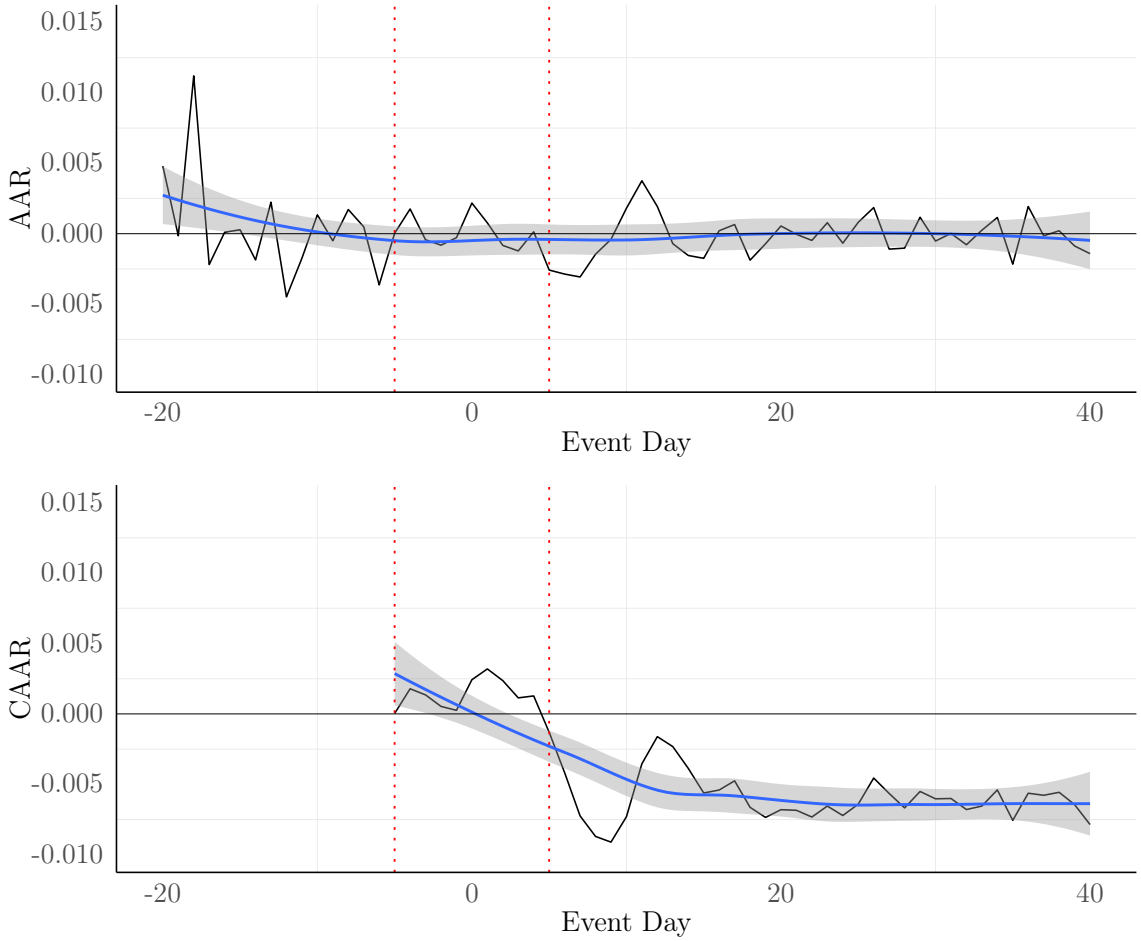
In this section, we outline the results of H1-H7. First, we provide evidence that joining the UNGC leads to no significant stock market reaction. Further, we show that the average treatment effect of UNGC adoption negatively impacts ESG performance but has no significant effect on financial performance. Dividing our sample into distinct subgroups, we show that the general results hold true for "Good ESG" companies, but "Bad ESG" companies on the other hand remain unaffected by joining the UNGC. At last, we provide evidence that local network membership, associated with more resource access, positively mediates ESG performance.

7.1 Hypothesis 1

In H1, we argue that joining the UNGC does not lead to a stock market reaction, as no costly signal is present. To test whether ST might provide an explanation for potential performance effects upon joining the UNGC, we conduct an event study analysis.

The average abnormal returns (AAR) and the cumulative average abnormal returns ($CAAR$) of the event study are depicted in Figure 7.1. One can infer from the plots that around the event date, no particular spike in $AARs$ is observable. This holds true during the whole event window. Moreover, one can see that no trend for $CAARs$ is observable during the event window, and only a slight negative trend develops in the days following the event (t $>$ 5). All $CAARs$ stay within the range of -1% and 0.25% during the observation period. Overall, the visual inspection of $AARs$ and $CAARs$ hints that no significant stock market reaction is associated with a company's announcement to join the UNGC.

Figure 7.1: AAR and CAAR over the Observation Period



Note: The upper graph represents the average abnormal returns (AAR) over an observation period between [-20,+40]. The lower graph depicts the cumulative average abnormal returns (CAAR) over an observation period between [-5,+40]. The event window is within the two red dotted lines [-5,+5]. The blue line is a locally smoothed function of the AAR and CAAR respectively.

Moreover, the results of the significance tests for varying event windows are reported in Table 7.1. We split the general observation period between [-20,+40] into several intervals. We find that the $CAAR$ (-0.22%) during the event window [-5,5] is non-significant for the cross-sectional test (CSect test), with a p-value of 0.75. We provide robustness to this result, by employing the BMP test, which is robust against additional event induced volatility and adjusts for serial correlation in the returns. Again, we find that the $CAAR$ over the event window is non-significant. Furthermore, none of the preceding or subsequent intervals are significant, indicating that no other trends around the event date took place, such as prior information leakage or staggered market response. In result, we accept H1, as investors do not react to companies joining the UNGC.

Table 7.1: Stock Market Reaction to the Announcement of Companies Joining the UNGC

	Event Window	CAAR	CSect p-value	BMP p-value
1	[-20,-11]	0.0079	0.42	0.52
2	[-10, -6]	-0.0007	0.85	0.85
3	[-5, +5]	-0.0022	0.75	0.53
4	[6, +20]	-0.0057	0.32	0.32
5	[21,+40]	-0.0014	0.85	0.80

