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The effect of product diversification on Corporate Social Performance in the non-renewable energy industry. Exploring the moderating effects of host country development and the Sustainable Development Goals

Renske JONGSMA, Bart Jan Willem (Bartjan) PENNINK

University of Groningen, the Netherlands

Abstract:

Aim: Building upon stakeholder and institutional theory, this paper investigates the relationship between product diversification and corporate social performance (CSP), thereby attempting to make essential contributions to the current literature. Based on an extensive literature review, it was expected that related, unrelated and total product diversification are positively related to CSP. Moreover, it was hypothesized that the exposure to weak institutional host country environments negatively affects the relationship between diversification and CSP, and that the Sustainable Development Goals (SDGs) have a positive effect on the relationship.

Design / Research methods: The sample selected for this research is the non-renewable energy industry, since the industry shows great divergence in terms of corporate social responsibility (CSR) performance. In addition, the industry is highly susceptible to regulatory changes, while the Sustainable Development Goals have an enormous focus on the reliability and sustainability of energy, making it a highly relevant industry to study. This study analyzed 40 a 40 non-renewable energy firms over a time frame of seven years, by using OLS regression.

Conclusions / findings: The results reveal that unrelated diversification is positively related to CSP, while the other forms of diversification show insignificant results. Contrary to expectations, the Sustainable Development Goals negatively affect the relationship between product diversification and CSP, while the moderating effect of exposure to weak institutional environments is insignificant.

Originality / value of the article: Research on the relationship between product diversification on corporate financial performance is well-established, but the way in which product diversification influences a firm's behavior towards stakeholder demands and social concerns remains largely unexplored. Accordingly, the results of this study challenge existing theories while adding more context to the existing relationship, and in turn provide promising avenues for future research.

Keywords: stakeholder theory, institutional theory, product diversification, corporate social performance, sustainable development goals, non-renewable energy industry.

JEL: L20, L25, Q40, Q41, Q42

Correspondence address: Bartjan Pennink, University of Groningen, Faculty of Economics and Business, PO Box 72, 9700 AB Groningen, the Netherlands. E-mail: b.j.w.pennink@rug.nl.
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1. Introduction

Diversification is one of the heaviest studied topics in the field of strategy but contrastingly, research on the consequences of diversification has almost been exclusively limited to the impact of diversification on corporate financial performance rather than on Corporate Social Performance (CSP) (Markides, Williamson 1994; Palich et al. 2000; Rumelt 1974, as cited in Kang 2013). In this paper we focus on firms operating in the non-renewable energy sector because in this field energy firms are currently subjected to disruptive change (Steen, Weaver 2017). This changing environment might lead firms to spread their risk by becoming more diversified, which is an important development because diversified firms have a considerable impact on the society as a whole (Kang 2013). Moreover, energy is one of the most important resources in the world, while societal challenges and stakeholder demands are growing. Consequently, much research has been conducted on corporate social responsibility, as it is nowadays a crucial element in firms' strategy (Chan 2014).

Since diversified firms have a more complex and diverse set of stakeholders, one would expect it to be linked to a measurement focused on stakeholder demand: CSP. Additionally, most research conducted in this area limits itself to the relationship between geographical diversification and CSP (Bansal 2005; Brammer et al. 2006; Christmann 2004; Sharfman et al. 2004). At the time of writing, only Kang (2013) and Patrisia and Dastgir (2017) have studied the relationship between product diversification and CSP. However, Kang (2013) used only large firms from the US operating in different industries, while the study of Patrisia and Dastgir is limited to the manufacturing industry in Indonesia. Both Kang (2013) and Patrisia and Dastgir (2017) did not control for country development differences.

The relationship between product diversification and CSP is clearly understudied but there is also an international aspect to it. Research points out that industry characteristics often determine the degree to which firms adopt Corporate Social Responsibility (CSR) practices, while interpretations and other concerns may differ per country (Brammer, Millington 2008; Frynas 2009; Hawn, Kang 2013). The energy industry shows a similar pattern, it seems one of the leading industries in

terms of CSR but practices are adopted very unevenly within the industry (Frynas 2009). Therefore, this study will take both a stakeholder as well as an institutional perspective in order to answer two questions. The first question focuses on the diversification and institutional effects:

"What is the effect of product diversification on the corporate social performance within energy firms and how is this relationship moderated by the strength of the institutional environment of the host country?"

Within this relationship, we distinguished between related, unrelated and total product diversification because it defines the amount and diversity of stakeholders to take into account (Brammer, Millington 2008; Kang 2013).

Moreover, Patrisia and Dastgir (2017) suggest a longitudinal study on the relationship between product diversification and CSP in order to measure the consistency and validity of the relationship. This makes it possible to investigate changes in the relationship in anticipation of the Sustainable Development Goals and following their adoption in 2015. Since the Sustainable Development Goals (SDGs) are exogenous drivers of sustainable performance and achieving the SDGs would fulfill the long-term goals of energy firms, this leads to the second question that focuses on diversification and SDG effects:

"To what extent is the relationship between product diversification and CSP of energy firms moderated by the adoption of the Sustainable Development Goals?"

To answer the two questions, the remaining part of this paper is outlined as follows: literature review, methodology, results, discussion, and finally a brief conclusion.

2. Hypothesis development

2.1. Product diversification and corporate social performance

Several studies point out that industry characteristics often determine the degree to which firms adopt CSR practices (Brammer, Millington 2008; Frynas 2009; Hawn, Kang 2013). CSR standards seem to be highly diverse between industries but are usually shared between countries on an industry level. Even though the key

environmental and social concerns within industries are shared between countries, the interpretation and other concerns may differ per country. The energy industry shows a similar pattern, according to Frynas (2009) it is one of the leading industries in terms of CSR but practices are adopted very unevenly within the industry. This raises the question as to whether the CSP of firms within the energy industry is influenced by the product diversity of the firm due to the wider range of stakeholders.

Within this relationship, there will be distinction between related and unrelated product diversification. Related diversification can be described as the strategy where a firm expands its business related to its current products and services and/or within the same industry (Chen, Yu 2012). Contrastingly, unrelated diversification refers to the expansion of a firm's products and service in a different industry or market (Castañer, Kavadis 2013). The distinction is important for this particular study because industries differ in their interpretation and significance level to diverse societal issues (Brammer, Millington 2008). Therefore, the variety of stakeholder demands and social issues to take into account differs tremendously between related and unrelated diversified firms, where an unrelated diversified firm has to deal with a wide variety of stakeholders and a related diversified firm has a more coherent range of stakeholders (Kang 2013).

Both Kang (2013) and Patrisia and Dastgir (2017) find a positive relationship between unrelated product diversification and CSP and a negative relationship between related product diversification and CSP. Kang (2013) argues that there are three reasons for diversification to affect the CSP of firms. First, diversification provokes risk averse behavior, therefore inducing managers to respond. Moreover, diversification lowers the employment risk of managers which allows them to allocate more attention and firm resources. Finally, diversification gives a stronger incentive for firms to invest in CSP because it creates an economy of scope for CSP related investments. According to the stakeholder theory, diversified firms in general have to deal with a larger amount of salient stakeholders with regards to legitimacy, power and urgency compared to focused firms (Mitchel et al. 1997).

Within the relationship, the level of unrelated diversification is expected to be more positively associated with the CSP of the firms than is the level of related diversification. The argument from both Kang (2013) and Patrisia and Dastgir (2017)

is that unrelated diversification increases the amount of stakeholders and social demands more drastically compared to related diversification. Moreover, unrelated diversification is considered to have a stronger effect on managerial risk aversion compared to related diversification (Hitt et al. 1997) which implies that firms will take decisions more cautiously. However, for the non-renewable energy sector specifically, one would expect that with increasing policies firms would invest in renewable (sustainable) energy (Lund 2009; Steen, Weaver 2017). This form of related diversification would in turn lead to a better corporate social performance and therefore the relationship is expected to be positive. However, the effect is expected to be less strong compared to unrelated diversification. These arguments translate into the following hypothesis:

Hypothesis 1a: Related product diversification is positively related to the corporate social performance of firms operating in the non-renewable energy industry.

