



Corporate involvement in Sustainable Development Goals: Exploring the territory

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ABSTRACT

The Sustainable Development Goals (SDG) stress the necessity of private businesses' active participation, appealing for their creativity and innovation to create value for the common good, such as reducing poverty, eradicating hunger, and protecting biodiversity. While currently some, especially recently formed private businesses may consider the common good as their main business goal, most existing stock-listed businesses clearly do not. The question that arises is why private stock-listed businesses should voluntarily engage with such common good objectives while being principally shareholder value oriented.

This study aims to map the undiscovered terrain of corporate SDG involvement as emanating from the sustainability reports of the 2000 largest stock listed businesses worldwide.

The methodology is based on an exploratory two-step approach. First, using logistic and quantile regressions, potential associations between reported SDG involvement and corporation attributes are investigated quantitatively for a sample of the 2000 largest stock listed corporations worldwide. Secondly, the most extensive SDG reporters are analyzed qualitatively in order to explore what is actually disclosed.

The quantitative results show that corporate involvement in the SDGs is overall still limited, and mainly associated with commitment to other sustainability-related themes and East Asian country settings, as well as company size, and corporate sustainability level. Such implies that SDG involvement is inspired by a mixture of legitimacy and institutional motives. However, when the level of involvement is analyzed, a much more scattered picture occurs. Global Compact membership is the only factor that is consistently highly significant. More importantly, qualitative scrutiny of the individual reports reveals that company involvement is largely symbolic and intentional, rather than substantive. This suggests that companies treat the SDGs, similarly to the Global Compact, as a scheme with non-committal implications, facilitating impression management and learning.

This study provides an initial understanding of current corporate practice, as well as clues for theorizing this largely unexplored research field. Practically, the overall lack of meaningful SDG disclosures implies that stakeholders with an SDG interest cannot rely on sustainability reports for their decisions.

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1. Introduction

In September 2015, the United Nations (UN) adopted a global plan of action for sustainable development, named "*Transforming Our World: The 2030 Agenda for Sustainable Development*" (United Nations General Assembly, 2015). It is a global governance

scheme in response to the global challenges of climate change, social inequality and environmental degradation, containing 17 Sustainable Development Goals (SDGs) with 167 targets. It pairs a determination to end poverty and hunger, combat inequalities, build peaceful, just and inclusive societies, protect human rights, promote gender equality and ensure the lasting protection of the planet and its natural resources, to a determination to create conditions for sustainable, inclusive and sustained economic growth, shared prosperity and decent work for all (United Nations General Assembly, 2015, p. 3).

The Agenda is not exclusively addressing the governments of the

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UN member states. Private businesses are also explicitly called upon to play their part in realizing the goals. Acknowledging their role in productivity, inclusive economic growth and job creation, the Agenda appeals to businesses "(...) to apply their creativity and innovation to solving sustainable development challenges" (United Nations General Assembly, 2015, p. 25)

Indeed, businesses seem to be heeding this call: a recent KPMG survey (KPMG, 2018) reports that 40% of the world's 250 largest companies are paying attention to the SDGs in their sustainability reports. The survey concludes that "(...) business interest in the SDGs has grown quickly since their launch in September 2015". *A priori*, this call and seemingly positive business response is a paradox, as an action plan to "create value for the common good" (Dyllick and Muff, 2015, p. 14) seems difficult to reconcile with a goal of creating shareholder value. The latter is inherent to any stock listed company and particularly applicable to the largest companies in the world. Notwithstanding the fact that there is a clear potential for commercial businesses to focus on value creation for the common good, currently this orientation is the domain of social enterprises instead of large corporations. Hence, the question arises as to why (at least some) existing commercial businesses seem to take up this call and voluntarily pursue the SDGs.

Answering this question is difficult, as corporate engagement in the SDGs is a novel phenomenon, and therefore empirical studies are yet scarce and scattered. Nevertheless, we review this limited body of research, as well as the literatures of seemingly related concepts of corporate sustainability and the Global Compact. As for the latter, it is concluded that these concepts may seem related to SDG involvement, yet are inherently different. From the literature review it is concluded that corporate SDG involvement signifies a research gap. Our research aim is therefore to explore this largely undiscovered terrain in order to inform further theorizing of this phenomenon.

The first step in this exploration was to quantitatively describe the current state of SDG involvement for a large sample, and subsequently investigate potential associations between SDG involvement and company specific factors using regression analysis. For this purpose, data of the 2000 largest stock listed businesses in the world were hand collected based on content analysis of sustainability reports (see e.g. Unerman, 2000), and retrieved from several proprietary and public databases. Next to this broad but shallower insight for many businesses, the exploration included a further analysis to gain deeper insight for a limited number of businesses. This was done by means of drawing contextual sketches of what is reported based on richer qualitative data.

The paper continues after this introduction by reviewing the literature. After this, the methodology, data collection and analysis procedures will be discussed. Subsequently, the results will be presented and discussed. Finally, a conclusion is provided, in which we also discuss implications, some limitations, and provide some suggestions for future research.

2. Literature review

As corporate engagement in the SDGs is a novel phenomenon, empirical studies are yet scarce and scattered. Some studies describe the implications of the SDGs for individual companies (Fleming et al., 2017; Pedersen, 2018), explore sustainable accounting methods that enable SDG achievement (Bebbington and Unerman, 2017) or discuss the relevance of the SDGs for sustainable investment (Schramade, 2017). There is still just scant evidence on the circumstances under which companies engage in the SDGs. Fleming, Wise, Hansen & Sams (2017) find that in case of the Australian aquaculture company they studied, awareness of the SDGs as well as personal and corporate values were the key drivers

of SDG engagement. Van Zanten and Van Tulder (2018) find, for a sample of 81 European and North American multinational companies, that they particularly engage with those SDGs, that "fall in a company's sphere of influence" and are intended to avoid harm rather than doing good. Some clues for the relevance of industry and country-differences in this context were also found. Based on this small body of research, it is nevertheless difficult to answer what drives companies to engage with the SDGs.