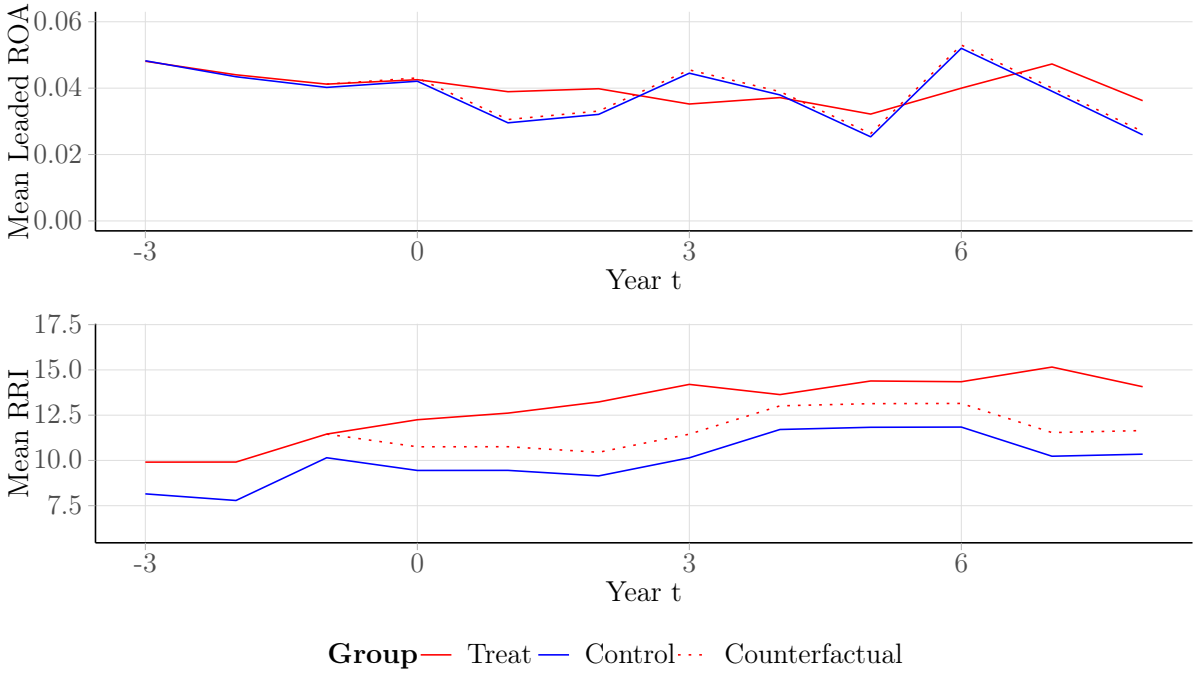
Note: "CSect p-value" is the p-value calculated based on a cross-sectional test. "BMP p-value" is the p-value calculated based on the standardized cross-sectional test, also called BMP test. The BMP test is robust toward additional event-induced variance and corrects for serial correlation of returns for individual firms.

7.2 Hypotheses 2 & 3

In H2 and H3 we stipulate that, according to the NRBT, membership in the UNGC should lead to improved ESG performance by building strategic sustainability capabilities, which in turn should translate into an SCA measurable in improved financial performance. To test the average treatment effects of joining the UNGC on RRI_{it} and ROA_{it}, we run several specifications of a difference-in-differences regression on our sample of matched control and treatment firms.

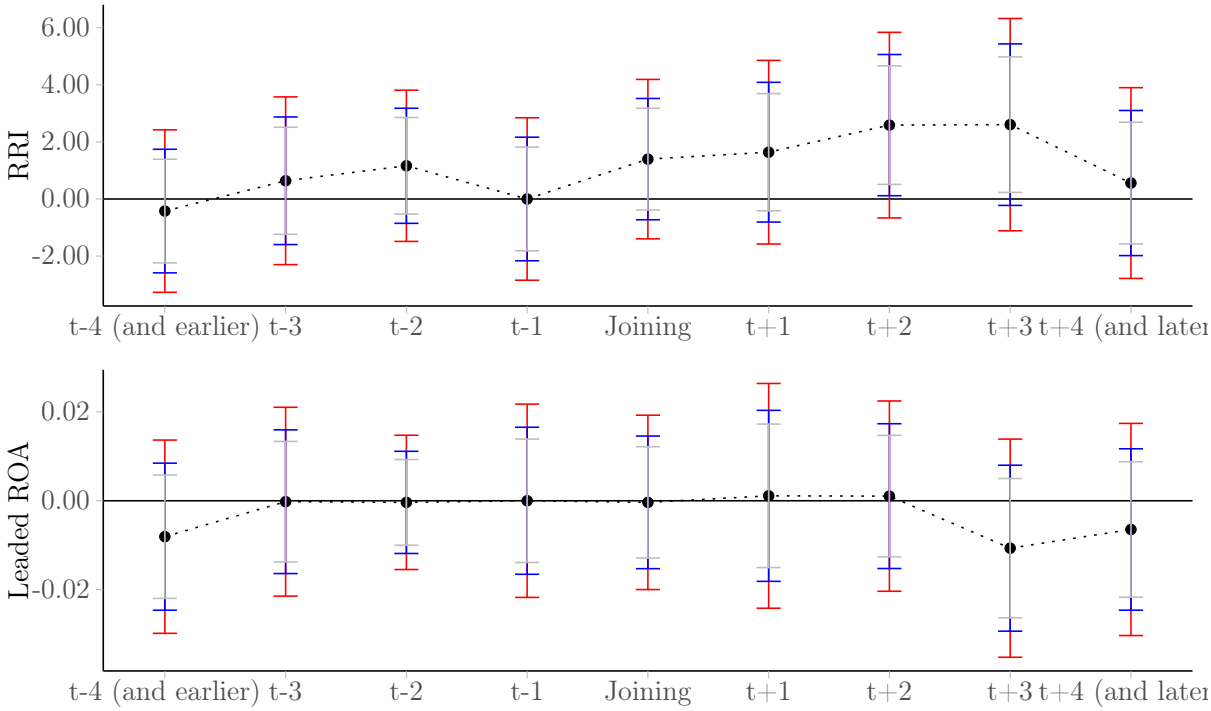
As it is critical in a difference-in-differences setup that the common trend assumption holds, we first conduct a visual inspection of the average values of our dependent variables in Figure 7.2. One can infer, that in the periods prior to joining UNGC [-3,-1], control group and treatment group exhibit similar trends in RRI and leaded ROA respectively. Only after joining [0,+7], those common trends disappear. Furthermore, we conduct a common trend analysis test following Autor (2003). The test interacts time dummy variables (here: from $t \leq -4$ to $t \geq +4$) with the difference-in-differences estimator (POST $\times$ UNGC). This specification allows to test, whether the difference-in-differences between treatment and control groups are significantly different, especially in pre-treatment periods. Thereby,

Figure 7.2: Means of Treatment, Control and Counterfactual Group



we omit the last lead period dummy (here: t= -1), such that it serves as baseline for the estimation of the other coefficients. In congruence with the visual inspection, we find that the difference-in-differences coefficients are not significantly different between treatment and control groups in the pre-treatment periods (see Figure 7.3). This holds true for both RRI and leaded ROA even at a 10% level. In summary, the visual inspection and the test following Autor (2003) provide confidence that the common trend assumption holds and hence that we can rely results of our difference-in-differences setup.

Figure 7.3: Common Trend Analysis Following Autor (2003)



Note: The graphs plot RRI and Leaded ROA coefficient estimates for our entity-time fixed-effects model. Instead of using a single POST × UNGC dummy, the dummy is split up for each year before and after the joining year (t =0). To give an example, for t=-2, the interaction variable is 1 for treatment companies in the year t=-2, but 0 in all other periods. The t=-1 interaction dummy variable is omitted, such the last pre-treatment period serves as baseline estimate for all other coefficients. Error bars depict the deviation of 1.64 (grey), 1.96 (blue) and 2.58 (red) times the clustered standard errors, thereby indicating whether the coefficient of the respective period is significant at a 10% level, 5% level or 1% level.