Hypothesis 1b: Unrelated product diversification is positively related to the corporate social performance of firms operating in the non-renewable energy industry.

In order to investigate the combined effect of unrelated and related product diversification, which was found to be insignificant in Patrisia and Dastgir's (2017) study, we formulated the following hypothesis:

Hypothesis 1c: Total product diversification is positively related to the corporate social performance of firms operating in the non-renewable energy industry.

2.2. Exposure to weak institutional host country environments

Similarly to expanding a business to product diverse markets, operating a business in different countries increases the amount of stakeholders. Kang (2013) argues that a firm's geographic diversification has a positive effect on its CSP based on the fact that firms expanding their international markets will face a more diverse set of stakeholders.

However, Yang and Rivers (2009) argue that engaging in different institutional environments poses challenges forMultinational Enterprises (MNEs) because the CSR attitudes in different (geographical) markets might differ from the firms' CSR

standards. This relates to the challenge of institutional duality for firms operating internationally (Hillman, Wan 2005; Kostova, Roth 2002). Indeed, several studies have suggested that the management and orientation of CSR differs significantly across different countries (Baughn et al. 2006; Bondy et al. 2004; Welford 2005; Wokutch 1990, as cited in Yang, Rivers 2009). Welford (2005) found that these differences are related to economic development, with developed countries having a predominantly higher occurrence of CSR-related activities. Similarly, Baughn et al. (2016) argue there is a relationship between a company's behavior towards CSR and the economic and social conditions of a country.

Strong institutional contexts can be seen as an imperative for CSR practices (Matten, Moon 2008), where developing countries are predominantly characterized by institutional voids, which increases the opportunities for corporate social irresponsibility (Mair, Marti 2008; Matten, Moon 2008). Even though it can be argued that firms diversify into countries with weak institutional environments to fill institutional voids, it is more likely that firms imitate the lower levels of CSR commitment of the host country competitors to decrease uncertainty and costs (Reimann et al. 2015). This phenomenon can be referred to as isomorphic processes according to institutional theory (Dimaggio, Powell 1983). Following this line of reasoning, we expect that diversification into weak institutional environments weakens the relationship between product diversification and CSP.

Hypothesis 2: Weak institutional host country environments weaken the positive relationship between product diversification and corporate social performance in the non-renewable energy industry.

2.3. Sustainable Development Goals as a moderating variable

Proactive and sustainable organizations increasingly implement sustainability and SDGs alignment in their (CSR) strategy and business models. In doing so, it can help them generate new revenue, ensure investor interest in addition to recruiting and retaining talent (Busco et al. 2018). A survey of the PWC (2015) shows that the SDG awareness among the business community is very high (92%), and that 71% of the organizations are planning on responding to and engaging with the SDGs (Busco et al. 2018). In addition to the financial benefits, focusing on the SDGs will further

strengthen the relationship between organizations and stakeholders. This is because developing and delivering solutions for the achievements of SDGs improves relationships with regulators and stakeholders and lowers the costs of compliance. Hence, when organizations successfully ingrain the SDGs in their strategy, this will enhance legitimacy in the form of improved credibility with the society and reduced future liability for any kind of environmental damage (Busco et al. 2018). In line with this argument, Schrettle et al. (2013) argue that exogenous and endogenous drivers lead firms to more sustainable efforts. Exogenous drivers can be divided into three stakeholder clusters: environmental regulation, societal values and norms, and market drivers. According to Busco et al. (2018), firms are externally driven by the SDGs to set goals regarding their impact in the future.

An example of a successful implementation strategy of the SDGs within the energy industry is the case of Iberdrola. The electric company puts a strong focus on sustainability and links its many successful initiatives directly with the SDGs. Hereby, the company focuses specifically on goal 7 by supplying affordable and clean energy and on goal 13 by combating climate change. In its efforts to play a pivotal role in sustainable development over the long term, Iberdrola invested millions of euros in the "green generation" as well as in accessibility to electricity in developing countries. A study of PWC in 2016 reveals that Iberdrola's efforts to actively participate in achieving the SDGs have been very successful (Busco et al. 2018).

Linking back to the original relationship of investigation, previous research predominantly shows that engaging in socially responsible actions increases firm (financial) performance (Cheng et al. 2016; Hasan et al. 2018; Sweeney, Coughlan 2013). Contrastingly, Victoria-López et al. (2007) find a negative relationship between CSR and corporate performance. However, this effect seems to apply only on the short term, which means firms should look past these short term effects in order to reap the benefits. In this line of argument, Kang (2013) argues that the relationship between corporate diversification and CSP is negatively affected by the focus on short-term profit.

Therefore, the expectation is that when a firm focuses on the SDGs, which are long-term goals and an exogenous driver of sustainable effort (Schrettle et al. 2013),

this focus positively moderates the relationship between product diversification and CSP:

Hypothesis 3: The positive relationship between product diversification and corporate social performance in non-renewable energy industry was strengthened by the adoption of the Sustainable Development Goals in 2015.

3. Methodology

3.1. Data

Quantitative analysis was conducted using secondary data on the firm-level over a time span ranging from 2011-2018, in order to investigate changes in anticipation of the SDGs and following their adoption. The data was accessed through Thomson Reuters' Eikon, Bureau van Dijk's Orbis and Compustat IQ.

3.2. Sample

The selected sample for this study consists of stock-listed, non-renewable energy firms. The energy industry in general has been selected because there seems to be great divergence in terms of CSR adoption in the industry. According to Frynas (2009), negative publication on non-renewable energy firms has put excessive pressure on the industry which in turn makes them pay more attention to CSR. However, even though the energy industry is one of the leading industries in terms of CSR, the practices are adopted very unevenly within the industry. Additionally, Steen and Weaver (2017) argue that the 'greening' process of energy systems implies that many non-renewable energy firms are subjected to (potentially) disruptive change. This implication is confirmed by a report of the Stakeholder Forum (2015) which states that the Sustainable Development Goal related to sustainable energy is indicated as the most important transformational challenge, together with climate change and sustainable consumption and production. These arguments make non-renewable energy firms a highly relevant sample for the sake of this study.

The selected firms are from a range of non-renewable energy industries and are displayed in Table 1. The displayed SIC codes were used to identify the industries

within Compustat and Orbis, while the corresponding NAICS codes were identified in Eikon. After merging the databases, not all industries that were originally selected were matched with firms that published all required data in the sample, this is indicated with a 0. The data presented in the three databases was matched and this resulted in a total of 40 multinational firms that published all required data over a time span of 2011-2018. The average number of employees of the sample firms is 31,274, ranging from 115 to 552,80 employees, meaning smaller and bigger firms are included in the sample. Furthermore, the average firm age is 53 years, ranging from 2 to 131 years. The selected firms represent 15 countries of origin, spread over Europe, Northern America and East Asia, while operating in a total of 170 countries. The resulting sample includes in total 320 observations with available data for all variables, except for the moderating variable, for a total of seven years: 2011-2018.

Table 1. Overview of selected firms and industries within sample

SIC Code	NAICS Code	Description of the industry	Number of firms in selected sample
1221	2121	Bituminous coal and lignite surface mining	0
1222	2121	Bituminous coal underground mining	0
1241	2131, 2389	Coal mining services	0
1311	2111	Crude petroleum and natural gas	14
1321	2111	Natural gas liquids	0
1381	2131	Drilling oil and gas wells	3
1382	2131, 5413	Oil and gas fields exploration services	7
1389	2131, 2371, 2389	Oil and gas fields exploration services, not elsewhere classified	9
2911	3241	Petroleum refining	7
4612	4861	Crude petroleum pipelines	0
4613	4869	Refined petroleum pipelines	0

3.3. Measurements

3.3.1. Dependent variable: Corporate Social Performance

The dependent variable of this study is the *corporate social performance* of non-renewable energy firms. This variable will be measured by means of the combined score of economic, environmental, social and governance (ESG) measures, using the Thomson Reuters' Eikon database. This measure is used by a number of recent prior studies (e.g. Eding, Scholtens 2017; El Ghoul et al. 2017; Ioannou, Serafeim 2012; Maon et al. 2017; Tarmuji et al. 2016) and is considered to be comprehensive and standardized as it is collected through a consistent strategy across national boundaries (Tarmuji et al. 2016). The Eikon ESG score is chosen as measure for CSP for several reasons. First of all, it is a global dataset which covers more than 7000 companies which makes it much more internationally diversified compared to the KLD index, another widely used measure of CSP, which only captures data on US firms (Eding, Scholtens 2017). The second reason is that the data is highly objective, easily accessible and very usable for quantitative analysis (Ioannou, Serafeim 2012). This study utilized the combined ESG score which is a result of overlaying the ESG score with ESG controversies in order to provide a comprehensive evaluation on the impact and conduct of the company's sustainability (Refinitiv Reuters 2019). The value of the combined ESG score ranges from 0-100 with 100 being the highest possible score (Refinitiv Reuters 2019).

