THE NEW FRONTIERS OF SUSTAINABLE DEVELOPMENT AND SDGS. A CONTENT ANALYSIS[1]

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1. Introduction

The adoption of good practices in Corporate social responsibility (CRS) plays a particularly significant role to achieve the sustainable development goals, henceforth SDGs (Sullivan *et al.,* 2018; Ike *et al.,* 2019).

The SDGs objectives identified by Agenda 2030 are a total of 17 and refer to people, the planet and prosperity to be achieved in the next 15 years and up to 2030.

The research work intends to verify whether the information on sustainability of the companies in the sample is in line with the SDGs and if there is a positive relationship between the disclosure of the SDGs and the performance of companies.

After a brief theoretical framework on the importance of sustainability and the SDGs, the composition of the sample is described; the methodology used to implement the qualitative-quantitative empirical study is illustrated below. Finally, the results achieved are presented and analysed.

2. Sustainability and SDGs

Companies around the world agree on the importance of sustainable development. Companies need to integrate sustainability into their business strategy. Corporate choices, decisions and behaviours are no longer measured on traditional results, such as profit, but considering the triple button line (Elkington, 1998). The seventeen SDGs require that sustainable development must be combined with economic development, social inclusion and environmental sustainability (Redman, 2018). Entrepreneurial action is driven by a broader perimeter of factors that certainly includes corporate sustainability whose purpose is to pursue economic objectives by reducing or eliminating the impact of its activities on the environment and at the same time satisfying the needs of current stakeholders without

[1] Paragraphs 1 and 5 are attributed to Pietro Iaquinta, paragraphs 2 and 3 are attributed to Dominga Ippolito and paragraphs 4.1 and 4.2 are attributed to Graziella Sicoli.

compromising those of future stakeholders. The inclusion of sustainability in corporate strategies contributes to the achievement of the SDGs declared by the United Nations 2030 Agenda, and at the same time allows companies to use a reference framework (that of the Sustainable Development Goals) to conceive, direct and communicate the results of its objectives and activities, obtaining various benefits in exchange. (Schramade, 2017). Different authors have tried to understand if and to what extent the disclosure of the SDGs affects company performance (Maletic *et al.,* 2021). According to some authors, sustainability improves the competitive advantage of the company and has a positive impact on performance results; in this case, companies can improve their reputation by attracting investors and stakeholders. According to others, however, there is no relationship between sustainability and performance. Still others have not found statistically significant results between good sustainability practices and company performance (Jabbour *et al.,* 2015).) That the company's ability to communicate and report behaviors, decisions, actions and progress on the subject of SDGs in company documents allows each of them to improve their image and gain new and lasting competitive advantages.

Among the company documents, the appropriately integrated sustainability report of the SDGs allows you to get out of the sphere of self-referentiality by demonstrating to stakeholders what has been done and what could still be done (Bebbington and Unerman, 2018). This improves reputation, legitimacy and social consensus (Braam *et al.,* 2016).

Furthermore, it is considered one of the main tools for dialogue with stakeholders about sustainable reporting and the SDGs (Hu *et al.,* 2020; Petrescu *et al.,* 2020).

3. Sample and Methodology

The work analyzed the sustainability reports some sectors of the Italian stock exchange: Industry sector and Consumer Good sector for three years: 2018-2020. The analysis was conducted on listed companies because they larger size and are more careful in communicating with the market (Hahn and Kuhnen, 2013). The choice of the analysis on the industrial and consumer goods sectors was made because they are very numerous and highly polluting sectors. Moreover, as regards companies operating in the Industry sector, they are particularly sensitive to aspects related to corporate sustainability, already the subject of analysis of different studies in the literature (Truant *et al.,* 2021).

It was not possible to find the sustainability report for all 80 companies that make up the sample and for this reason 24 companies were excluded from the analysis. To achieve the research goal three different linear regression models (OLS) were

estimated with the aim of studying how sustainable disclosure affects the performance of each company. Data were collected through content analysis, widely adopted in voluntary disclosure studies (Beattie and Thompson, 2007; Krippendorff, 2004).

4. Discussion and Results

On the basis of the UN document of 2015 that describes the SDGs, a data set of the most significant words in terms of sustainable development was built. The data set was used for the implementation of the content analysis on the sustainability reports of the sample of companies (Guthrie and Petty, 2000).