Table 7.2 reports the results regarding H2. Our base case specification (1) estimates that prior to treatment, UNGC companies have a higher RRI which is equivalent to a worse ESG-performance. However, this effect is only significant at a 10% level and disappears when introducing controls in specification (2). Furthermore, we observe that for both, control and UNGC companies, the RRI significantly increases after companies join, meaning that the ESG-performance deteriorates over time. Most importantly, we find that the difference-in-differences estimators are positive for all employed specifications (1-5). The effect ranges between 1.27 and 4.68 RRI points respectively, which is equivalent to an increase of 10-40% in RRI relative to the treatment groups average. The significant coefficients indicate that the ESG-performance of UNGC member companies deteriorates

Table 7.2: Effects of UNGC Membership on ESG Performance

	Dependent variable:				
	RRI				
	(1)	(2)	(3)	(4)	(5)
POST × UNGC	2.436***	3.091***	3.016***	4.681***	1.272**
	t = 3.573	t = 5.413	t = 4.432	t = 9.957	t = 2.299
POST	2.815***	1.686***			
	t = 5.811	t = 4.151			
UNGC	0.763*	0.090			
	t = 1.825	t = 0.236			
Controls	No	Yes	Yes	Yes	Yes
Time-Fixed effects	No	No	Yes	No	Yes
Company-Fixed effects	No	No	No	Yes	Yes
Observations	5,730	5,253	5,253	5,253	5,253

Note: Standard errors of (1)-(2) are adjusted for heteroskedasticity and standard errors for (3)-(5) are adjusted for heteroskedasticity and autocorrelation.

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

stronger following their joining compared to control companies. Even though this effect decreases when introducing time and company fixed effects, it remains significant at a 5% level. In other words, we find that UNGC membership has a significant negative impact on ESG-performance. This is contrary to what we postulated in H2, which leads us to reject H2.

Table 7.3 reports the results regarding H3. We find that prior to joining, UNGC members have a 0.7pp lower leaded ROA compared to non-members. Also, we find that post-joining, ROAs decreased significantly for both UNGC members and the control group. Interestingly, while our specifications without fixed effects generally find a positive impact of UNGC membership on ROA (approximately 1.0pp higher), this effect disappears when introducing fixed effects (see column (5)). Apparently, controlling for unobservable characteristics which are either constant over time but varying across firms or constant across firms but varying over time eliminate bias of specifications (1)-(2). In result, we find that UNGC membership has no effect on financial performance and we thus reject H3.

Table 7.3: Effects of UNGC Membership on Financial Performance

	Dependent variable:				
	leaded ROA				
	(1)	(2)	(3)	(4)	(5)
POST × UNGC	0.010**	0.009*	−0.001	−0.009**	−0.005
	t = 2.152	t = 1.943	t = −0.222	t = −2.289	t = −1.147
POST	−0.013***	−0.013***			
	t = −4.021	t = −3.803			
UNGC	−0.007**	−0.007*			
	t = −2.065	t = −1.885			
Controls	No	Yes	Yes	Yes	Yes
Time-Fixed effects	No	No	Yes	No	Yes
Company-Fixed effects	No	No	No	Yes	Yes
Observations	5,545	5,124	5,124	5,124	5,124

Note: Standard errors of (1)-(2) are adjusted for heteroskedasticity and standard errors for (3)-(5) are adjusted for heteroskedasticity and autocorrelation.

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

To provide robustness to our results, we employed the same difference-in-differences analysis with varying dependent variables. The results are reported in the Appendix (see A0.1 & A0.2). We show that our results on financial performance are robust to changes in the dependent variable. Economically, ROA, ROI, Revenue Growth and Tobin's Q are negatively affected by UNGC membership. However, none of the effects are statistically significant. Comparing ROA and Tobin's-Q, one can argue that ROA proxies rather short-term financial performance, while Tobins Q provides insights about long-term financial performance. This is because Tobin's-Q incorporates market values of equity and liabilities, which are influenced by future financial performance (Rajeev Singhal et al., 2016). As both ROA and Tobin's-Q are non-significant, we argue that UNGC membership impacts neither short nor long-term financial performance. As for ESG-performance, our robustness checks indicate that UNGC membership has no statistical significant effect on the number of ESG incidents or absolute and relative CO2 equivalent emissions. The difference between RRI and Count likely stems from the fact that the RRI incorporates additional factors such as severity of negative ESG incidents. Apparently, the severity of incidents increased following UNGC membership, but not the amount of issues. Moreover, we believe that the missing effect of UNGC membership on CO2 equivalent emissions

is due the UNGC's focus on the social and governance dimensions, as opposed to the environmental dimension. In short, we find ESG-performance is only negatively affected by UNGC membership if proxied by the more complex and comprehensive RRI.

7.3 Hypotheses 4 & 5

Table 7.4: Effects of ex-ante ESG Performance on ESG Performance

	Dependent variable:					
	RRI					
	Good	Bad	Good	Bad	Good	Bad
	(1)	(2)	(3)	(4)	(5)	(6)
POST × UNGC	2.885***	1.103	3.923***	0.952	1.884***	−1.619
	t = 4.085	t = 0.589	t = 6.456	t = 0.687	t = 3.203	t = −1.147
POST	2.639***	3.925***	0.889**	2.984***		
	t = 5.108	t = 3.083	t = 2.038	t = 2.956		
UNGC	−0.242	4.950***	−0.823**	3.570***		
	t = −0.567	t = 4.268	t = −2.091	t = 3.804		
Controls	No	No	Yes	Yes	Yes	Yes
Time-Fixed effects	No	No	No	No	Yes	Yes
Company-Fixed effects	No	No	No	No	Yes	Yes
Observations	4,703	1,027	4,266	987	4,266	987

The dataset is divided into two distinct subgroups, "Good" and "Bad". "Good" is defined as a company whose RRI is better than or equal to the country sector average one year prior to joining. "Bad" is defined as a company whose RRI one year before joining is worse than the country sector average. Note: Standard errors of (1)-(4) are adjusted for heteroskedasticity and standard errors for (5)-(6) are adjusted for heteroskedasticity and autocorrelation.