3.3.2. Independent variables: product diversification

The independent variables of this study represent *related, unrelated, total product diversification*. Based on extensive literature on diversification (Baysinger, Hoskisson, 1989; Jacquemin, Berry 1979; Palepu 1985; Hitt et al. 1997; Hoskisson, Johnson 1993), the entropy measure of diversification is utilized to measure the independent variables of this study. This measure is chosen because it takes into account the number of segments in which a firm operates as well as the relative importance of each segment in terms of sales (Palepu 1985). The advantages of the entropy measure are the high levels of objectivity, reliability and the ability to

consider the type and level of diversification concurrently (Martin, Sayrak 2003; Patrisia, Dastgir 2017; Sambharya 2000). Moreover, similar studies (Kang 2013; Patrisia, Dastgir 2017) used the same entropy measurement. The data for this variable was derived from the Compustat IQ database. For a detailed description of these three variables see appendix B.

3.3.3. Moderating variables: institutional environments and introduction of SDG's

Sustainable Development Goals. In order to examine how the Sustainable Development Goals, which serves as a moderating variable, affect the relationship between product diversification and CSP, the main relationship will be studied over a time period. The SDGs are adopted in September 2015, and officially came into force on January 1st, 2016 (United Nations 2019), which means that panel data is able to capture the differences over the years. The selected time period is from 2011-2018 in order to be able to investigate the possible differences between the relationship four years before and the three years following from the adoption of the Sustainable Development Goals. This is a similar approach to Jimenez-Parra, Alonso-Martinez and Godos-Diez (2018) who used a time frame of eight years (2006-2013) to investigate the effect of regulation.

Exposure to weak institutional environments. The second moderating variable of this study represents the *exposure to weak institutional environments.* Since the literature does not present a specific measure for this variable, the measurement is an adaptation based of a commonly used measure of internationalization in the context of CSR research. Oftentimes, internationalization is measured as the number of unique countries a firm operates in (Bansal 2005; Keig 2013; Strike et al. 2006), but this measure does not take into account the intensity and depth of exposure to foreign host country environments. Therefore, an additional measure is to count the number of foreign subsidiaries that a firm has formed (Chetty et al. 2006; Strike et al. 2006). Since the aim of the moderating variable is to measure the effect of exposure to weak institutional host country environments, the measure was adapted by specifying the presence of subsidiaries in developed and least developed countries. For a detailed description see appendix B. The development

of countries was defined in line with the United Nations World Economic Situation and Prospects (WESP) country classification (019). For the purpose of measuring the moderating variable in this study, the countries classified within the categories developing and least developed countries were considered as *weak institutional environments.*

Unlike the other variables, the moderating variable will only be tested in the year 2018 since the required subsidiary panel data was not available in the Orbis database.

3.3.4. Control variables: firm and market conditions

In order to rule out alternative explanations, this study includes several control variables that have been proven to impact corporate social performance in prior research. Firm size, firm performance, firm age, and market-to-book ratio have been included as control variables on the firm level, where CSP means have been included on the industry- and country level.

Firm size: The first control variable included is firm size as larger firms generally have a higher CSP due to the fact that they have the resources available to invest in socially responsible behavior (Liang, Renneboog 2017; Perrini et al. 2007; Useem 1988). In addition to larger firms having more opportunities to invest in CSR, larger firms are more visible to the public which means they face higher levels of stakeholder pressure which in turn might lead them to behave more responsibly (Brammer et al. 2006). In line with previous studies, the number of full-time employees was used as a proxy for firm size (Baumann-Pauly et al. 2013; Kang 2013; Perrini et al. 2007), which was logarithmically transformed in order to ensure normality.

Firm age: Firm age is included as a control variable as it has been proven to have a positive effect on CSP (Withisuphakorn, Jiraporn 2017). Firm age has been measured as the logarithm of the number of years since the company was founded from 2011-2018.

Market-to-book ratio: The market-to-book ratio was included to control for the existence of intangible assets such as R&D capability and brand strength since it may affect the CSP of firms (McWilliams, Siegel 2000; Kang 2013). The market-

to-book ratio is able to determine the growth opportunities or the potential to grow (Choi, Moon 2016). The market-to-book ratio was included as a control variable rather than other predicting measures such as R&D data since this data was unavailable for the firms within the sample.

Firm performance: The fourth control variable included represents firm performance as it is expected to have a positive effect on CSR commitment. As CSR might be considered as a costly choice for firms, it is rather sensitive to the existence of slack resources (Jackson, Apostolakou 2010). Thus, firms with a higher amount of slack resources are more likely to invest in CSR (Waddock, Graves 1997) and consequently have a higher CSP score (Jackson, Apostolakou 2010). Following similar studies (Kang 2013; Patrisia, Dastgir 2017), firm performance is measured by calculating the Return on Assets (ROA), which reflects the operating performance of the firm by presenting the asset utilization (Griffin, Mahon 1997; Vitezić et al. 2012). The data was derived from the Compustat database.

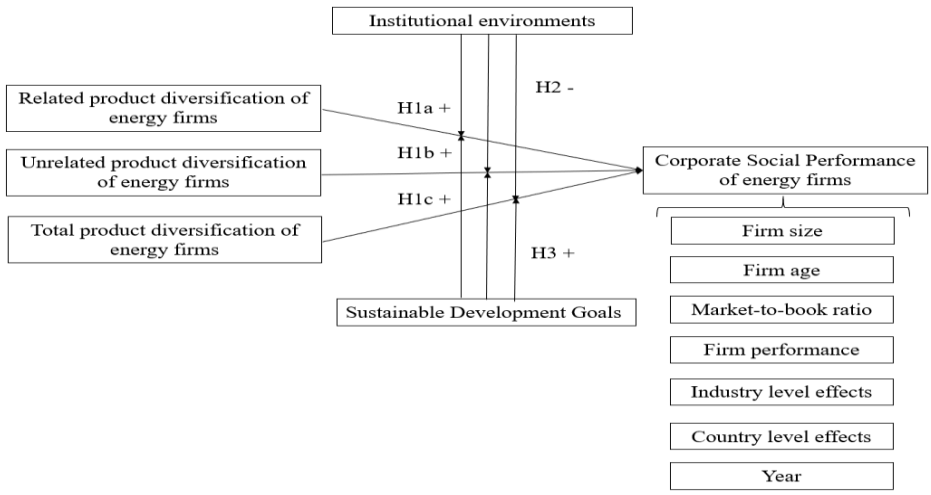
Industry level effects: In order to control for industry differences in CSP, the mean CSP scores by industry (two-digit SIC code) are included, following prior related studies (Kang 2013; Patrisia, Dastgir 2017). Controlling for industry level effects is especially important for the energy industry in general since CSR practices seem to be adopted uniquely within the industry (Frynas 2009). The data for this variable was calculated as the mean ESG score per industry, derived from the Thomson Reuters' Eikon database.

Country level effects: Following a similar line of reasoning as industry-level effects, the mean CSP scores by country are included as a control variable. Frynas (2009) argues that the interpretation of CSR differs tremendously per country, meaning that country standards might have an effect on the adoption of CSR. Similarly, this variable was calculated as the mean ESG score per country for every industry, derived from the Thomson Reuters' Eikon database. Moreover, STATA offers the possibility to control for fixed country level effects, using location of the headquarters, which is included in the analysis as well.