4.1 Descriptive statistics

To achieve the objective of the study, the following basic equations were defined which represent the main variables that affect the company's sustainability performance:[2]

$$Sustainability\ index(environmental) = \alpha + B_1(regulatory) + B_2(collocation) + B_3(SDGs) + e$$

$$Sustainability\ index(economic) = \alpha + B1\ (regulatory) + B2\ (collocation) + B3\ (SDGs) + e$$

$$Sustainability\ index(social) = = \alpha + B1\ (regulatory) + B2\ (collocation) + B3\ (SDGs) + e$$

The dependent variables used in the three OLS models, both with reference to the Industry sector and for the Consumer Goods sector, are represented by an index built on the basis of the Key Performance Index (KPI) proposed by Bocconi University in 2015[3] and also considering a subsequent study proposed by Hriston *et al.* (2019),

[2] *Sustainability index (environmental), Sustainability index (economic)* and *Sustainability index (social)* are indices of, respectively, environmental, economic and social sustainability performance; *regulatory* is a dummy for the implementation of DNF legislation, equal to1 if the sustainability report of the company is governed according to d. lgs. no. 254/2016; *collocation* is a dummy variable, equal to 1 if the sustainability report is drawn up as an independent document, 0 if it is an integral part of another corporate document; *SDGs* is the sum of the SDGs counted in the sustainability document of the company.

[3] https://greentire.it/wp-content/uploads/2019/03/sdabocconi-ricerca-greentire.pdf

which aims to describe the sustainable performance of companies. First, the environmentally sustainable performance index was built by comparing the CO_2 emissions of individual companies with their share capital.[4]

*Sustainability index(environmental)= (CO_2 / CS) * 1000*

Subsequently, the index of sustainable economic performance was developed considering the operating profit as reported in the financial statements of each individual company.

Finally, the index of social sustainable performance was developed, relating the number of female employees to the number of male employees:

Sustainability index (social)= n. female employees / n. male employees.

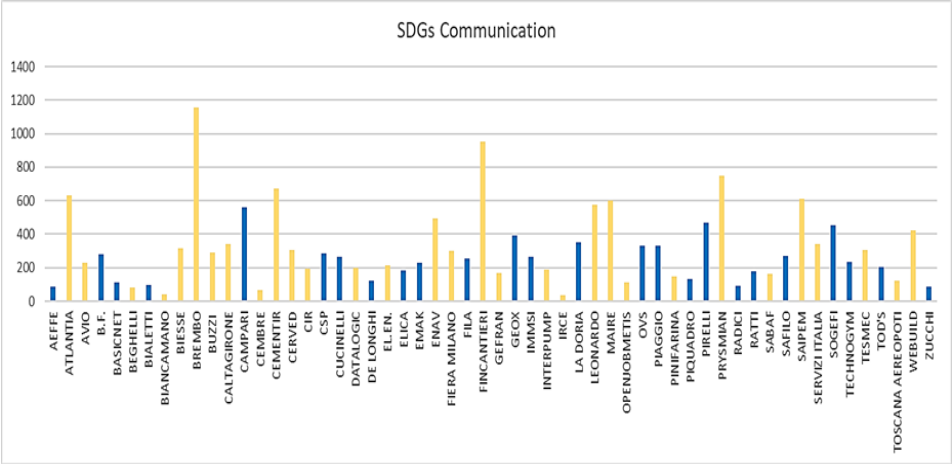
As regards the explanatory variables collected, the SDGs variable measures the disclosure of information related to the goals of Agenda 2030 by each company. The attribution of a score for each SDGs took place through content analysis, considering that the non-financial information contained in the prospectuses is of a purely qualitative nature. The remaining variables are the result of a dichotomy of the same (necessary to investigate the qualitative aspects). The regulatory variable, represents the implementation of the legislation, has a value of 1 if the NFS is drawn up according to the legislative decree that determines its obligation (Decree n. 254 of 2016), 0 if the document is drawn up on a voluntary basis.

The collocation variable takes on a value of 1 if the NFS is drawn up as an independent document, 0 if it is an integral part of another company document. The content analysis made it possible to initially measure which companies during the three-year period most communicate the SDGs promoted by Agenda 2030 (Figure 1).

The disclosure of sustainability by all the companies in the sample is aligned with the SDGs. In fact, although in a non-homogeneous way, there is a certain attention to the disclosure of the SDGs by each individual company. However, the companies that communicate the most for industry sector (color yellow figure n.1) are Brembo, Fincantieri and Prysmian. For the sector consumer goods are Campari, Pirelli and Sogefi (figure n. 1 color blue).

[4] The *sustainability index (environmental)* is defined as the ration between CO_2 emissions and capital share (CS).