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

Since our results on H2 and H3 show that joining the UNGC has a negative effect on ESG performance and no effect on the financial performance of the average UNGC member, in this section we investigate whether the same is true for UNGC subgroups. Therefore, in H4 and H5, we stipulate that due to the "basic" nature of the resources provided by the UNGC, under-performing ESG companies can benefit more from the UNGC ex-ante than above-average ESG companies. To test H4 and H5, we divide the dataset into two groups, "Good ESG" and "Bad ESG". To identify the two different groups, we test whether companies perform better or worse on the ESG outcome variable, compared to the average of their country sector in the year before they joined the UNGC. Companies that perform worse are referred to as "Bad ESG", while those that perform better or

Table 7.5: Effects of ex-ante ESG Performance on Financial Performance

	Dependent variable:					
	Leaded ROA					
	Good	Bad	Good	Bad	Good	Bad
	(1)	(2)	(3)	(4)	(5)	(6)
POST × UNGC	0.008	0.023**	0.007	0.020**	−0.008	0.007
	t = 1.453	t = 2.324	t = 1.339	t = 2.086	t = −1.492	t = 0.714
POST	−0.011***	−0.027***	−0.010**	−0.024***		
	t = −2.839	t = −3.719	t = −2.490	t = −3.320		
UNGC	−0.008**	0.0004	−0.010**	0.001		
	t = −2.270	t = 0.057	t = −2.269	t = 0.223		
Controls	No	No	Yes	Yes	Yes	Yes
Time-Fixed effects	No	No	No	No	Yes	Yes
Company-Fixed effects	No	No	No	No	Yes	Yes
Observations	4,538	1,007	4,153	971	4,153	971

Note: Standard errors of (1)-(4) are adjusted for heteroskedasticity and standard errors for (5)-(6) are adjusted for heteroskedasticity and autocorrelation.

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

the same are referred to as “Good ESG”. Descriptive statistics for both groups can be found in Appendix A0.4. To isolate the effect of ex-ante ESG performance on company performance, differences in size, country and industry are controlled for.

Inconsistent with H4, “Bad ESG” companies are not positively affected. However, it is important to point out that the performance in the outcome variable of “Bad ESG” companies improves economically (to -1.619 RRI) only when we include fixed effects (see specification (6) of Table 7.4). For “Good ESG” companies, we find that UNGC membership has a negative impact on ESG performance. Upon joining, this subgroup’s RRI increases by 1.884 points, which is equivalent to an increase of 23.7% to pre-joining levels.

As we have shown in Section 7.2 that the common trends assumption holds, we argue that the significantly different levels of RRI prior to joining of "Good" vs. "Bad" firms do not bias our estimates. Also, these results highlight that neither subgroup improves their ESG performance. Both exhibit, like their control groups, a negative ESG performance trend over time.

As for financial performance impacts, inconsistent with H5, UNGC membership affects neither “Bad ESG” nor “Good ESG” companies. A significant positive effect for “Bad

ESG" companies (between 2.0 & 2.3pp ROA in (2) & (4)) disappears when introducing fixed effects. Combining the findings of H4 and H5, we find that that joining the UNGC negatively impacts "Good ESG" companies' ESG performance, but this does not translate into a worsening financial performance. Moreover, "Bad ESG" companies remain unaffected by joining the UNGC for both, ESG and financial performance.

7.4 Hypotheses 6 & 7

We hypothesized in H6 and H7 that a firm's performance is positively affected when it has access to more appropriate resources. To test whether access to resources is the channel through which firm performance is improved, we make use of UNGC's local networks. These networks offer a larger, but also more country-specific toolbox compared to the general UNGC. More importantly, membership in local networks is neither costly nor requires increased effort, so signaling effects or increased motivation can be disregarded as alternative channels for improved company performance. Consequently, membership in local networks should have an impact solely on access to valuable resources, allowing us to test the feasibility of NRBT in the UNGC context.

Table 7.6 reports the results for H6 & H7. We find in specification (3) that while UNGC membership positively impacts the RepRiskIndex (+1.601 RRI), local networks membership as mediator reverses this effect (-1.904 RRI). We therefore accept H6, as the coefficient is significant at the 10% level. It is important to note that since all local network members are also UNGC members, we have to add the respective coefficients to derive estimates relative to control companies. Hence, combining both coefficients, local network membership improves ESG performance (-0.303 RRI), compared to their control companies. Analysing (1) and (2), we see that prior to joining local networks, companies exhibit a 2.4 points lower RRI compared to UNGC non-local network members. This indicates that better ESG performing companies join local networks. Further, the positive coefficients for $POST_{LN}$ highlight, that LN control companies deteriorate even stronger in ESG performance over time, compared to their non-LN member counterparts.

For ROA, none of our difference-in-differences estimators of local network effects is significant (see specifications (4)-(6)). Thus, we reject H7, since local networks do not have a significant impact on financial performance. In summary, as local network membership

positively mediates the ESG performance, we show that the additional membership in local networks constitutes a channel through which a member firm can positively impact ESG performance, but not financial performance.

Table 7.6: Local Network Effects on Company Performance

	Dependent variable:					
	RRI			Leaded ROA		
	(1)	(2)	(3)	(4)	(5)	(6)
$POST_{LN}\times$ LN	−0.166	−1.388	−1.904*	0.009	0.009	0.003
	t = −0.118	t = −1.195	t = −1.726	t = 1.059	t = 0.968	t = 0.254
LN	−2.390**	0.519		0.005	0.006	
	t = −2.302	t = 0.565		t = 0.660	t = 0.856	
$POST_{LN}$	1.755**	1.198*		−0.003	−0.005	
	t = 2.137	t = 1.900		t = −0.554	t = −1.012	
POST × UNGC	3.010***	3.396***	1.601***	0.006	0.005	−0.006
	t = 3.999	t = 5.382	t = 2.708	t = 1.206	t = 1.005	t = −1.125
UNGC	0.934**	0.054		−0.007**	−0.007**	
	t = 2.196	t = 0.138		t = −2.120	t = −1.998	
POST	2.361***	1.372***		−0.013***	−0.012***	
	t = 4.624	t = 3.133		t = −3.448	t = −3.025	
Controls	No	Yes	Yes	No	Yes	Yes
Time-Fixed effects	No	No	Yes	No	No	Yes
Company-Fixed effects	No	No	Yes	No	No	Yes
Observations	5,730	5,253	5,253	5,545	5,124	5,124

Note: Standard errors of (1)-(2) and (4)-(5) are adjusted for heteroskedasticity and standard errors for (3) and (6) are adjusted for heteroskedasticity and autocorrelation.

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

8 Endogeneity Concerns: 2SLS

Our difference-in-differences model may not account for all selection bias, which is introduced through companies voluntarily joining the UNGC and hence self-selecting treatment. Even though we showed in section 7.2 that the common trend assumption holds in the periods prior to joining, we employ an instrumental variable approach to being able to relax this assumption and thus provide robustness to our result. To this mean, we make use of two instruments which affect a company's likelihood to join the UNGC, but not the outcome variables. We show, analogously to our difference-in-differences setup, that membership in the UNGC has a negative effect on ESG performance, but no effect on financial performance.