3.3.5. Conceptual model

The following conceptual model (Figure 2) illustrates the expected relationships while including the control variables discussed in this chapter and our hypotheses are included as well.

Figure 1. Conceptual model including control variables



3.3.6. Data analysis

In order to gain insights in the relationship between product diversification and CSP, several regression analyses will be conducted. The regression technique used to analyze the relationship is Ordinary Least Squares (OLS) regression. This technique is a suitable approach when the dependent variable is continuous, which is the case for CSP. The panel data was analyzed using fixed effects. Fixed effects is a suitable approach when the aim is to explore the relationship between independent and dependent variables within an entity (Torres-Reyna 2007). Moreover, considering the relatively large amount of control variables, interaction effects between control variables and independent variables have been disregarded and therefore this study only measures the direct effect of the control variables.

In addition to the regular regression analysis, lagged regression is applied for hypothesis 3. Time lags account for the fact that certain events can take time to have an effect on the dependent variable, which makes them highly useful within panel data. Since CSP is a long-term oriented indicator, lagged regression can anticipate the effect of product diversification towards CSP which did not occur immediately or in the same period (Patrisia, Dastgir 2017). Moreover, lagged analysis makes it possible to analyze the effect of the SDGs in a later period in time, which allows for a delay in the reaction of the firm after the adoption of the goals. Therefore, after running the regular regression analysis for hypothesis 3, the regression was repeated with lagged independent and moderating variables. While the choice of time lags is highly debated (Dormann, Griffin 2015), this paper uses 1-, and 2-year lags as the SDGs were officially enforced in 2016, while the total panel runs until the end of 2018.

4. Results

4.1. Descriptive statistics and preliminary analysis

Table 2 portrays an overview of the descriptive statistics of the variables used in this research. The sample consists of 40 individual firms originating from 15 countries, these firms have been analyzed over a time frame of 7 years which totals to 320 observations for every variable. An exception here is the exposure to weak institutional environments of which the sample consisted of 55 firms which were only analyzed over a 1-year time frame. This will be further explained in the results section. Table 3 presents the descriptive statistics of the variables used for hypothesis 2.

The descriptive statistics in Table 2 show that the minimum and maximum CSP scores differ tremendously with a minimum of 15.46 and a maximum of 89.02 respectively, which means that higher and lower CSP levels are well represented in the sample. The mean CSP score for all firms is similar to the CSP industry and country means, however, the minimum and maximum scores of those variables are much lower and difference between them much smaller. In terms of the independent

variables, a striking difference can be noted between related product diversification and unrelated and total product diversification. All minima are 0 which means that there are firms in the sample who are not diversified at all, however, the means and maxima show that the values of unrelated diversification are much higher than related product diversification, with a mean of 0.212 versus 0.0561 respectively.

Hence, the level of unrelated product diversification is higher than related product diversification. Finally, it is important to notice that the minimum value for exposure to weak institutional environments is 0 (Table 3) and the maximum is 1. Hence, there are firms present in the sample that are not at all exposed to weak institutional environments and firms who are merely operating in weak institutional environments.

Table 4 represents the correlation matrix of all variables used in this study. Using an absolute threshold of 0.7 (Dormann et al. 2013) the correlation matrix shows that total product diversification and related product diversification are strongly correlated with a significant value of 0.921. However, this does not come as a surprise since total product diversification is calculated as the sum of related and unrelated product diversification. Since the independent variables will never be used in the same model, this breach is not expected to distort the results of this study. Furthermore, year and SDGs effective are highly correlated with a significant value of 0.845. This correlation was expected since the adoption of the SDGs was measured as a dummy variable of year. Since the SDGs are a time-dependent variable, both will still be utilized in this study

Before using regression analysis, several tests were conducted for the classical assumptions of OLS regressions, including normality, heteroskedasticity, and correlation. The outcomes of these tests are described in detail in Jongsma (2020).

Table 2. Descriptive statistics hypothesis 1 and 3

	(1)	(2)	(3)	(4)	(5)
VARIABLES	N	mean	sd	min	max
Dependent variable					
CSP	320	48.76	15.97	15.46	89.02
Independent variables					
Related Product Diversification	320	0.0561	0.119	0	0.587
Unrelated Product Diversification	320	0.212	0.295	0	1.540
Total Product Diversification	320	0.268	0.300	0	1.578
Moderating variable					
SDGs effective	320	0.693	0.462	0	1
Control variables					
CSP Industry Mean	320	45.06	4.133	40.68	56.73
CSP Country Mean	320	44.00	2.061	39.97	51.96
Firm Age	320	53.17	30.77	2	131
- Log Firm Age	320	3.767	0.712	0.693	4.875
Firm Size	320	31,274	84,181	115	552,8
- Log Firm Size	320	8.779	1.754	4.745	13.22
Market-to-book ratio	320	1.577	1.537	-9.991	9.526
Firm Performance	320	-0.00277	0.238	-3.301	0.566
Company	320	20.50	11.56	1	40
Country	320	10.13	5.320	1	15
Year	320	2,015	2.295	2,011	2,018
CSP Lag 1	280	48.521	16.381	15.46	89.02
CSP Lag 2	240	47.285	16.06	15.46	89.02

Table 3. Descriptive statistics hypothesis 2

	(1)	(2)	(3)	(4)	(5)
VARIABLES	N	mean	sd	min	max
Dependent variable					
CSP	55	48.095	13.10	20.32	75.23
Independent variables					
Related Product Diversification	55	0.0390	0.956	0	0.366
Unrelated Product Diversification	55	0.153	0.237	0	1.055
Total Product Diversification	55	0.192	0.242	0	1.055
Moderating variable					
Exposure to Weak Environments	55	0.211	0.257	0	1
Control variables					
CSP Industry Mean	55	44.33	1.581	43.09	47.67
CSP Country Mean	55	43.87	1.383	40.92	47.67
Firm Size	55	21,640	67,035	60	476,223
- Log Firm Size	55	8.256	1.836	4.174	13.07
Company	55	20.50	11.56	1	55
Country	55	10.13	5.601	1	15
Year	55	2018	0	2018	2018

Table 4. Correlation matrix

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. CSP	1											
2. Related PD[1]	0.0958	1										
3. Unrelated PD	0.0779	-0.166**	1									
4. Total PD	0.115*	0.921***	0.232***	1								
5. SDGs effective	0.138*	-0.0306	-0.0147	-0.0360	1							
6. CSP country mean	-0.0384	-0.0781	-0.0901	-0.113*	0.296***	1						
7. CSP industry mean	0.189***	0.0135	-0.0561	-0.00888	0.0873	0.150**	1					
8. Firm age	0.0487	0.0946	0.0414	0.110*	0.0833	0.194***	0.239***	1				
9. Firm size	0.0469	0.438***	0.0446	0.450***	-0.0624	0.181**	0.194***	0.245***	1			
10. Market-to-book ratio	-0.00395	0.0115	0.143*	0.0679	-0.0867	-0.156**	-0.151**	-0.00930	-0.0345	1		
11. Firm performance	-0.0297	0.0814	-0.00763	0.0773	-0.0266	-0.0734	0.0127	0.0299	0.160**	0.177**	1	
12. Year	0.167**	-0.0312	-0.00508	-0.0328	0.845***	0.317***	0.0940	0.101	-0.0578	-0.151**	-0.128*	1

*** $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$**

[1] PD = Product Diversification.

4.2. Regression results

Tables 5, 6 and 7 present the results of the Ordinary Least Squares regression analysis using fixed effects and robust standard errors. An overview of the variables and scales used in the regression for a better understanding of the unstandardized coefficients can be found in appendix B. As there are three hypotheses tested through regression analysis, each will be discussed individually. In addition, for hypothesis 3, 1-, and 2-year lags were conducted and analyzed which can be found in Table 8.

4.2.1. The relationship between product diversification and CSP

Table 5 presents the results of the first regression analysis, where model 1 only includes the control variables for comparative purposes and in model 2, 3, and 4 the independent variables are included individually. Due to the high correlation between related product diversification and total product diversification, it was not possible to include a model with all the independent variables.