Figure 1 – *SDGs Communication.*



Source: our elaboration.

4.2 Discussion of the results

Table 1 shows the estimates of the first regression model linked to environmentally sustainable performance in the sector Industry.

The model uses variables considered as panel data. The R-square index tests the goodness of fit of the model, reporting a value of 0,124395, explaining a moderate percentage of the model. A positive coefficient of 6214.56 is attributed to the variable representing the SDGs. From this it can be said that the disclosure of the SDGs has a positive impact on the environmental sustainability index. In fact, as the SDG count increases by one unit, the sustainable performance index increases by a value equal to the coefficient returned by the variable itself.

The impact of the coefficient is to be considered positive and at the same time it can be considered significant, as evidenced by the comparison between the critical alpha value (0.10) and that of the p-value equal to 0.0944.

Table 1- *SDGs regression model on sustainable environmental performance (Industry).*

	Coefficient	*Std. Error*	*t*	*p-value*	
const	11.34	31.83	0.36	0.72	
SDGs	6214.56	3675.64	1.69	0.09	*
collocation	−45.96	14.37	−3.20	0.00	***
regulatory	30.39	29.02	1.05	0.30	

Mean dependent variable	18,83	SQM dependent variable	51,63
Residual sum squared	214772,30	E.S. regression	49,12
R^2	0,12	R^2correct	0,09
F(3,89)	4,21	P-value(F)	0,01
Log-Likelihood	−492,09	Akaike criterion	992,18
Schwarz criterion	1002,31	Hannan-Quinn	996,27

Source: our elaboration.

In Table 2 shows the estimates of the second regression model linked to sustainable economic performance always in the sector Industry.

Table 2 - *SDGs regression model on sustainable economic performance (Industry).*

	Coefficient	*Std. Error*	*t*	*p-value*	
const	−217.89	176.44	−1.23	0.22	
SDGs	20315.50	20375.40	0.99	0.32	
collocation	198.87	79.64	2.50	0.02	**
regulatory	44.02	160.86	0.27	0.78	

Mean dependent variable	49.64	SQM dependent variable	279.54
Residual sum squared	6599730	E.S. regression	272.31
R^2	0.08	R^2 correct	0.05
F(3,89)	2,650508	P-value(F)	0.05
Log-Likelihood	-651.36	Akaike Criterion	1310.73
Schwarz criterion	1320.86	Hannan-Quinn	1314.82

Source: our elaboration.

The second estimated model always uses variables considered as panel data. The R-square index tests the goodness of fit of the model, reporting a value of 0,082015, explaining a moderately low percentage of the model. A positive coefficient of 20315.5 is attributed to the SDGs. From this it can be said that the disclosure of the SDGs has a positive impact on the economic sustainability index. In fact, as the count

of the SDGs increases by one unit, the sustainable performance index increases by a value equal to the coefficient returned by the variable itself.

Finally, the third and last model estimated compares sustainable performance from a social point of view with the explanatory variables previously described, as reported in table 3.

Table 3 - *SDGs regression model on sustainable social performance* (Industry).

	Coefficient	*Std.Error*	*t*	*p-value*	
const	0.33	0.49	0.68	0.49	
SDGs	−156.04	56.27	−2.77	0.00	*
collocation	0.49	0.22	2.27	0.02	**
regulatory	0.23	0.44	0.53	0.59	

Mean dependent variable	0,55	QM dependente variable	0,79
Residual sum squared	50,33	E.S. regression	0,75
R^2	0,12	R^2 correct	0,09
F(3,89)	4,20	P-value(F)	0,02
Log-Likelihood	−103,41	Akaike criterion	214,82
Schwarz criterion	224,95	Hannan-Quinn	218,91

Source: our elaboration.

The R-square index tests the goodness of fit of the model, reporting a value of 0,124013, explaining a moderate percentage of the model.

He results that the model returns compared to the previous ones gives the SDGs a negative coefficient equal to -156.037. In this case, it is clear that the disclosure of the SDGs has a negative impact on the social sustainability index. In fact, as the count of the SDGs increases by one unit, the sustainable performance index decreases by a value equal to the coefficient returned by the variable itself.

His variable is also significant as evidenced by the critical alpha values equal to 0.10, 0.05 and 0.01 compared with the p-value equal to 0.0068.