A related body of relevant management literature is concerned with corporate sustainability, conveniently labeled as 'do-well-by-doing-good-literature' (Laszlo, 2017). Studies from fields of research, such as Corporate Social Responsibility (e.g. Aguinis and Glavas, 2012; Waddock and Graves, 1997), stakeholder management (e.g. Donaldson and Preston, 1995; Hillman and Keim, 2001), Socially Responsible Investment (e.g. Friede et al., 2015; Krüger, 2015) and Creating Shared Value (Porter and Kramer, 2011) have sought to provide theory and evidence of the notion that company engagement in some form of sustainability is conducive to financial value.

While these studies are all based on a 'win-win proposition', the suggested drivers for companies vary widely, including: the reduction of finance and labor costs (Eccles et al., 2014; Friede et al., 2015; Krüger, 2015), reduction of risks, gaining competitive advantage, access to markets, product differentiation and developing a positive reputation (Engert et al., 2016), stakeholder management (Donaldson and Preston, 1995), maintaining or increasing legitimacy (Ambec and Lanoie, 2008; Carroll and Shabana, 2010), or creating mutually advantageous or shared value outcomes (Porter and Kramer, 2011).

Yet, it is questionable if these concepts can effectively explain corporate engagement with the SDGs. First of all, the concepts of "doing well by doing good" and "shared value" have been empirically challenged (Garcia-Castro et al., 2010; Zhao and Murrell, 2016), as well as criticized for being shallow and full of tensions (e.g. Crane et al., 2014), and for vagueness and lack of substance (Dembek et al., 2016). Secondly and more importantly, many targets relate to themes that are generally not, or only weakly related to the core business of companies, such as "no poverty" (SDG 1), "zero hunger" (SDG 2) and "peace, justice and strong institutions" (SDG 16). For this kind of goals, it is more challenging to see 'win-win' opportunities. In support of this, Dyllick and Muff (2015, pp. 3–4) argue that there is a disconnect between Sustainable Development (SD) and corporate sustainability¹: The 'SD discourse' is on a macro level, centered around worldwide challenges and achievement of the SDGs, whereas corporate sustainability is at the micro level, focusing on topics such as business-level eco-efficiency and a clear focus on "(...) business value (win-win strategies)." This disconnect is reflected by current progress in corporate sustainability not being paired with achievement of the SDGs.² It is less likely that existing commercial stock-listed companies will engage in the radical changes needed to exchange their goal of creating shareholder value with the goal of creating value for the common good (Dyllick and Muff, 2015). Hence, corporate sustainability literature and theories may form a starting point but cannot provide full understanding of corporate SDG involvement.

Potential drivers of SDG involvement may also be found in studies on a seemingly related sustainability initiative: The United Nations Global Compact, launched in 2000. This initiative

¹ The authors use the term 'Business Sustainability'.

² To illustrate this, the latest SDG progress report provides a mixed picture at best, which brings the Secretary-General, Mr. António Guterres, to infuse a sense of urgency: "With just twelve years left (...) the 2030 Agenda requires immediate and accelerated actions."

encourages businesses to respect ten universal normative principles related to human rights, labor rights, the environment and anticorruption, and report on progress by means of a “Communication on Progress” (CoP) (Rasche et al., 2013; Rosati and Faria, 2019). The motivations for companies to join the Global Compact most frequently mentioned are: responding to stakeholder pressures, and reputation management (e.g. Berliner and Prakash, 2015; Bernhagen and Mitchell, 2010; Janney et al., 2009), participation in a learning network (Perez-Batres et al., 2011), and ethical sensitivity of the company (Orzes et al., 2017).

Yet, even though the Global Compact and the SDGs are both global sustainability initiatives, they differ in some crucial aspects. That is, the Global Compact is a business-oriented principle-based framework; businesses can express their intention or commitment to pursue these principles in any way they deem suitable. The SDGs are a broad-scope, intergovernmental sustainable development framework with concrete and specific goals, targets and indicators, and hence measurable and monitorable (Bansal and Song, 2017). By consequence, the Global Compact comprises a narrower thematic range, restricted to sustainability issues that are material to corporations, its stakeholders and immediate context. As an illustration, the UN Global Compact comprises only 28% of the number of themes of the Brundtland report, which is widely regarded as the leading framework for sustainable development (Barkemeyer et al., 2014).

From the above it can be concluded that the current lack of understanding of corporate SDG involvement signifies a research gap. In order to understand why existing commercial businesses engage in it, it is necessary to address it.

3. Methods and data collection

Given the current lack of empirical studies and general understanding of corporate involvement in the SDGs, this study follows an exploratory research design.

In stage one, we perform quantitative exploratory regression analyses aiming at discovering potential associations between reported SDG involvement and several corporate and reporting characteristics. We focus on corporate reporting on the SDGs for two reasons. First, corporate reporting on the SDGs forms an important part of the 2030 Agenda (SDG target 12.6). Secondly, companies that consciously engage in the SDGs may be expected to communicate this through their formal sustainability reports as SDG involvement may be considered as a “positive practice” (Bansal et al., 2014). Accounting literature shows that companies tend to disclose positive information, while abstaining from negative news (Patten, 1992, 2002; Verrecchia, 1983; Walden and Schwartz, 1997). It may then be expected that corporate (sustainability) reports will be an appropriate source for analyzing the SDG involvement of companies. Yet, this reported involvement is understood as showing awareness and recognition of the SDGs as a sustainable development concept relevant for the corporation. It does not imply any measure of SDG relevant impact. We suggest several corporate and reporting attributes as independent variables.