After the inclusion of the independent variable related product diversification in model 2, the control variables CSP country mean and firm size remain highly significant, and the significance level of CSP industry mean decreases to $p<0.05$. The inclusion of related product diversification evokes the *R-squared* to increase from 29.4% to 32%, thus slightly increasing the explanatory power of the model. However, related product diversification itself has a negative, though insignificant effect on CSP (β=-5.258, $p>0.1$), therefore not supporting hypothesis 1a.

Model 3 includes the independent variable unrelated product diversification which increases the *R-squared* to 32.6%. Moreover, unrelated product diversification has a positive and significant effect on CSP (β=7.066, $p<0.1$), which provides support to hypothesis 1b. Hence, if the level of unrelated product diversification increases, firms perform better in terms of CSR.

Finally, model 4 includes the independent variable total product diversification, which results in a *R-squared* of 32.3%. The control variables CSP industry mean, CSP country mean, and firm size remain positive and significant. However, total product diversification has a positive, yet insignificant effect on CSP (β=5.482, $p>0.1$) Therefore, hypothesis 1c was not supported.

Table 5. OLS regression resuls for hypothesis 1

CSP (H1)	(1)	(2)	(3)	(4)
VARIABLES	Model 1	Model 2	Model 3	Model 4
Control variables				
CSP industry mean	0.716*** (0.242)	0.594** (0.257)	0.630** (0.254)	0.644** (0.254)
CSP country mean	2.212*** (0.720)	2.242*** (0.767)	2.194*** (0.785)	2.169*** (0.787)
Firm size (log)	2.899*** (0.736)	3.247*** (0.744)	2.967*** (0.727)	2.857*** (0.732)
Firm age (log)	-1.889 (1.783)	-1.199 (1.783)	-2.400 (1.801)	-2.070 (1.783)
Market-to-book ratio	-0.0965 (0.440)	-0.097 (0.442)	-0.1906 (0.447)	-0.168 (0.442)
Firm performance	-1.150	-0.616	-0.958	-0.819
Country fixed effects	(2.697) Yes	(2.608) Yes	(2.552) Yes	(2.522) Yes
Independent variables				
Related PD		-5.258 (7.700)		
Unrelated PD			7.066* (3.899)	
Total PD				5.482 (3.883)
Constant	-86.31*** (31.75)	35.39 (34.55)	37.84 (35.27)	36.29 (35.28)
Observations	320	320	320	320
R-squared	0.294	0.320	0.326	0.323
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1				

4.2.2. The moderating effect of exposure to weak institutional environments

Table 6 presents the results of the second regression analysis which is, unlike the other regressions, only conducted over the year 2018. However, due to missing data, 40 firms are not sufficient to run a regression with all the control variables included, since a proper regression analysis requires a minimum of 10 observations per variable (Tabachnic, Fidell 2007). Therefore, the sample size was increased by 15 firms which provided the necessary data in the year 2018. This brings the total number of observations to 55, which means that 5 variables can be included in the analysis. Since the first regression revealed that only the CSP industry mean, CSP country mean and firm size are significant predictors of CSP, they have been

included in the second regression while the insignificant control variables were left out.

Table 6. OLS Regression results for hypothesis 2

CSP (H2)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Control Variables							
CSP industry mean	-0.848 (1.150)	-0.847 (1.165)	-0.726 (1.224)	-0.721 (1.224)	-0.687 (1.332)	-0.501 (1.300)	-0.416 (1.376)
CSP country mean	-3.164*** (0.906)	-3.149*** (0.931)	-3.809*** (1.031)	-3.680*** (0.992)	-4.322** (1.600)	-5.102*** (1.670)	-5.136*** (1.831)
Firm size (log)	2.957** (1.457)	2.932* (1.496)	2.582* (1.510)	2.441 (1.609)	3.418** (1.663)	3.127 (1.894)	3.029 (2.008)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Independent variables							
Related PD		1.833 (14.79)			4.221 (23.04)		
Unrelated PD			12.65 (10.19)			11.41 (25.34)	
Total PD				11.96 (10.27)			9.953 (21.66)
Interactions							
Weak environments					-9.278 (10.88)	-10.14 (10.17)	-11.30 (11.88)
Related PD × Weak environments					-6.497 (98.25)		
Unrelated PD × Weak environments						4.784 (54.68)	
Total PD × Weak environments							9.204 (48.48)
Constant	220.1*** (69.92)	219.5*** (71.34)	245.1*** (69.97)	240.3*** (70.08)	266.3*** (85.10)	294.5*** (84.77)	293.6*** (88.45)
Observations	55	55	55	55	55	55	55
R-squared	0.374	0.374	0.396	0.395	0.392	0.414	0.416
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1							

Similar to the first result table, model 1 only includes the control variables and in model 2, 3, and 4 the independent variables are added individually. Additionally, model 5, 6, and 7 present the interaction effect of the exposure to weak institutional environments with the respective independent variables.

Since a relatively low number of individual coefficients in the regression show a significant effect on CSP, this section will not discuss all models separately but focus on the striking details. Though a lower amount of the individual coefficients are significant in the second regression, the *R-squares* are higher compared to the first regression models and increase steadily with the inclusion of the independent variables and interactions. However, none of the independent variables, nor the interactions are significant. The most logical explanation for the increased *R-squares* is that the explanatory power is higher due to the small number of observations, being 55 rather than 320. Due to the low number of observations, the standard errors are also quite high. For these reasons, it should be concluded that hypothesis 2 cannot be confirmed based on the regression results, implying that the exposure to weak institutional environments does not have a moderating effect on the relationship between product diversification and CSP.

4.2.3. The moderating effects of the Sustainable Development Goals and lagged analyses

Table 7 presents the results of the third regression model, including the moderating effect of the enforcement of the Sustainable Development Goals in 2016, as illustrated in model 1, 2, and 3.

Model 1 shows that after the inclusion of the interaction effect between related product diversification and the SDGs, there is a slight increase in the *R-Squared* of 32% to 32.3%. However, related product diversification remains to have a negative, though insignificant effect (β=-10.54, p>0.1), whereas the interaction effect has a positive, insignificant effect on CSP (β=13.91, p>0.1).

Model 2 shows very striking and surprising results for the interaction effect between unrelated product diversification and the SDGs. The individual effect of unrelated product diversification is positive and highly significant (β=11.83, p<0.01), and the effect of the adoption of the SDGs also has a positive and significant effect on CSP (β=8.336, p<0.5). However, when the interaction effect is included, it becomes clear that the SDGs have a strong weakening and significant effect on the relationship between unrelated product diversification and CSP (β =-15.20, p<0.01). As this result was very unexpected, a margins plot, Figure 3, was

created in Stata to graphically show the weakening moderating effect. The red line shows the effect of unrelated product diversification on CSP after the SDGs were adopted, while the blue line represents the relationship before the adoption of the SDGs. From the margins plot it becomes clear that at lower levels of unrelated product diversification, CSP levels are higher once the SDGs are adopted, but the CSP immediately decreases when levels of unrelated product diversification increase. The exact opposite happens before the SDGs were adopted, thus, low levels of unrelated product diversification are favorable after the adoption of the SDGs where high levels of unrelated product diversification were favorable before 2016. The two lines cross each other at a level of 0.5, being a moderate level of diversification.

Model 3 shows similar results as model 2 but the coefficients and significance levels are slightly lower. The *R-Squared* increases from 32.3% to 33.6% with the inclusion of the interaction effect between total product diversification and CSP. The effect of total product diversification is now positive and significant (β=9.387, p<0.5), and the adoption of the SDGs still has a positive and significant effect on CSP (β=8.513, p<0.5). However, similar to model 2, the interaction effect between total product diversification and the SDGs is negative (β=-12.94, p<0.5). This effect was again graphically depicted in a margins plot in Figure 4. As illustrated in the margins plot and the coefficients in model 3, the interaction effect of total product diversification is a little less strong compared to unrelated product diversification but it follows a similar pattern.