We employ an instrumental variable (IV) design to isolate that part of our treatment variable $UNGC_{it}$, which is uncorrelated with the error term μ_{it} of the following equation:

$$Y_{it} = \beta_0 + \beta_1 \text{ UNGC}_{it} + controls + \mu_{it} \tag{8.1}$$

IVs are considered to be best suited to address endogeneity concerns in settings where companies can self select their treatment (Flammer, 2021). This is because unlike nearest-neighbor and propensity score matching, IVs do not require a plausible counterfactual and hence do not hinge upon the common trend assumption (Angrist & Pischke, 2009). Formally, we use a two-stage least squares estimator (2SLS). In the first stage, we divide the treatment variable into two components. The first part consists of π_1, our instrument Z and the controls, which are not correlated with the regression error in μ of Equation 8.1. The second part u of our first stage, however, may be correlated with that error. Thus, we regress in the second stage the outcome variable (RRI or ROA) on stage one's predicted treatment, thereby omitting the component of our treatment variable that is correlated with the error term μ of Equation 8.1.

$$Stage\ 1\text{: } UNGC_{it} = \pi_0 + +\pi_1 Z_{it} + controls + u_{it} \tag{8.2}$$

$$Stage\ 2\text{: } Y_{it} = \widehat{\beta}_0^{2SLS} + \widehat{\beta}_1^{2SLS}\widehat{UNGC} + controls + v_{it} \tag{8.3}$$

For the choice of our instruments, we rely on a mimicking pressure argument. This is

because companies tend to imitate the behavior of salient companies. Examples are the decision to join the UNGC or other voluntary programs such as the ISO 9000 (see Ortas, Álvarez, Jaussaud, & Garayar, 2015; Perez-Batres et al., 2010; Prakash & Potoski, 2006). Following these considerations, Berliner & Prakash (2015) argue that companies of the same industry face similar pressures to join voluntary initiatives, such as the UNGC. Thus, Berliner & Prakash (2015) use the relative share of UNGC members in the same industry in the year prior to joining as an instrument. This constitutes our first instrument (Z_1). In addition to Berliner & Prakash (2015) and in line with Lim & Tsutsui (2012); Perkins & Neumayer (2010); Orzes et al. (2018) we argue that mimicking pressure to join the UNGC may also arise from national factors. Companies do not only imitate behavior of competitors, but also of companies that are in geographical proximity. Therefore, next to an industry-based instrument, we develop a second instrument that takes country-specific mimicking pressures into account. Thus, we use the relative share of UNGC members in the same country in the year prior to joining as our second instrument (Z_2).

In result, we formally define Z_1 and Z_2 as

$$Z_1 = Z_{tq} = \frac{\sum_{i=1}^{I} UNGC_{i(t-1)q}}{\sum_{n=1}^{N} Company_{n(t-1)q}} \tag{8.4}$$

$$Z_2 = Z_{tr} = \frac{\sum_{i=1}^{I} UNGC_{i(t-1)r}}{\sum_{n=1}^{N} Company_{n(t-1)r}} \tag{8.5}$$

with UNGC company i and company n until year t-1 and industry q for Z_1 and country r for Z_2. The respective instruments stay constant after t= -1.

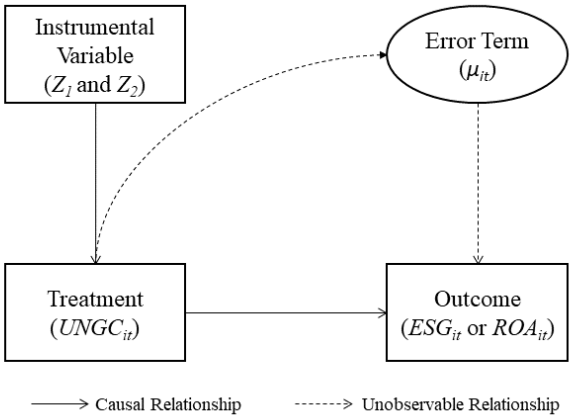
However, in order to provide an unbiased estimate of the effect of UNGC membership on company performance, potential instruments must satisfy the (1) relevance and (2) exogeneity condition (Stock & Watson, 2019). In other words, potential instruments must affect a companies propensity to join the UNGC (relevance), and hence impact their company performance, but not influence company performance through another channel than UNGC membership (exogeneity). Formally expressed the following must hold:

1) Relevance: $Cor(Z_i, UNGC_i) \neq 0$

2) Exogeneity: $Cor(Z_i, \mu_i) = 0$

We assert that the mimicking pressure argument of our two instruments satisfies the

Figure 8.1: Our IV setup, Analogous Mehta (2015)



relevance condition. Simply put, the more companies within the same industry or country join the UNGC, the greater the pressure on a given non-member company to follow and join the UNGC. We also assume that the instruments are exogenous, since only decisions made by other firms, and not by the treated firm itself, affect the instruments. This is because instruments are defined *before* joining (t-1), which eliminates any impact that the treated firm might have on the instrument. In addition, both the ESG and financial performance of a treated company should not be affected by the number of *other* companies that have joined the UNGC.

Our IV model contains two instruments and one endogenous variable and is therefore over-identified. As reported in Table 8.1 and Table 8.2 the F-statistics exceed 10, which indicates that our instruments are neither weak nor biased (Stock & Watson, 2019). Moreover, to test the exogeneity conditions, we perform a Sargan or J test (Wang, 2010). Rejection of the null hypothesis of this test would mean that our instruments do not meet the exogeneity conditions, either because they are not truly exogenous or because they were incorrectly excluded (Baum et al., 2003). Since the reported Sargan values of the over-identification test are 0.75 and 0.31 and thereby above 0.25, we cannot reject the null hypothesis. Conclusively, our instruments are relevant and exogenous and we therefore proceed in using the two instruments to estimate our IV models.

Table 8.1 reports the results of our IV model for H2, in which we test the UNGC's general effectiveness in promoting its ten principles and SDGs amongst its members. Analogously to our difference-in-differences specifications including fixed-effects, we find significant positive results at the 5% level for instruments 1 and 2 independently and at the 1% level for the two instruments combined.

Table 8.2 summarizes the results of our IV setup for H3, testing whether UNGC membership affects financial performance. Analogously to our Difference-in-differences setup, we do not find a significant impact of UNGC membership, neither for the first instrument Z_1 (column (1)), the second one Z_2 (column (2)) nor the specification using both instruments (column (3)).

Table 8.1: Instrumental Variables ESG Performance

	Dependent variable:		
	RRI		
	(1)	(2)	(3)
$\widehat{UNGC}$	2.921**	2.550**	2.371***
	t = 2.012	t = 2.432	t = 2.816
Controls	Yes	Yes	Yes
F-Statistic	283	638	517
Sargan			0.75
Observations	3,010	3,005	3,005
R^2	0.389	0.430	0.430
Adjusted R^2	0.377	0.417	0.417
Residual Std. Error	10.149 (df = 2954)	9.824 (df = 2937)	9.825 (df = 2937)

Note: Specification 1) uses the proportion of UNGC firms in the same 2-digit-SIC code relative to total firms in same 2-digit sic code in the year prior to joining as Instrument. Specification 2) uses the proportion of UNGC firms in the same country relative to total firms in the same country in the year prior to joining as Instrument. Specification 3) uses both instruments from 1) and 2). Controls are lagged total assets, lagged revenue, lagged employees, country dummies, year dummies and industry dummies. Stage 1 is the effect of the respective instrument on UNGC membership. Stage 2 is the effect of the fitted UNGC membership values on ESG performance. Standard errors are adjusted for heteroskedasticity.