In order to provide some contextual meaning to the quantitative patterns found, we carried out a qualitative in-depth analysis of a sample of leading SDG reporters in the second stage. In the remainder of this section, we describe and motivate the methodological choices that we have made.

3.1. Stage one: quantitative analysis

3.1.1. Sample

Our first research aim was to investigate the current state of corporate SDG involvement for a large sample. Hence, we selected

the companies from the *Forbes Global 2000* universe, containing the 2000 largest stock listed companies in the world.³ This sample of companies is frequently used in business research (see e.g. Bernhagen and Mitchell, 2010; Frias-Aceituno et al., 2014). 1165 Corporations in this sample published a sustainability report in the year 2017. The first stage analysis was conducted on these reports. For the second stage, the sample was reduced to the 30 most extensive SDG reporters, selecting the 5 leading SDG reporters of each of the 6 country clusters.

3.1.2. Dependent variable

Corporate involvement in the SDGs was considered as the main dependent variable and determined by applying mechanistic content analysis based on word frequencies (Beck et al., 2010; Vourvachis and Woodward, 2015) and operationalized in two ways: First, it was assessed whether any of the words “SDG” or “sustainable development goals” appeared in each of the reports. This produced the SDG variable indicating whether the company engaged with the SDGs or not. Second, the extent of SDG involvement was assessed by the SDG word count (Beck et al., 2010) in every report, resulting in the SDG-frequency variable, labeled SDGf. This enabled differentiation of levels of SDG reporting, for instance between a cursory, nominal mention in a preface (low SDGf) and a more profound discussion or reference to specific SDGs in content tables (high SDGf).

3.1.3. Independent variables

We chose several companies, industry and country characteristics that may be associated with the dependent variable. Corporate sustainability reporting guidelines and frameworks, such as the Global Reporting Initiative (GRI), International Integrated Reporting Council (IIRC) and Global Compact (GC), encourage corporations to address the SDGs in their reports. As our dependent variable is reported corporate SDG involvement, we also chose factors as additional independent variables that in extant literature (see e.g. Aguinis and Glavas, 2012; Hahn and Kühnen, 2013) are frequently associated with corporate sustainability reporting.

The following variables were included: company size, several sustainability report characteristics, Global Compact membership and sustainability ranking, country and industry group.

We used the natural logarithm of the market value as reported by the *Forbes Global 2000* list as the proxy for company size, which is common in financial research (Dang et al., 2018, p. 161).

We assessed several attributes of the sustainability reports, notably the use of reporting guidelines GRI and IIRC. Both guidelines have published guidance documents for inclusion of the SDGs into their frameworks. Report attributes were retrieved from Corporateregister.com.

Companies that are signatories to the Global Compact may be more prone to engage in the SDGs than non-signatories. Membership of the UN Global Compact was checked in the UNGC participant database,⁴ excluding non-communicating members.

It was discussed earlier that corporate sustainability and sustainable development are inherently different. Nevertheless, sample companies with higher levels of corporate sustainability may have a higher likelihood of making the necessary shift to focus on sustainable development (Dyllick and Muff, 2015), and become more responsive towards the SDGs. Therefore, a variable was constructed reflecting a company's level of corporate sustainability. It is

³ <http://www.forbes.com/global2000/list>, version 2017. This list is constituted by a compound ranking based on market value, sales, assets and profits of the company.

⁴ <https://www.unglobalcompact.org/what-is-gc/participants>.

Table 1
Variables of the regression models.

Group	Variable	Data type	Description
SDG	SDG SDGf	binary count	variable indicating the presence of SDG reference(s), 0 if SDGf = 0, 1 if SDGf > 0 word frequency of “SDG” and “sustainable development goals”
SIZE	size	continuous	natural logarithm of the market value
REPORT	GRI assurance IIRC	binary binary binary	dummy variable for applying GRI reporting guideline dummy variable for application of external assurance dummy variable for publishing an integrated report using IIRC <IR> guideline
MEMBER	Global Compact ranking	binary ordinal	dummy variable for UN Global Compact membership environmental/social/governance rating (ESG) based on RobecoSAM; Gold = 4, Silver = 3, Bronze = 2, yearbook listing = 1, no listing = 0
COUNTRY	country group	categorical	country of origin of the company
INDUSTRY	sector	categorical	sector GICS level 2 of the company

labeled ‘ranking’, as it was derived from the RobecoSAM Corporate Sustainability Assessment of 3500 of the largest stock listed companies worldwide as published in the *Sustainability Yearbook 2017*. The Yearbook includes the ‘highest ranked’ 15% of corporations in each of sixty industries. These are classified into Gold (top 1%), Silver (top 5%) and Bronze (top 10%) ranks, which classes were coded 4, 3, 2 respectively. Companies in the Yearbook without a specific rank were coded 1, and all other companies 0.