Figure 3. Moderating effect of unrelated product diversification x SDGs

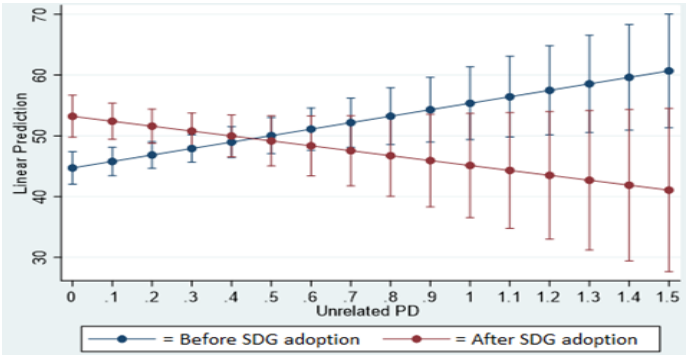
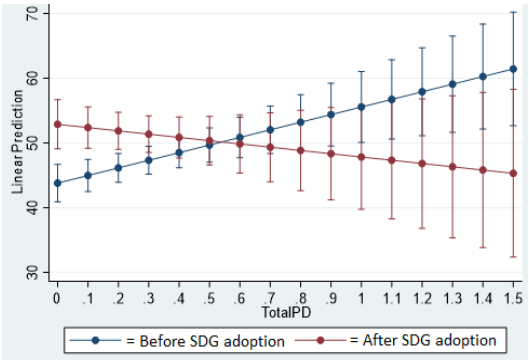


Figure 4. Moderating effect of total product diversification x SDGs



In addition to analyzing the regular moderating effect of the SDGs, 1-, and 2-year analyses were conducted which can be found in Table 8. Model 1, 2, and 3 represent the 1-year lag analysis and model 4, 5, and 6 illustrate the 2-year lag analysis of the interaction effects.

Compared to Table 7, the lagged analysis show similar results in terms of the independent variables and the interaction effects. However, the beta coefficients and significance levels increased significantly, and while the direct effect of the SDGs is not significant anymore, the SDGs provide significant interaction effects throughout all lagged analyses. The lagged analyses resulted in a significant, negative relationship between related product diversification and CSP of which the effect is weakened by the SDGs in the lagged analysis. Contrastingly, unrelated and total product diversification are positively and significantly related to CSP and the adoption of the SDGs weaken this relationship. Since it was hypothesized that the SDGs would strengthen the positive relationship between product diversification and CSP, hypothesis 3 is not confirmed as both the regular as well as the lagged regression results show that the SDGs weaken the positive relationship.

Table 7. OLS regression results for hypothesis 3

CSP (H3) **Variables**	(1) Model 1	(2) Model 2	(3) Model 3
Control Variables			
CSP industry mean	0.583** (0.259)	0.614** (0.255)	0.637** (0.255)
CSP country mean	-0.596 (0.770)	-0.241 (0.798)	-0.258 (0.808)
Firm size (log)	3.282*** (0.747)	3.012*** (0.718)	2.892*** (0.718)
Firm age (log)	-2.110 (1.815)	-2.439 (1.779)	-2.327 (1.787)
Market-to-book ratio	0.103 (0.437)	0.00826 (0.432)	0.0386 (0.434)
Firm performance	-0.349 (2.547)	-1.046 (2.431)	-1.142 (2.488)
Country fixed effects Year	Yes Yes	Yes Yes	Yes Yes
Independent Variables			
Related PD	-10.54 (9.781)		
Unrelated PD		11.83*** (4.239)	
Total PD			9.387** (4.233)
Interactions			
SDGs effective	5.132 (3.404)	8.336** (3.327)	8.513** (3.391)
Related PD x SDGs effective	13.91 (12.81)		
Unrelated PD x SDGs effective		-15.20*** (4.812)	
Total PD x SDGs effective			-12.94** (5.078)
Constant	38.21 (34.73)	21.89 (35.73)	20.17 (36.09)
Observations	320	320	320
R-squared	0.323	0.343	0.336
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Table 8. OLS regression results for lagged analysis of hypothesis

CSP	1-Year Lag	1-Year Lag 1	1-Year Lag	2-Year Lag	2-Year Lag	2-Year Lag
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Control variables						
CSP industry mean	0.403 (0.263)	0.470* (0.253)	0.484* (0.254)	0.372 (0.274)	0.428 (0.261)	0.449* (0.267)
CSP country mean	0.328 (0.780)	0.274 (0.854)	0.251 (0.851)	0.120 (1.007)	0.146 (1.145)	0.141 (1.138)
Firm size (log)	3.219*** (0.771)	2.572*** (0.701)	2.518*** (0.730)	3.559*** (0.831)	2.702*** (0.772)	2.640*** (0.818)
Firm age (log)	-2.578 (1.826)	-2.896 (1.798)	-2.656 (1.823)	-3.101* (1.801)	-3.394* (1.755)	-3.095* (1.801)
Market-to-book ratio	-0.594 (0.512)	-0.679 (0.485)	-0.633 (0.489)	-0.364 (0.470)	-0.578 (0.418)	-0.542 (0.431)
Firm performance	-3.498 (4.568)	-2.959 (4.364)	-2.899 (4.450)	-1.609 (3.355)	-1.018 (3.318)	-0.925 (3.381)
Country fixed effects	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes	Yes Yes
Independent variables						
Related PD	-24.62** (9.708)			-36.18** (9.986)		
Unrelated PD		13.45*** (4.625)			18.76*** (5.082)	
Total PD			7.901 (4.868)			11.44** (5.615)
Interactions						
SDGs effective	-5.111 (3.852)	-1.136 (3.893)	-1.357 (3.924)	-2.968 (3.726)	3.479 (3.564)	2.869 (3.726)
Related PD × SDGs effective	22.00* (12.17)			33.70*** (12.17)		
Unrelated PD × SDGs effective		-12.79*** (4.747)			-18.98*** (4.829)	
Total PD × SDGs effective			-9.209* (5.336)			-13.51** (5.472)
Constant	23.99 (35.69)	22.10 (38.68)	20.51 (38.53)	32.95 (44.03)	26.70 (50.14)	23.89 (49.84)
Observations	280	280	280	240	240	240
R-squared	0.334	0.344	0.329	0.333	0.350	0.326

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5. Discussion

5.1. Overview of the results

This study was designed to investigate the relationship between product diversification and corporate social performance of non-renewable energy firms, and how the exposure to weak institutional environments and the Sustainable Development Goals influence this relationship. Table 9 presents an overview of the results from the regression analyses, which will be discussed in more detail in the remaining part of this section.

Table 9. Hypothesis results

Hypothesis	Results
Hypothesis 1a: Related product diversification is positively related to CSP	Not confirmed
Hypothesis 1b: Unrelated product diversification is positively related to CSP	Confirmed
Hypothesis 1c: Total product diversification is positively related to CSP	Not confirmed
Hypothesis 2: Exposure to weak institutional environments weakens the positive relationship between product diversification and CSP	Not confirmed
Hypothesis 3: The SDGs strengthen the positive relationship between product diversification and CSP	Contradictory

5.2. Discussion of the results

5.2.1. The relationship between unrelated product diversification and CSP

Based on an extensive literature review and building upon stakeholder theory, the first hypothesis stated that all forms of product diversification were positively related to the CSP of firms operating in the energy industry. The positive and significant effect of unrelated product diversification was expected for several reasons, all linking back to the perspective of the stakeholder view, which states that firms create value by taking into account all groups related to them (Freeman 1984). Linking the importance of stakeholder demands to product diversification, it is important to notice that CSR standards are usually shared on a specific industry level (Frynas 2009), but the interpretation and significance level to diverse societal

issues differs tremendously between industries. Therefore, since expanding into unrelated product markets means firms need to deal with a broader and more diverse amount of stakeholders in order to gain legitimacy, it does not come as a surprise that our results pointed out that unrelated product diversification is positively related to CSP. This outcome is in line with similar studies of Kang (2013) and Patrisia and Dastgir (2017), who also found a positive relationship, though the sample and setting of their studies was very different.