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

Table 8.2: Instrumental Variables Financial Performance

	Dependent variable:		
	leaded ROA		
	(1)	(2)	(3)
$\widehat{UNGC}$	0.010	−0.005	0.001
	t = 0.718	t = −0.558	t = 0.094
Controls	Yes	Yes	Yes
F-Statistic	283	638	517
Sargan			0.31
Observations	3,010	3,005	3,005
R^2	0.051	0.109	0.109
Adjusted R^2	0.033	0.088	0.089
Residual Std. Error	0.094 (df = 2954)	0.092 (df = 2937)	0.092 (df = 2937)

Note: Specification 1) uses the proportion of UNGC firms in the same 2-digit sic code relative to total firms in same 2-digit sic code in the year prior to joining as Instrument. Specification 2) uses the proportion of UNGC firms in the same country relative to total firms in the same country in the year prior to joining as Instrument. Specification 3) uses both instruments from 1) and 2). Controls are lagged total assets, lagged revenue, lagged employees, country dummies, year dummies and industry dummies. Stage 1 is the effect of the respective instrument on UNGC membership. Stage 2 is the effect of the fitted UNGC membership values on Financial performance. Standard errors are adjusted for heteroskedasticity.

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

9 Discussion

This section discusses the results of our thesis and compares them to prior research. Overall, we show that the NRBT, as opposed to ST, yields a valid explanation for performance impacts upon joining the UNGC. Moreover, as we see a negative effect of membership on ESG performance, we argue that member companies engage in decoupling behavior. Lastly, financial performance of UNGC joiners remains unaffected, implying that UNGC membership does not generate an SCA, contrary to findings by prior research.

In this thesis, we consider ST and NRBT as potential management theories for explaining the effects of UNGC membership. We show that ST does not provide an explanation, since no significant stock market reaction is associated with the joining announcements of members. This suggests that investors do not evaluate the announcement as a credible signal, which implies that they do not assess the additional information value relevant. We reason that this is because joining the UNGC is not costly and that no rigid enforcement mechanisms are in place, rendering the signal irrelevant. Therefore, we show that, unlike other announcements of sustainable actions such as Green Bond issuances (Flammer, 2021), the announcement of joining the UNGC does not serve as a signal of a company's sustainability commitment. Instead, we find that the NRBT can provide a valid explanation for ESG performance effects. Under NRBT, ESG performance effects arise from access to sustainability resources provided by the UNGC. Thus, unlike ST, NRBT does not require the existence of costly signals. We argue that analyzing local networks allows us to test the applicability of NRBT. Local networks provide access to more appropriate resources but are otherwise no different from general UNGC membership. Most importantly, we find that motivational differences are non-significant because joining local networks does not require additional effort or membership fees. By isolating the impact of resource access through the analysis of local networks, we provide evidence that resource access is the channel through which UNGC and local network members improve their ESG performance. Nevertheless, we cannot establish that building strategic capabilities leads to an SCA as suggested by the NRBT.

We find that generally, UNGC membership has a negative impact on ESG performance. This result is robust over our difference-in-differences specifications as well as for our

instrumental variable setup. In addition, our results are supported by the majority of prior UNGC literature ((see Li & Di Wu, 2020; Berliner & Prakash, 2015; Hamann et al., 2009)). According to NRBT, this implies that the UNGC resources provided do not foster strategic capabilities. This might be due to the "basic" nature of the resources, or the unwillingness of members to make use of them. In this line of argument, the negative effect of UNGC membership on ESG performance hints toward decoupling behavior of member companies. Analyzing financial performance, other scholars find a positive link between membership in the initiative and financial performance development (see Arevalo & Aravind, 2017; Cettindamar & Husoy, 2007; Ortas, Álvarez, & Garayar, 2015; Orzes et al., 2020)). Accordingly, we report significant positive effects for ROA in our difference-in-differences regression when excluding fixed effects. However, this effect becomes non-significant when we first introduce fixed effects in our difference-in-differences design and secondly conduct a 2SLS to analyze the impact on financial performance. Our results hint, that prior estimates, which did not use fixed-effects or 2SLS, were likely biased by omitted variables and endogeneity. Thus, we add to the UNGC literature by implementing new empirical models that shed a different light on the impact of the initiative on members' financial performance. Based on our results, we argue that members are unable to gain an SCA by joining the UNGC because they cannot build strategic capabilities. Insignificant effects of ROA and Tobin's Q suggest that this result is robust in the short and long run.

By dividing our sample into two segments, we analyze whether performance impacts from joining the initiative depend on ex-ante joining determined company characteristics. We hypothesized that following the NRBT, the different impact of "Good ESG" and "Bad ESG" companies on ESG performance is likely due to the different value added by access to UNGC resources for each company type. While "Bad ESG" companies may develop strategic capabilities from "basic" resources, "Good ESG" companies may have already developed these capabilities independently of the UNGC. However, contrary to our hypothesis, no organization type, neither "Good ESG" nor "Bad ESG" companies are able to benefit from joining the UNGC. "Good ESG" companies even significantly decrease in ESG performance compared to their control group, indicating decoupling behavior. Thus, in line with Berliner & Prakash (2015), we argue that "Good ESG" companies make less efforts to avoid negative ESG incidents after joining the UNGC while superficially

promoting UNGC membership. We show that these "Good ESG" companies drive the general negative treatment effect of UNGC membership on ESG performance. However, they do not benefit from such behavior as their ROA remains unaffected.

Overall, the results of our analysis of the UNGC indicate that the initiative does not successfully promote sustainability amongst member companies. We show that post-joining, member companies' ESG performance worsens compared to control companies. First, we attribute this effect to the UNGC's weak enforcement mechanisms, lenient design and inclusive approach, which allows almost any company to join the initiative. Next, we provide evidence that resource access, as stipulated by the NRBT, is the channel through which members improve their ESG performance. Therefore and second, we show that the UNGC does not provide its member companies access to suitable tools and resources, which would allow them to improve their sustainability performance.

10 Limitations & Future Research

This thesis analyzes the effects of UNGC membership on company performance. We would therefore like to emphasize that caution should be exercised when applying our findings to other sustainability initiatives. This is because the UNGC is deliberately inclusively designed, without rigid enforcement mechanisms. In this particular context, we note that there is no significant stock market reaction associated with joining the UNGC. Therefore, we consider ST inapplicable to explain the impact of this initiative. Nevertheless, future research could explore whether ST can be applied to other, more rigorous sustainability initiatives, where joining might involve more costly and therefore more credible signals. It is important to note that given the lack of data in our event study, we make the simplifying assumption that the joining date is the actual announcement date. Thus, robustness to our findings could be provided by either manually collecting or automatically scraping news and company sources to determine such a date. Moreover, following the NRBT, future research could investigate whether differences in the level of resource access between initiatives have a moderating effect on ESG or financial performance. Examples of other sustainability initiatives thereby include the World Business Council for Sustainable Development (WBCSD) and Business Roundtable (BRT). Also, analyzing the impact of future governance changes within the UNGC, such as a standardization of the UNGC COP starting in 2023, can yield additional insights.