As the relevance of institutional country settings is often emphasized in corporate sustainability (reporting) contexts (e.g. [Doh and Guay, 2006](#)), we grouped companies according to country clusters. Next to the common distinction between common law and code law countries ([Frias-Aceituno et al., 2014](#)), a further sophistication was made. As the SDGs may be particularly relevant for emerging economies, these countries were considered separately. Since the companies in our sample are the largest in the world, such companies are expected in the fast-growing emerging economies: BRICS (Brazil, Russia, China, South-Africa) and MINT (Mexico, Indonesia, Nigeria and Turkey), which were labeled ‘BRICS-MINT’. Besides, civil law countries were further divided into Continental European and the East-Asian industrialized countries Japan, Korea, and Taiwan, (labeled ‘JKT’), whereas common law countries were split up into the USA and other Anglo-Saxon countries (UK, Canada, Australia, Ireland, Singapore and Hong Kong). The reason for this subdivision is that the USA forms a group often studied in isolation for its distinctive “adversarial legalism” culture and homogeneity as regards corporate law ([Higgins and Larrinaga, 2014](#); [Kagan and Kagan, 2009](#)). The last category, labeled ‘Other’, consists of countries for which no substantial concentration of companies exists, containing Arab, Asian and Latin American countries. This implies that this category also contains several emerging countries.

All companies in the sample were classified according to their Global Industry Classification Standard (GICS, tier 2). However, as the statistical operations did not show any significant correlations with these categorical variables, they have been included in the regressions, but left out in the presentation of the results.

All dependent and independent variables used in the regression analyses are tabulated in [Table 1](#).

3.1.4. Statistical model

To explore the association between the independent variables and the decision to engage in SDG reporting or not (SDG variable), we performed logistic regressions.

To explore the association between the independent variables

and the frequency of SDG mentioning (SDGf variable), both an ordinary least squares (OLS) regression and a quantile regression analysis was performed. The latter was applied as the left-skewed SDGf count distribution indicated potentially biased OLS means ([Koenker and Hallock, 2001](#)). The quantile regression technique is illustrated in its application to sustainability reporting by [Gallego-Álvarez and Ortas \(2017\)](#). As the majority of the reports did not mention the SDGs, and consequently non-zero SDGf counts started only in the 6th percentile, the quantile regression was performed estimating the 6th, 7th, 8th and 9th percentiles using all the 1165 observations in the sample with a report, enhancing statistical power.

3.2. Stage two: qualitative analysis

To capture how specific companies substantiate involvement in the SDGs, we carried out a qualitative in-depth analysis of a sample of ‘leading’ SDG reporters. To distinguish the leading SDG reporters, companies were ranked based on the SDGf variable. Besides, the reports were visually inspected to assess the number of pages dedicated to the SDGs. This was done by counting the number of pages showing a dominant and substantive piece of SDG related information, which was operationalized by considering paragraphs or figures dedicated to the topic of the SDGs. From each country group, the top five companies were picked for qualitative analysis. In the resulting 30 reports, we marked all references to the SDGs, especially CEO engagement with the SDGs, the reason given for engagement with the SDGs, and if the SDGs were considered as a source of business opportunity or as a means to deal with business risk.

4. Results and discussion

4.1. Results of stage one: quantitative analysis

4.1.1. Descriptive analysis

[Table 2](#) indicates that overall SDG involvement is rather limited, as illustrated by the fact that a mere 23% of sample companies (and 39% of sample companies that publish a sustainability report) mention the SDGs in their reports. Continental European companies, although scoring highest on sustainability reporting, use of GRI guidelines, Sustainability Assurance, integrated reporting (IIRC) and Global Compact membership (UNGC), do not have the highest percentage of SDG involvement. Japan-Korea-Taiwan companies

Table 2

Reporting characteristics of the Forbes Global 2000 universe per country group.

Country Group	number of corporations	Percentage of corporations with:		Percentage of reports with				Report statistics	
		Sustainability report	UNGC- membership	GRI	assurance	IIRC	SDG	SDG word frequency (SDGf) if SDG = 1	
								Mean	median
Anglo-Saxon (AS)	294	72.8	22.1	42.5	24.3	3.3	30.8	12.2	5.5
Continental Europe (EU)	329	78.7	61.1	62.5	45.9	12.4	49.8	16.8	7
Japan-Korea-Taiwan (JKT)	340	56.8	30.3	52.6	45.6	13.0	63.2	15.5	8
Other (OTH)	123	50.4	17.9	66.1	32.2	8.1	50.0	10.4	6
BRICS-MINT (BM)	347	45.2	16.1	50.3	27.4	9.6	26.8	14.6	5
USA (US)	567	49.6	10.4	52.5	10.7	3.6	24.6	12.7	6
total	2000	58.3	25.3	53.3	30.2	7.3	39.4	14.5	7

1165 corporations published a sustainability report, 459 reports mentioned the SDGs.

(labeled JKT) have the highest score, while companies from the Middle East, Far East and Latin America (Other) are on par with the European group. US and BRICS-MINT companies generally show the least interest in all these sustainability initiatives, including SDG involvement. European companies do rank highest in terms of the number of references to the SDGs, indicating that the extensiveness of SDG disclosure is highest. However, the large differences between the median and mean values indicate a skewed distribution of the SDG frequency. This observation supports the idea that there may be a difference between companies mentioning the SDG initiative just once or twice and companies actually discussing the SDGs.

Table 3 gives the univariate correlations between the variables of interest for those companies that publish a sustainability report ($n = 1165$). It shows that SDG involvement is positively correlated to several variables, viz. company size, the application of guidelines and sustainability assurance, membership of the UN Global Compact and sustainability rating. As for the country dummies, the table confirms the observations from the descriptive statistics in Table 2. That is, SDG reporting is positively correlated to Continental Europe and JKT, and negatively to USA, BRICS-MINT and Anglo-Saxon country groups. Not only is the correlation between Global Compact and SDG rather high (0.41), Table 3 also illustrates that Global Compact members tend to apply GRI reporting guidelines (0.22), sustainability assurance (0.30), and IIRC integrated reporting (0.18).

4.1.2. Exploratory regression analysis

Table 4 presents the results of the logit regression for the decision whether to mention the SDGs in the sustainability report.