5.2.2. The relationship between related product diversification and CSP

Kang (2013) and Patrisia and Dastgir (2017) both found a negative and significant effect between related product diversification and CSP. This paper did not follow their results and contrastingly hypothesized that related product diversification was positively related to CSP for several reasons. As mentioned before, Kang (2013) and Patrisia and Dastgir (2017) used a different sample in their study, where the first focused on US-based firms operating in different industries and the latter on manufacturing firms from Indonesia. Since this paper focuses on the energy industry, which is highly susceptible to regulatory changes, we expected that firms who diversified into related areas would still have a positive effect on CSP. Connecting the 'greening' process theory of Steen and Weaver (2017) with the increased stringency of regulations in the energy industry, we expected that incumbents would invest more in renewable energy (Lund 2009) which would in turn increase their CSP. However, there are also numerous arguments against the positive relationship (McCarthy 2018; Li et al. 2016), while having a number of downsides in terms of coordination costs (Patrisia, Dastgir 2017). However, all of these arguments are reasoned from a cost perspective in terms of corporate financial performance rather than corporate social performance which provides value in a different way. Moreover, from a stakeholder perspective it could be argued that relatedly diversified firms still must deal with more stakeholders than focused firms. Since the area is highly understudied and provides insignificant results in this current study, we recommend future research on the topic to obtain more conclusive results.

5.2.3. The relationship between total product diversification and CSP

Finally, hypothesis 1c stated that total diversification would be positively related to CSP. This hypothesis was included in order to investigate the combined effect of related and unrelated product diversification and was therefore expected to be positive. However, the results reveal a positive, insignificant effect of total product diversification on CSP. Patrisia and Dastgir (2017) expected a positive relationship as well but did not find a significant effect. This could be due to the fact that the signs of related and unrelated product diversification were different in the first place. Another possible explanation of the insignificant effects of both related and total product diversification could be that the two variables turned out to be highly correlated (0.921, $p<0.001$). However, this does not explain the difference in sign while both types of diversification were expected to be positive based on the literature. This could be due to the fact that unrelated diversification proportionally added more to total diversification compared to related product diversification due to the higher values as presented in the descriptive statistics (Table 2). Nevertheless, due to the insignificance of the results, no conclusions can be drawn which in turn provides avenues for future research in the field of both related and total product diversification.

5.2.4. The moderating effect of exposure to weak institutional host country environments

Hypothesis 2 was based on a combination of institutional theory and stakeholder theory and stated that the exposure to weak institutional environments would weaken the relationship between product diversification and CSP. The model of Barrena-Martinez et al. (2015) explains how institutional theory and stakeholder theory function as the two solid pillars in the macro- and micro-context explaining the pressure that lead firms to engage in CSR, as operating in different institutional environments complicates gaining internal as well as external legitimacy (Hillman, Wan 2005; Kostova, Roth 2002). Since weaker institutional environments increase opportunities for corporate social irresponsibility (Mair, Marti 2008; Matten, Moon 2008), we expected that isomorphic pressures would lead firms to imitate the lower levels of CSP of their host country competitors (Reimann et al. 2015). However,

Table 6 shows that both the direct effect of exposure to weak institutional environments and its interaction with product diversification are insignificant. Thus, the empirical analysis does not support the moderating effect of weak institutional environments.

The first and most pertinent possible explanation of the insignificant results would be the low number of observations, as this hypothesis was only tested over a 1-year time frame with 55 firms. Another possible explanation of the insignificant effect could be that most firms in the sample were large firms who are more likely to publish sustainability reports and are thus more likely to be included in the sample. These firms generally commit more to CSP due to their visibility and the availability of resources and data (Brammer et al. 2009; Drempetic et al. 2017; Perrini et al. 2007), which is confirmed by the positive significant effect of firm size on CSP in most regression models. This suggests that regardless of the level of internationalization or exposure to weak environments, larger firms generally have a higher level of CSP. Moreover, looking at the other control variables, it can be concluded that the CSP country mean has a highly significant, but negative effect on CSP on the firm level throughout all regression models. This outcome confirms Matten and Moon's (2008) argument that CSR is embedded in the institutional system of a country. This suggests that the average CSP score in the home country is a strong predictor of the CSP score of firms, meaning that they may be less susceptible to social demands and expectations in the host country. This argument is strengthened by the fact that the measurement of CSP in this study is an aggregation of CSP attributes of the firm in general. Thus, negative activities in weaker institutional environments might be overshadowed by positive practices in developed countries which could be another possible explanation for the insignificant effects.

5.2.5. The moderating effect of the adoption of the Sustainable Development Goals

Finally, hypothesis 3 expected that the adoption of the SDGs would strengthen the positive relationship between product diversification and CSP. This interaction effect was expected since firms are externally driven by the SDGs to set goals

regarding their impact on the future (Busco et al. 2018). Moreover, long-term orientation has been found to have a positive effect on the relationship between product diversification and CSP (Kang 2013). Hence, since the SDGs are long-term goals and function as an exogenous driver of sustainable effort (Schrettle et al. 2013), we argued that SDGs would positively moderate the main relationship. To our surprise, the regression results as displayed in Table 7 prove an opposite interaction effect with unrelated and total product diversification. The direct effect of the SDGs show a positive effect on CSP, which can be explained by the arguments above as well as by increased legitimacy due to improved stakeholder relations (Busco et al. 2018). However, when interacted with unrelated and total product diversification the SDGs prove to have a strong weakening, significant effect on the relationship. The direct and interaction effect of the SDGs was not present in the model that included related product diversification. Interestingly, in the lagged analyses, related product diversification has a highly negative, significant direct effect on CSP and a positive interaction effect with the SDGs, while the direct effect of the SDGs is not significant anymore in any of the lagged models. This demonstrates how it might take time for events and regulations to have an effect on certain firm behavior.

Though very unexpected, the results open up new opportunities for the discussion of different views and possible explanations. First of all, it is important to reiterate that SDG goal 7: "*Ensure access to affordable, reliable, sustainable and modern energy for all"* (United Nations 2019) is one of the most important goals (Stakeholder Forum 2015) because energy is central to almost every major challenge in the world today. Access to energy is therefore one of the core components on the agenda, but the production of sustainable, renewable, energy is also pivotal since the current energy production is a source of climate change, accounting for 60% of the greenhouse gas emissions (United Nations 2019). Therefore, it would be fair to assume that in order to reach the goals, policies for non-renewable energy incumbents become more stringent which could lead firms to flight into unrelated markets. McCarthy (2018) argues that traditional energy firm who try to escape the regulations by diversifying into different markets will reduce the value of their current assets, while creating value in new markets is difficult and expensive.

Therefore, we assume that the financial performance of these firms will decrease, leaving them with less resources available to invest in social performance. This assumption also provides an explanation as to why the relationship between related product diversification and CSP is positively affected by the SDGs and unrelated and total product diversification is negatively affected.

"Firms investing in related areas such as renewable energy will continue to gain value and at the same time perform better in CSR, hence, the SDGs offer those firms compelling growth opportunities. Contrastingly, firms who try escape the market into unrelated areas to evade regulations might destroy their value added."

5.3. Theoretical contributions and managerial implications

By combining stakeholder theory with institutional theory, the relationship between product diversification and CSP within the non-renewable energy industry was studied. By doing so, our paper contributes to existing literature in several ways and in turn provides implications for managers.

Theoretical contributions

First of all, while the relationship between product diversification and corporate financial performance is a highly studied topic in existing research (Kang 2013), the relationship between product diversification and CSP remains largely understudied. The lack of research on the topic is interesting since diversified firms face a more complex set of stakeholders, meaning that it would be fair to assume that previous research would link product diversification to a stakeholder demand focused measure. Therefore, our paper responds to the call of Kang (2013) to conduct more boundary spanning research connecting CSP and other corporate phenomena in order to gain a more complete understanding of corporate actions. By putting an emphasis on the relationship within the energy industry specifically, this research also contributes to the question as to whether CSR practices are distributed unevenly within the industry (Frynas 2009). Understanding this discrepancy is of utmost importance since energy is one of the most important resources in the world and firms operating in the industry have a vulnerable position towards their stakeholders.

The importance of research in the energy industry is confirmed by the emphasis the United Nations put on Goal 7 of the SDGs. Therefore, the SDGs were included in this research in order to investigate how they affect the relationship between product diversification and CSP within the energy industry. This was done by conducting a longitudinal study as suggested by Patrisia and Dastgir (2017), where the difference could be measured since the adoption of the goals.