Generally, the analysis of ESG performance is difficult and prone to subjectivity, mainly due to differing definitions of "good" environmental, social, and governance behavior and limited ESG data availability. Despite using RepRisk, which relies on automated and hence fairly objective algorithms, we are aware that our proxy of ESG performance is not ideal. Therefore, our results may change when using another data provider. Further, as sustainability-related regulations proliferate and ESG data providers become more sophisticated, future research should continuously reevaluate UNGC impacts by using better proxies of ESG performance.

At last, joining the UNGC is a voluntary decision made by company executives resulting in selection bias. Unfortunately, motivation is an important factor influencing joining decisions and policy adoption but is difficult to control for, as shown in section 2.2. We

try to remedy this issue by testing for a common trend for control companies before joining and using instruments based on mimicking pressure. Ideally, future research can make use of mandatory regulation to design an instrument, which is exogenous and completely unbiased by selection effects. Alternatively, a combination of survey and empirical data might allow controlling for motivation. Moreover, this combination would allow to identify the motivational drivers of the decoupling behaviour of the "good ESG" subgroup, providing further input for the effective design and governance of sustainability initiatives.

11 Conclusion

In our master's thesis, we investigate whether sustainability initiatives such as the UNGC enable member companies to improve their sustainability and financial performance. Using a global data set as well as difference-in-differences and instrumental variable research methods, we find that, contrary to the goals of the initiative, UNGC membership has a negative impact on members' ESG performance. We also show that financial performance is unaffected in both the short and long run. Since these results suggest decoupling behavior, we examine additional subgroups. We find that firms whose ESG performance was better than the industry average before joining, are negatively affected by membership, while their counterparts are unaffected. We, therefore, argue that "good ESG" companies make less effort to avoid negative ESG incidents after joining the UNGC while superficially promoting UNGC membership. Through a combination of survey and empirical data, future research could shed light on the drivers of this decoupling behavior. By showing that no significant stock market reaction is associated with companies joining the UNGC, we rule out the suitability of ST in the context of this initiative. Instead, by empirically examining the effectiveness of local networks, we suggest that the NRBT is well suited to explain how membership impacts on ESG performance.

Our findings on the negative ESG performance impact are consistent with prior research assessing the relationship between a company's membership and the development of its sustainability performance (see Li & Di Wu, 2020; Berliner & Prakash, 2015; Hamann et al., 2009). Prior research assumed the applicability of popular managerial theories in explaining their findings (see Arevalo & Aravind, 2017; Janney et al., 2009; Orzes et al., 2020). Therefore, we provide novelty by explicitly assessing the mechanisms through which the UNGC affects company performance. We believe that our findings offer valuable insights regarding effective design of initiatives. In line with NRBT, we show that the resources provided by the UNGC do not help the average member in becoming more sustainable. Only the enlarged toolbox of local networks show a positive effect on ESG performance. Moreover, our results indicating decoupling behaviour are consistent with prior findings on greenwashing in the UNGC (see Berliner & Prakash, 2015). Extant literature has so far consistently found a positive effect of UNGC membership on financial performance. However, research models employed were likely biased as they lacked fixed

effects or did not make use of instrumental variable specifications (Arevalo & Aravind, 2017; Cettindamar & Husoy, 2007; Ortas, Álvarez, & Garayar, 2015; Orzes et al., 2020). Our thesis sheds new light on the financial performance effects of UNGC membership, since we find that the previously found significant positive impact of UNGC membership on financial performance disappears when employing the aforementioned methods.

Following the results of our thesis, we find avenues for future research. First, a reassessment of the initiative after the expected 2023 governance change to stricter UNGC rules seems appropriate. Second, as we have shown that resources are a channel through which company performance is affected in the UNGC, applying the NRBT to other initiatives could yield valuable insights into what constitutes good governance mechanisms as well as tools and resources for sustainability initiatives. Third, as the regulatory environment rapidly evolves, scholars may use future binding regulation to define an exogenous instrument to help explain the impact of the UNGC and other initiatives.

In essence, our master's thesis has shown that the UNGC, as a very broad sustainability initiative with lax membership and joining requirements, is unable to promote sustainability among its member companies. Applying the NRBT, we find that the initiative does not provide members with the necessary access to tools and resources they need to improve their ESG performance. In fact, we find decoupling behavior among a large group of member companies, which had an above industry average ESG performance prior to joining. Moreover, we find that member companies are not in a position to benefit financially from joining the initiative. Thus, we can conclude that the UNGC's current design does not offer a solution to today's environmental, social and governance challenges. However, the positive impact of local network membership suggests that with the right governance, initiatives can indeed achieve what they tout: that companies become a "global force for good" (Ki-moon, 2015, p. 1).

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Appendix

Table A0.1: Robustness of ESG Performance Measures

	Dependent variable:			
	RRI	Count	CO2	CO2_Rev_Ratio
	(1)	(2)	(3)	(4)
POST × UNGC	1.313**	−1.565	−80,831	−18.091
	t = 2.290	t = −0.844	t = −0.297	t = −0.325
Time-fixed effects	Yes	Yes	Yes	Yes
Company-fixed effects	Yes	Yes	Yes	Yes
Observations	5,730	5,691	2,663	2,663

Note: RRI is the current RepRiskIndex score for company i at time t. "Count" is the number of issues for company i in year t. CO2 is the amount of CO2 equivalent emissions for company i in year t. CO2_Rev_ratio is CO2 equivalents divided by revenue for company i in year t. Standard errors of (1)-(4) are adjusted for heteroskedasticity and autocorrelation

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

Table A0.2: Robustness of Financial Performance Measures

	Dependent variable:			
	leaded ROA	leaded ROI	leaded Rev.Growth	leaded TQ
	(1)	(2)	(3)	(4)
POST × UNGC	−0.006	−0.011	−0.021	−0.086
	t = −1.297	t = −1.321	t = −1.140	t = −0.503
Time-fixed effects	Yes	Yes	Yes	Yes
Company-fixed effects	Yes	Yes	Yes	Yes
Observations	5,545	5,528	5,637	5,225

Note: ROI is defined as Net Income relative to Invested Capital. Standard errors of (1)-(4) are adjusted for heteroskedasticity and autocorrelation

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

Table A0.3: Short-Term vs. Long-Term Effect of UNGC Membership

	Dependent variable:					
	Leaded ROA			Leaded Tobins-Q		
	(1)	(2)	(3)	(4)	(5)	(6)
POST × UNGC	0.010**	0.009*	−0.005	0.290	0.173	−0.098
	t = 2.152	t = 1.943	t = −1.147	t = 1.410	t = 1.099	t = −0.555
POST	−0.013***	−0.013***		−0.053	0.045	
	t = −4.021	t = −3.803		t = −0.396	t = 0.381	
UNGC	−0.007**	−0.007*		0.121	−0.070	
	t = −2.065	t = −1.885		t = 0.908	t = −0.700	
Controls	No	Yes	Yes	No	Yes	Yes
Time-fixed effects	No	No	Yes	No	No	Yes
Company-fixed effects	No	No	Yes	No	No	Yes
Observations	5,545	5,124	5,124	5,225	4,864	4,864

Note: Standard errors of (1)-(2) and (4)-(5) are adjusted for heteroskedasticity and standard errors for (3) and (6) are adjusted for heteroskedasticity and autocorrelation.