The McFadden pseudo-R-squared value indicates reasonable goodness of fit of the models. Analysis of the Variance Inflation Factors (vifs) showed that multicollinearity was considered not to be compromising the statistical power (O'Brien, 2007).

The results show that institutional factors, such as commitment to other sustainability-related initiatives (i.e., GRI, IIRC, sustainability assurance, and Global Compact) and country settings, increase the likelihood of SDG reporting. The positive influence of country group is only pronounced in the case of the JKT group and to a lesser extent the "Other" group. Scrutiny of the underlying data revealed that the high score of "Other" can be attributed to Thailand, where 11 of the 14 companies in the sample mention the SDGs. In the JKT group, especially Japan (80 out of 230 companies in the sample) and South Korea (31 out of 64 companies in the sample) exhibit strong SDG reporting.

Next to institutional factors, factors like company size and level of corporate sustainability are also significantly related to whether a company mentions the SDGs in its sustainability report.

To interpret the difference between companies that just mention the SDG initiative and companies that discuss the SDGs or integrate these more deeply in their disclosure, we also performed regression analysis on the SDGf variable. The results of this analysis are presented in Table 5.

Compared to Table 4, Global Compact membership invariably shows a consistently positive association with SDG word frequency across quantiles. Sustainability rating and assurance also remain consistently associated, yet the significance levels vary between the different quantiles. Size and country group seem to lose their importance as compared to Table 4, although the JKT and BRICS-MINT country clusters display at least some significance in some

Table 3

Pairwise correlation matrix for all variables in report sample (report = 1).

	SDG	SDGf	Size	GRI	IIRC	Assurance	GC	Ranking
Independent Variables								
SDG	1.00							
SDGf	0.38***	1.00						
Size	0.11***	0.03	1.00					
GRI	0.31***	0.18***	0.07**	1.00				
IIRC	0.17***	0.15***	-0.01	0.05*	1.00			
Assurance	0.37***	0.18***	0.02	0.40***	0.17***	1.00		
Global Compact (GC)	0.41***	0.24***	0.08***	0.22***	0.18***	0.30***	1.00	
Ranking	0.29***	0.23***	0.14***	0.13***	0.12***	0.28***	0.29***	1.00
Anglo-Saxon (AS)	-0.08***	-0.05*	-0.07**	-0.10***	-0.07**	-0.06**	-0.11***	0.00
Continental Europe (EU)	0.11***	0.08***	-0.02	0.10***	0.10***	0.18***	0.34***	0.21***
Japan-Korea-Taiwan (JKT)	0.22***	0.10***	-0.15***	-0.01	0.10***	0.15***	0.09***	0.06**
Other (OTH)	0.05*	-0.01	-0.12***	0.06**	0.01	0.01	-0.02	-0.02
BRICS-MINT (BM)	-0.17***	-0.08***	0.30***	-0.01	-0.15***	-0.24***	-0.23***	-0.13***
USA (US)	-0.10***	-0.04	-0.03	-0.02	0.03	-0.02	-0.08***	-0.15***

Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. $n = 1165$.

Table 4

Logistic regression result for the decision to mention the SDGs in sustainability reports as a function of company and report characteristics.

A	SDG	Coefficient
Size		0.31***
GRI		0.96***
IIRC		0.67**
Assurance		0.82***
Global Compact		1.27***
Ranking		0.29***
Anglo-Saxon		0.32
Continental Europe		0.13
Japan-Korea-Taiwan		1.47***
Other		1.07***
BRICS-MINT		-0.11
USA		0.00
Industry Sector dummies included		yes
Constant		-10.12***
Number of observations		1162
Wald chi-square (14 df)		296
Probability > chi-squared		0.00
Pseudo R ²		0.28

Significance levels: ***p < 0.01, **p < 0.05, p < 0.1; n = 1162.

of the quantiles. The GRI variable shows significance for the highest level SDGf reporters, reflecting the fact that companies using a guideline such as GRI, are encouraged to use SDG mentions in their obligatory content tables. Hence, particularly the highest SDG word frequencies do not necessarily constitute a more intensive discussion of the SDGs.

4.2. Results of stage two: qualitative analysis

Table 6 summarizes the most salient SDG related features of the 30 leading SDG reporters in the sample.

It appears that most of the leading SDG reporters are using GRI guidelines, which contain a connection with the SDGs through the content index. Most of these companies are also a member of the Global Compact. The Continental European companies dedicate most attention to the SDGs.

In almost all reports, the CEO message contains a reference to the SDGs, testifying to the importance that the top management of these companies attach to the initiative.

In line with the research question, an important goal of the qualitative analysis was to uncover the reasons that companies give for their engagement with the SDGs. Not all leading companies are equally clear on this issue. Some companies echo the UN's idea that businesses are needed to achieve a sustainable society, such as Citigroup that is convinced it has an important role to play in financing the SDGs. Other companies take a defensive approach and see the SDGs as a framework for understanding risks and aligning their business strategy and sustainability activities with global challenges and megatrends, as illustrated by the following excerpts from company reports:

"We review feedback from external stakeholders and look at emerging trends and global challenges like the United Nations (UN) Sustainable Development Goals to understand the potential opportunities and principal risks for our business." BT

"The UN Sustainable Development Goals will drive collective action on a global level until 2030. They are also helping to shape how we respond as a business through our sustainability approach and commitments. In this section, we describe the key global megatrends affecting society and our business." Mondi

Some companies mention that they see SDG related business opportunities, or show an interest in exploring these:

"ANZ is committed to the SDGs, which we consider represent an opportunity for business-led solutions and technologies to be developed and implemented". ANZ

"We believe that technology has an important part to play in addressing these challenges and realising the outcomes envisaged by the UN's SDGs". BT

"Our commitment to sustainable development has gained traction as the business case for green investments becomes increasingly evident." Citigroup

"With the launch of the Sustainable Development Goals, companies and investors have an opportunity to collectively make a huge contribution to the creation of a sustainable society." Nestlé

However, when searching for potential explicit references to advancing the SDGs by relevant business cases, the reports remain largely silent. If business cases are mentioned, they are quite vague: Merck sees an important role to play in women's health, and Nestlé sees the SDGs as a guiding framework for creating shared value. BT

Table 5

Simultaneous quantile regression results of SDG frequencies as a function of company characteristics and country groups if report = 1.