"Despite the unexpected negative interaction effects of the SDGs with unrelated and total product diversification, our results opened up opportunities for new insights and discussion of the impact of the goals and its corresponding regulations have on diversified firms."

Managerial implications

In addition to the theoretical contributions this research delivers to the literature, it also offers several implications for managers of energy firms. First of all, this study helps managers understand how product diversification affects their corporate social performance. In general, in order to increase the CSP of an energy firm, a manager should pay attention to unrelated product diversification. This argument provides a different view on unrelated diversification as previous literature predominantly viewed unrelated diversification as an inefficient and inferior diversification strategy (Berger, Ofek 1995, as cited in Kang 2013). However, if CSP can serve as a long-term predictor of (financial) firm performance and viability (Kacperczyk 2009; Kaplan, Norton 1996; Ogden, Watson 1999), then it could be suggested that unrelated diversification may in fact have a positive effect on firm performance in the long-term (Kang 2013). Moreover, being more unrelatedly diversified means that a firm needs to take into account a higher number of stakeholders. If a firm will take into account those demands, their CSP will likely go up which in terms generate sustainable competitive advantage (Choi, Wang 2009) and better financial performance. However, it could be argued that failing to take into account rising stakeholder demands might turn the relationship into a negative effect (Patrisia, Dastgir 2017). Therefore, we recommend managers to anticipate on

the rising stakeholders demand that result from unrelated diversification in order to reach the desired effect.

However, despite the relationship between unrelated product diversification being positive throughout the years 2011-2018, the SDGs seem to negatively moderate the relationship.

"Hence, in order to continue to capture value from CSP, it is not recommended to invest in unrelated markets from 2016 on, especially not if the aim of diversifying is to escape increasing regulations. Contrastingly, managers are recommended to invest in related markets, such as renewable energy, in order to increase CSP and being able to capture more value."

Finally, although this study does not provide enough empirical evidence to conclude that being exposed to weak institutional host country environments, it is not recommended to diversify into developing countries in order to escape regulations (McCarthy 2016). Hence, in general, it can be concluded that (unrelated) diversification is not necessarily an inferior strategy for firms to increase long-term firm performance as in fact it positively affects CSP.

"However, we argue that it is important to take into account the increased stakeholder demands and it is definitely not recommended to engage into diversification in order to escape regulations, both in terms of diversifying into weak institutional environments as well as in diverse product markets."

Since the adoption of the Sustainable Development Goals it seems more viable for energy firms to invest into related areas such as renewable energy, this way the CSP is likely to go up which in turn positively affects financial performance.

5.4. Limitations

Despite rigorous efforts to ensure the accuracy and validity of this research, there are still some limitations to be discussed which in turn provide avenues and opportunities for future research. These limitations are related to the use of three

different databases and the effects of combining them. This could have had some effects on the results (significance tests) and limitations regarding the measurement of corporate social performance. CSP was measured using the Thomson Reuters Eikon ESG data and while it offered many advantages, such as the international orientation of the database, it also has some limitations.

6. Conclusion

The aim of this research was to provide an answer to the following research questions: *"What is the effect of product diversification on the corporate social performance within energy firms and how is this relationship moderated by the strength of the institutional environment of the host country?"* and *"To what extent is the relationship between product diversification and CSP of energy firms moderated by the adoption of the Sustainable Development Goals since 2015?"*

Multiple regressions analyses revealed that unrelated product diversification is positively related to CSP, while related- and total product diversification provide insignificant results. Moreover, the adoption of the SDGs weaken the positive relationship between unrelated- and total product diversification and CSP, while the goals positively affect the negative relationship between related product diversification, thus finding the contrary of what we expected in hypothesis 3. Unfortunately, the empirical findings were unable to determine whether the exposure to weak institutional environments affects the positive relationship between product diversification and CSP, thus not providing evidence to confirm hypothesis 2. Nevertheless, the findings of our paper contribute to theory and provide managerial implications in different ways. This makes them worth being considered by managers in the energy industry, especially in this time where policies affecting energy firms become more stringent. Hence, while providing new insights extending current literature, this paper also emphasizes the need for future research which could deepen understanding on the topic.

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Appendices

Appendix A. List of definitions

CSR in a broad sense can be described as *"actions that appear to further some social good, beyond the interests of the firm and that which is required by law"* (McWilliams, Siegel 2001: 117). This definition covers all relevant components as well as it captures an MNEs' CSR activities in host countries (Campbell et al. 2012).

CSP -CSR and CSP are interrelated concepts and CSP can be seen as a natural consequence of CSR. This study follows the definition of Wood (1991: 693): *"a business organization's configuration of principles of social responsibility, processes of social responsiveness, policies, programs, and observable outcomes as they relate to firm's societal relationships."* Thus, this definition places CSR into a broader context and constitutes the social performance as the outcome of CSR activities undertaken by a firm (Ioannou, Serafeim 2012).

Related PD - Related product diversification is operationalized as the strategy where a firm expands its business related to its current products and services and/or within the same industry (Chen, Yu 2012).
Unrelated PD - Unrelated product diversification refers to the expansion of a firm's products and services in a different industry or market (Castañer, Kavadis 2013).

Appendix B. Description of variables

Variable	Measure	Value	Item Source
Dependent variable *Corporate social performance*	ESG Score – Aggregated measure derived directly from database	Continuous variable that ranges from 0 (low) to 100 (high)	Thomson Reuters' Eikon
Independent variables *Related product diversification*	Entropy measure of related product diversification: $DR_j = \sum_{i \varepsilon j}^{n} P_i^j \ln \frac{1}{P_i^j}$ $DR = \sum_{j=1}^{m} DR_j \, x \, p_j$	Entropy measure values range from 0 (low) to 1 (high).	Compustat IQ
Unrelated product diversification	Entropy measure of unrelated product diversification: $DU = \sum_{i=1}^{m} P_i \, x \ln \frac{1}{P_i}$	Entropy measure values range from 0 (low) to 1 (high). Note: this dataset contains values above 1, but it means the same: a very high level of diversification.	Compustat IQ
Total product diversification	Sum of related and unrelated product diversification: $DT = DU + DR$	Entropy measure ranges from 0 (low) to 1 (high). Note: this dataset contains values above 1, but it means the same: a very high level of diversification.	Compustat IQ

Appendix B. Cont. …

Moderating variables *Sustainable Development Goals*	Official enforcement of SDGs on January 1st 2016	Dummy variable where 0 equals the years 2011-2015 and 1 equals 2016-2018 after the enforcement	Not applicable
Exposure to weak institutional environments	The extent to which a firm is exposed to weak environments: $\frac{Number\ of\ subsidiaries\ in\ weak\ institutional\ environments}{Total\ number\ of\ foreign\ subsidiaries}$	Ratio value ranges from 0 (low) to 1 (high)	Orbis (Country Classification: World Economic Prospects Handbook, 2019)
Control variables *Firm size*	The number of employees of a firm in a given year	Continuous variable that can take on every value from 0 onwards	Thomson Reuters Eikon
Firm age	The number of years a firm exists in a given year	Continuous variable that can take on every value from 0 onwards	Orbis Annual Reports
Market-to-book ratio	Market-to-book ratio is calculated as: $\frac{Market\ capitalization}{Net\ Book\ Value\ of\ total\ assets}$	Continuous variable that ranges from – 100% to + 100%	Thomson Reuters Eikon Compustat IQ
Firm performance	Return on Assets, calculated as follows: $\frac{Net\ Income}{Total\ Assets}$	Continuous variable that ranges from – 100% to + 100%	Compustat IQ
Industry level effects	Mean ESG score per industry firm operates in – derived directly from database	Continuous variable that ranges from 0 (low) to 100 (high)	Thomson Reuters' Eikon

Appendix B. Cont. …

Country level effects	- Mean ESG score for country firm located its HQ – derived directly from database - Country level fixed effects in STATA	Continuous variable that ranges from 0 (low) to 100 (high) Not applicable	Thomson Reuters' Eikon Not applicable