Significance Levels: *p<0.1; **p<0.05; ***p<0.01

Table A0.4: Descriptive Statistics for "Good" and "Bad" Companies in the Year of Joining

	Variable Name	Mean			Median		
		G	B	Diff.	G	B	Diff.
1	lag.At	7,271.74	25,174.19	-17,902.45	1,950.92	5,110.57	-3,159.64
2	lag.Rev	4,403.07	11,383.39	-6,980.32	1,678.45	3,538.11	-1,859.66
3	lag.Emp	15.98	40.47	-24.49	6.75	11.35	-4.59
4	lag.ROA	0.04	0.05	-0.01	0.04	0.04	-0.00
5	lag.RRI	7.96	24.07	-16.11	0.00	24.00	-24.00
6	lag.HDI	0.90	0.92	-0.02	0.92	0.93	-0.01
7	lag.Population	93.98	128.95	-34.96	60.35	64.58	-4.23
8	lag.GDPpc	47.76	52.77	-5.01	47.26	52.09	-4.82
9	trend.ROA	-0.00	0.01	-0.01	0.00	0.00	-0.00
10	trend.RRI	0.69	7.97	-7.27	0.00	5.50	-5.50
11	lag.CO2E_emissions	2.18	2.07	0.11	0.22	0.32	-0.10
12	lag.TQ	2.21	2.22	-0.01	1.39	1.34	0.05
13	lag.Count	4.94	16.34	-11.39	0.00	5.00	-5.00
14	lag.Rev.Growth	0.07	0.13	-0.05	0.04	0.05	-0.01
15	lag.ROI	0.06	0.09	-0.03	0.06	0.08	-0.02

Note: G = "Good" (Better than industry country average), B = "Bad" (Worse than industry country average). All observations are from the 216 treatment and 216 control companies in the year of a treatment companies' joining of the UNGC. Thereof, 76 companies are "Good", and 356 companies "Bad". Variables are defined in A0.5 & A0.6.

Table A0.5: Variable Definition for Dependent & Explanatory Variables

Variable Name	Expanded Name	Definition	Unit	Source
Dependent Variables				
leaded ROA	Leaded Return on Assets	$\text{ROA}_{i(t-1)} = \frac{NI_{i(t-1)}}{(TA_{i(t-2)}+TA_{it-1})/2}$	nominal	Compustat
leaded Rev.Growth	Leaded Revenue Growth	$\text{Revenue.Growth}_{i(t-1)} = \frac{Revenue_{i(t-1)}}{Revenue_{i(t-2)}}$	nominal	Compustat
leaded TQ	Leaded Tobins Q	$\text{TQ}_{i(t-1)} = \frac{MCAP_{i(t-1)}+TotalLiabilities_{i(t-1)}}{BVEquity_{i(t-1)}+TotalLiabilities_{i(t-1)}}$	nominal	Refinitiv
RRI	RepRisk Index Score		nominal	RepRisk
Count	RepRisk Issue Count		nominal	RepRisk
CO2	CO2 Equivalent Emissions		bn tons	Refinitiv
CO2_Rev_Ratio	CO2 to Revenue Ratio	$\text{CO2-Rev-Ratio}_{it} = \frac{CO2_{it}}{Rev_{it}}$	nominal	Refinitiv/ Compustat
Explanatory Variables				
POST_{it}	Post Joining Dummy	$\begin{cases} 1, \text{ for years after joining UNGC} \\ 0, \text{ otherwise} \end{cases}$	nominal	UNGC Database
UNGC_i	UNGC Membership Dummy	$\begin{cases} 1, \text{ for companies joining UNGC} \\ 0, \text{ otherwise} \end{cases}$	nominal	UNGC Database
$\text{POST}_{it} \times UNGC_i$	Interaction Variable Dummy	$\begin{cases} 1, \text{ for years of members after joining} \\ 0, \text{ otherwise} \end{cases}$	nominal	UNGC Database
UNGC_{it}	Interaction Variable Dummy	$\begin{cases} 1, \text{ for years of members after joining} \\ 0, \text{ otherwise} \end{cases}$	nominal	UNGC Database
POST_{LNit}	Post Joining Dummy	$\begin{cases} 1, \text{ for years after joining LN} \\ 0, \text{ otherwise} \end{cases}$	nominal	UNGC Database
LN_i	Local Network Membership Dummy	$\begin{cases} 1, \text{ for companies joining LN} \\ 0, \text{ otherwise} \end{cases}$	nominal	UNGC Database
$\text{POST}_{LNit} \times LN_i$	Interaction Variable Dummy	$\begin{cases} 1, \text{ for years of members after joining} \\ 0, \text{ otherwise} \end{cases}$	nominal	UNGC Database
LN_{it}	Interaction Variable Dummy	$\begin{cases} 1, \text{ for years of members after joining} \\ 0, \text{ otherwise} \end{cases}$	nominal	UNGC Database
$\widehat{UNGC}$	Predicted UNGC Membership		nominal	UNGC Database

Table A0.6: Variable Definition for Matching & Control Variables

Variable Name	Expanded Name	Definition	Unit	Source
Matching & Control Variables				
lag.At	Lagged Total Assets		k €	Compustat
lag.Rev	Lagged Revenue		k €	Compustat
lag.Emp	Lagged Employees		k €	Compustat
lag.ROA	Lagged Return on Assets	$\text{ROA}_{i(t+1)} = \frac{NI_{i(t+1)}}{(TA_{i(t)}+TA_{it+1})/2}$	nominal	Compustat
lag.RRI	Lagged RepRisk Index Score		nominal	RepRisk
lag.HDI	Lagged Human Development Index		nominal	UNDP
lag.Population	Lagged Country Population		mn	UNdata
lag.GDPpc	Lagged GDP per Capita	$\text{lag.GDPpc}_{it} = GDPpc_{it-1}$	k USD	UNdata
lag.CO2	Lagged CO2 Equivalent Emissions	$\text{lag.CO2}_{\ it} = CO2_{it-1}$	bn tons	Refinitiv
lag.TQ	Lagged Tobins Q	$\text{lag.TQ}_{it} = TQ_{it-1}$	nominal	Refinitiv
lag.Count	Lagged RepRisk Issue Count		nominal	Compustat
lag.Rev.Growth	Lagged Revenue Growth		nominal	Compustat
trend.ROA	Trend Return on Assets	$\text{trend.ROA}_{it} = ROA_{it} - ROA_{it-1}$	nominal	Compustat
trend.RRI	Trend RepRisk Index Score	$\text{trend.RRI}_{it} = RRI_{it} - RRI_{it-1}$	nominal	RepRisk
lag.Rev.Growth	Lagged Revenue Growth		nominal	Compustat
trend.ROA	Trend Return on Assets	$\text{trend.ROA}_{it} = ROA_{it} - ROA_{it-1}$	nominal	Compustat
trend.RRI	Trend RepRisk Index Score	$\text{trend.RRI}_{it} = RRI_{it} - RRI_{it-1}$	nominal	RepRisk