SDGf	OLS	quantile 0.6	quantile 0.7	quantile 0.8	quantile 0.9
Size	0.00	0.00	0.00	0.00	0.00
GRI	4.07***	0.00	0.00	2.00**	7.00***
IIRC	6.30***	0.00	0.00	2.00	11.00**
Assurance	1.09	2.00**	3.67***	3.00**	4.33*
Global Compact	5.45***	3.00***	4.00***	6.00***	11.33***
Ranking	2.62***	1.00*	2.33***	4.00***	5.67***
Anglo-Saxon	-0.54	0.00	0.00	0.00	0.00
Continental Europe	-1.54	0.00	0.00	0.00	0.00
Japan-Korea-Taiwan	1.91	3.00	4.00***	4.00	8.00*
Other	-0.71	0.00	1.00	1.00	1.00
BRICS-MINT	-0.50	0.00***	0.00	0.00**	0.00
USA					
Industry Sector dummies included	yes	yes	yes	yes	yes
Constant	-0.53	0.00	0.00	0.00	0.00
Pseudo R ²	0.12	0.11	0.16	0.19	0.22

Significance levels: ***p < 0.01, **p < 0.05, p < 0.1; n = 1162.

Table 6

Qualitative aspects of sustainability reporting on the SDGs in the most prominent reporters.

Countr Group	Company Name	Country	sector	guideline	assurance	integrated	GC in CEO message	reason	SDG selection	business case	measurement
AS	City Developments	Singapore	60 Real Estate	Y	Y	Y	Y Y	businesses important for sustainable society, solve challenges	SDG 9	no	no
	Mondi	UK	15 Materials	Y	Y	N*	N Y	businesses important for sustainable society. SDGs help shape response to global challenges and megatrends	no	no	link to SDG targets
	G4S	UK	20 Industrials	Y	N	N*	Y N	None given	no	no	no
	BT Group	UK	50 Telecom	Y	N	N*	Y Y	SDGs indicate risks and opportunities	no	potential opportunity	no
	ANZ	Australia	40 Financials	N	N	N	Y Y	opportunities for business	no	no	link to targets
EU	Air France KLM	France	20 Industrials	N	N	Y	Y N	make valuable contribution to global goals	where relevant contribution can be made, SDG13 climate all	no	no
	Nestlé	Switzerland	30 Consumer Staples	Y	Y	N	Y Y	matches Create Shared Value strategy	no	SDGs for shared value	link to targets
	Daimler	Germany	25 Consumer Discretionary	Y	Y	N	Y Y	responsibility	no		no
	Enel	Italy	55 Utilities	Y	Y	N	Y Y	formal commitment to 4 of the goals	no	SDGs leading for strategy and reporting	link to targets
	Fiat Chrysler	Italy	25 Consumer Discretionary	Y	Y	N	N Y	inspiration	no	no	no
JKT	Fujitsu	Japan	45 Information technology	Y	Y	N	Y Y	business opportunity	Y	case studies with customers; they see potential for their products	no
	Hyundai Engineering	South Korea	20 Industrials	Y	Y	N	Y Y	creating shared value	no	no	no
	Daiwa House Industry	Japan	20 Industrials	N	Y	N	N N		6 relevant SDGs	no	link to targets
	Ajinomoto	Japan	30 Consumer Staples	N	N	Y	Y N	business opportunity	Y	business perspective for better food	no
	Sompo	Japan	40 Financials	Y	N	N	Y Y	creating new value for the future	no	no	no
OTH	Maybank	Malaysia	40 Financials	Y	Y	N	N Y	acknowledgement of CSR role of business, operate in an environment with extreme income disparities	acknowledgement of CSR role of business, operate in an environment with extreme income disparities	no	need to develop
	CP All	Thailand	30 Consumer Staples	Y	N	N	Y N	None given	no	no	no
	Thai Oil	Thailand	10 Energy	Y	Y	N	Y N	None given	no	no	no
	Bank Audi	Lebanon	40 Financials	Y	N	N	Y Y	fit with CSR strategy and culture	SDG 5	developed SDG relevant new product line	no
	Thai Beverage	Thailand	30 Consumer Staples	Y	Y	N	N Y	align with Sufficiency Economic Policy of Thai king	SDG 14	no	no
BM	Fresnillo	Mexico	25 Consumer Discretionary	N	N	N	Y N	a combination of enhance & mitigate/core business & collaboration	no	no	no
	Banco Bradesco	Brazil	40 Financials	Y	Y	Y	Y Y	combine business and society goals	no	no	no

(continued on next page)

Table 6 (continued)

Country Group	Company Name	Country	Sector	Guideline	Assurance	Integrated	GC in CEO message	Reason	SDG selection	Business case	Measurement
US	Cielo	Brazil	25 Consumer Discretionary	Y	Y	N	Y	make CSR efforts more tangible link to Sustainability Policy	no	no	no
	Vale	Brazil	15 Materials	Y	Y	N	Y	commitment to sustainability, SDGs help make efforts more tangible	most are mentioned in content table	no	a thematic coupling to topics
	CCR	Brazil	20 Industrials	Y	Y	Y	Y	SDGs help make efforts more tangible	5 material SDGs selected	no	no
	Citigroup	USA	40 Financials	Y	Y	N	Y	financing SDGs; investment gap: environmental finance	no	SDGs new economic growth model	no
	Merck	USA	35 Health Care	Y	N	N	Y	responsibility & opportunity: contribute to society & strengthen our business	no	no	no
	Hilton	USA	25 Consumer Discretionary	Y	N	N	Y	mentioned in connection to "youth unemployment"	no	important role to play in women's health	linking activities with relevant SDG pictograms
	Eastman Chemical	USA	15 Materials	Y	N	N	Y	look for strategic opportunities	no	no	no
	Sysco	USA	30 Consumer Staples	Y	N	N	Y	opportunity for business-led solutions	5 specific goals selected	no	targets, pictograms

sees a market for its technology.

Some companies have made a clear selection of SDGs most relevant to their stakeholders or their business, such as Hyundai Engineering & Construction:

"Hyundai E&C faithfully endorses the UN Sustainable Development Goals and enthusiastically contributes to the realization of the goals by establishing the four key targets that are closely related to the construction industry."

However, most companies do not apply a clear focus on key SDGs but use them instead to categorize different types of existing activities by SDG theme, for instance in their GRI content index, or illustrate different report items with relevant SDG icons.

The embedding of the SDGs inside the organization and spanning the organization's boundaries is still unclear:

"[Fujitsu] held internal workshops on business from the perspective of social issues and bolstered internal understanding of SDGs."

"[Ajinomoto] also conducted surveys and hearings with world-wide experts to help pursue the SDGs adopted at the United Nations in 2015 and reviewed its own materiality and individual activities."

Most companies remain silent on how the SDGs are operationalized on the work floor. The measurement of SDG related outcomes compared to the SDG targets and indicators is still a bridge too far. BT Group notes:

"Business has an important role to play in achieving the SDGs, but it can be difficult for companies to measure the specific contribution they are making in relation to the targets set against each goal."

ANZ reports something similar:

"Working together with stakeholders, from governments and NGOs, we are developing practical ways in which to progress mapping, target setting, measurement and communication of SDGs, as well as exploring ways in which the SDGs can be used to shape business strategy more broadly."

A number of companies attain a basic level of matching policy areas with relevant SDGs, while others make a connection with the detailed SDG targets. None refer to the SDG indicators, which is understandable because the indicators are designed for countries and need to be "translated" to fit the spheres of influence of companies. There is a need to develop good indicators and metrics that can be used to gauge the SDG contributions of companies, as also the quotations of ANZ and BT illustrate.

The most extensive discussion of the SDGs can be found in the Nestlé report, where a strong link to the "shared value" concept of Porter and Kramer (Porter and Kramer, 2011) is made. This is no surprise, as Porter and Kramer's shared value concept evolved from their close cooperation with Nestlé (Crane et al., 2014). Likewise, Japanese insurance company Sampo devotes much attention to the SDGs through an interview with the CEO and key staff.

In the reports studied, we found only one company (Nestlé) that was relating sustainability projects or actions to one or more of the specific SDG targets. Some companies mention efforts to analyze and discuss the SDGs in their leadership teams, especially regarding business alignment with the SDGs from the perspective of risk management. Various companies mention the shared value concept (Porter and Kramer, 2011) and connect this explicitly with the SDGs and the perspective of identifying new business opportunities.

In the report of Daiwa House, a third-party opinion (on the practice, see Haider and Kokubu, 2015) mentions the divide between the SDGs, the business plan and value chain of the company. Another company (Fujitsu) mentions that its business needs to be transformed away from “business as usual” (Scheyvens et al., 2016), that it needs new strategies and methodologies and to re-examine its strategy. Fujitsu is doing this with a company-wide SDG based project for creating shared value. Ajinomoto conducted an SDG survey among external experts and used this in its materiality process.

In summary, even though the leading SDG reporters overall score high on SDG word and page frequencies, Global Compact membership, guidelines application and expression of engagement by the CEO, there are considerable differences between the 30 reports regarding the role that the SDGs play. Yet, they have in common that SDG involvement is largely described in broad terms, expressed as intentions, opportunities and future actions; basically, all companies remain silent on current actions taken, explicit business cases, measurement of SDG outcomes or ways in which SDGs can be operationalized. Moreover, the SDGs are mostly used for categorizing sustainability themes in the sustainability reports.

4.3. Discussion

The results suggest that corporate SDG involvement is overall still limited (23% of sample), and intentional rather than actual. Companies hesitantly devote attention to the SDGs and assess their meaning for strategy development. This implies that SDG reporting is mainly symbolic (Cho et al., 2015; Rodrigue et al., 2013), putting current SDG involvement in a context of impression management. In the few cases sporting more substantive discussions, the SDGs are framed in discourses of (legislative and supply chain) risk management or growth opportunities for creating shared business and social value.

4.3.1. Institutional country settings

This research has distinguished some factors that increase the likelihood of SDG involvement. From our descriptive analysis, it appears that there are notable differences between institutional country settings. Companies from particularly Japan, South Korea, Taiwan (JKT cluster) and Thailand (Other) show rather high reported SDG involvement, whereas those from the US and BRICS-MINT score much lower. Though this may seem at odds with the fact that many of the goals included are particularly relevant for developing countries in the BRICS-MINT group, a potential explanation is that companies in such countries perceive little public pressure promoting CSR disclosure in general (Ali et al., 2017). The lack of interest of US companies is in line with previous research. US companies fear public criticism from stakeholders if the company does not live up to the extent of their sustainability expectations (Rasche, 2009, p. 202) and fear legal repercussions (Janney et al., 2009, p. 404). The significance of East Asian institutional contexts for SDG involvement remains also in a multivariate analysis. In fact, JKT is the only country cluster with significance, although not entirely consistent, in both regressions. An explanation for this may be that Japan has an active UNGC Local Network and civil society network on the SDGs. This corresponds with research findings on the positive effect of strong local UNGC networks on UNGC implementation (Schembera, 2018, p. 816). The traditionally strong connection between state and business – known as the developmental state concept (Lee, 1992; Wade, 2018) – in JKT may be another explanatory factor, while it is speculated that also cultural characteristics, such as long term orientation or uncertainty avoidance (Gallego-Álvarez and Ortas, 2017) may play a role. The qualitative analysis demonstrates also that Japanese and South-

Korean companies are among the very few to show something of the route they are taking towards making the SDGs relevant for their operations and strategizing.

4.3.2. Sustainability initiative-related institutional factors

Commitment to sustainability-related initiatives (i.e., GRI, IIRC, sustainability assurance, and Global Compact) forms another institutional factor that is associated with SDG involvement. All these initiatives are significantly and positively associated with reported SDG involvement. It seems that sustainability-related institutions and schemes, which increasingly include reference or guidance towards SDG involvement, function as agenda-setters. They seem to be able to inform their member companies about the existence of the phenomenon, prompting companies at least to mention the SDGs. A plausible explanation for this is that GRI provides guidance on SDG reporting. Sustainability assurance auditors have also published manuals for SDG reporting. However, when focusing on the level of SDG involvement (SDGf), the consistency of the institutional factors mostly disappears. The only factor that remains consistently significantly associated with SDG involvement is Global Compact membership. This finding may be connected to countries that have active local Global Compact networks. The Global Compact is the main interface between the UN and the business sector. On introducing the SDGs, guidance documents were divulged through these networks. UNGC is not only a normative framework, it is also a network for learning and cooperation (Ruggie, 2001) helping companies shaping, implementing and reporting their CSR activities (Runhaar and Lafferty, 2009). The fact that Global Compact membership is the most consistent factor in SDG involvement, may also suggest that companies consider the SDGs as an extension of the Global Compact, with similar non-committal implications.

4.3.3. Size and sustainability ranking

Our results also indicate that companies of greater size, as well as companies with a higher sustainability ranking have a higher likelihood of SDG involvement. Previous empirical research (Chiu and Sharfman, 2011; Gallo and Christensen, 2011) has supported the view that larger companies publish sustainability reports more frequently because they are more visible, have greater impact and are subject to greater stakeholder attention than smaller companies. These socio-political rationales also seem to apply to the context of SDGs. The fact that larger companies tend to have a higher global presence, possibly also in developing and emerging countries, for which the SDGs are particularly relevant, may increase the applicability of these motives even further. However, an alternative explanation for the significance of size may be that for smaller companies, higher relative costs of SDG disclosure limit reporting (Hahn and Kühnen, 2013, p. 10). Besides, size is not associated to the level of SDG involvement. Corporate sustainability remains significantly associated, which implies that companies with higher rankings of corporate sustainability are more responsive towards the SDGs (Dyllick and Muff, 2015).

5. Conclusion

The aim of this study was to map the largely undiscovered terrain of corporate SDG involvement. Next to providing a quantitative description of the current state of SDG involvement, it aimed at contributing to an initial understanding of why commercial stock-listed businesses engage in a scheme with the goal of creating value for the common good. This was done by suggesting factors that are associated with this decision, as well as by providing qualitative insights into the SDG involvement they actually portray in their sustainable reports.

Our results suggest that Global Compact membership is the single factor that is consistently significant in all regressions, and besides that company involvement is largely symbolic and intentional. Combining these key findings implies that companies consider the SDGs like the Global Compact: a non-committal scheme, facilitating impression management but also learning, in the sense that it serves as a thematic chart, framework and policy agenda for sustainable development. Hence, the idea that private stock-listed businesses voluntarily engage in creating value for the common good, while being principally shareholder value oriented, is less paradoxical than could be assumed. However, the field is developing. Companies are hesitantly starting to report on this global governance initiative. It is a novel initiative that requires time and reflection of companies on how to best engage with it and which position vis à vis the SDGs to take. While the pattern we discovered may be the start of a development towards more sophisticated SDG involvement and reporting, there is a risk that it remains more rhetoric than meaningful action (Bebbington and Unerman, 2017, p. 10).

Practically, the overall lack of meaningful SDG disclosures implies that stakeholders with an SDG interest, such as institutional investors, cannot rely on sustainability reports for their decisions. This is a largely unexplored area for which the development of adequate accounting tools has only just started (Bebbington and Unerman, 2017) and which will be a useful area for further study.

The study has its limitations in that only a sample of the largest stock listed companies is studied. Another limitation is that it is a static snapshot of a new phenomenon just two years after its introduction. It will be instructive to study the dynamics of the phenomenon by reviewing the same sample after some years have elapsed. In addition, as our construct for proactivity regarding sustainability is constructed by a rating agency, the economic aspects of sustainability may be overrepresented by defining sustainability more in terms of long-term shareholder value (Stubbs and Rogers, 2013, p. 625). Moreover, the rating may be partly based on some of the independent variables used (such as guidelines, and assurance) and even the dependent variable, introducing the risk of endogeneity. In the scope of this study, we could only touch briefly on the content of the reports. This certainly merits a fuller analysis of the reasons that companies give for reporting on SDGs, how they say they engage with them, the obstacles and opportunities they see, and with which partnerships they engage, which is an SDG goal in itself.

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