The same econometric models used for the industrial sector have also been implemented for the Consumer Goods sector. Table 4 shows the estimates of the first regression model linked to environmentally sustainable performance

The first model estimated for the Consumer Goods sector always uses variables considered as panel data. The R-square index tests the goodness of fit of the model, reporting a value of 0,090833, explaining a moderately low percentage of the model. A positive coefficient equal to 4.24956e + 07 is attributed to the SDGs. From this it can be said that the disclosure of the SDGs has a positive impact on the environmental sustainability index.

Table 4 − *SDGs regression model on sustainable environmental performance (Consumer Goods).*

	Coefficient	*Std. Error*	*t*	*p-value*	
const	29100000	13300000	2.19	0.03	**
SDGs	42500000	11900000	3.58	0.00	***
collocation	−100000	12100000	−0.98	0.33	
regulatory	−1130000	5040000	−0.22	0.82	

Mean dependent variable	33801000	QM dependent variable	72202531
Residual sum squared	7.77e+17	E.S. regression	69483764
R^2	0.09	R^2 correct	0.07
F(3,161)	5.36	P-value(F)	0.00
Log-Likelihood	−3211.44	Akaike criterion	6430.88
Schwarz criterion	6443.30	Hannan-Quinn	6435.92

Source: our elaboration.

Table 5 - *SDGs regression model on sustainable economic performance (Consumer Goods).*

	Coefficient	*Std. Error*	*t*	*p-value*	
const	−9.01	42.00	−0.21	0.83	
SDGs	1.54	37.54	0.04	0.97	
collocation	73.44	38.26	1.92	0.06	*
regulatory	−1.54	15.92	−0.09	0.92	

Mean dependent variable	43,02	SQM dependent variable	220.19
Residual sum squared	7762983	E.S. regression	219.58
R^2	0,02	R^2correct	0.01
F(3,161)	1,30	P-value(F)	0.27
Log-Likelihood	−1121.74	Akaike criterion	2251.47
Schwarz criterion	2263.90	Hannan-Quinn	2256.52

Source: our elaboration.

In fact, as the count of the SDGs increases by one unit, the environmentally sustainable performance index increases by a value equal to the coefficient returned by the variable itself. This variable is significant as evidenced by the comparison between the critical value of alpha equal to 0.01, 0.05 and 0.10 and that of the p-value of 0.0005. Table 5 shows the estimates of the second regression model linked to sustainable economic performance

The second model estimated for the Consumer Goods sector always uses variables considered as panel data. The R-square index tests the goodness of fit of the model, reporting a value of 0,023733, explaining a moderately low percentage of the model. A positive coefficient of 1.53871 is attributed to the SDGs. From this it can be said that the disclosure of the SDGs has a positive impact on the economic sustainability index. In fact, as the count of the SDGs increases by one unit, the sustainable economic performance index increases by a value equal to the coefficient returned by the variable itself.

Finally, the third and last estimated model compares sustainable performance from a social point of view with the explanatory variables previously described, as reported in table 6.

Table 6 - *SDGs regression model on sustainable social performance (Consumer Goods).*

	Coefficient	*Std. Error*	*t*	*p-value*	
const	5.22	2.67	1.95	0.05	*
SDGs	3.96	2.39	1.66	0.09	*
collocation	−3.32	2.43	−1.36	0.17	
regulatory	−0.81	1.01	−0.80	0.42	

Mean dependent variable	3.17	SQM dependent variable	14.07
Residual sum squared	31359.55	E.S. regression	13.96
R^2	0.03	R^2correct	0.02
F(3,161)	1.90	P-value(F)	0.13
Log-Likelihood	−667.03	Akaike criterion	1342.06
Schwarz criterion	1354.48	Hannan-Quinn	1347.10

Source: our elaboration.

The R-square index tests the goodness of fit of the model, reporting a value of 0,034165, explaining a moderately low percentage of the model.

A positive coefficient of 3.95861 is attributed to the SDGs. From this it can be said that the disclosure of the SDGs has a positive impact on the social sustainability index. In fact, as the count of the SDGs increases by one unit, the social sustainable performance index increases by a value equal to the coefficient returned by the variable itself. This variable is significant as evidenced by the comparison between the critical value of alpha equal to 0.10 and that of the p-value of 0.0991.

5. Conclusion

The proposed work contributes to the scientific debate on the theme of sustainability of the SDGs by opening new frontiers of the disclosure of sustainable development. The results are in line with an important challenge on the part of companies and a strong awareness on the part of individuals all involved and committed to promoting and spreading a culture inspired by the sustainability of the environment and territory. The data collected with the help of content analysis made it possible to implement three different linear regression models (OLS), which provided useful clarifications on the relationship between sustainable corporate performance and the disclosure of the SDGs. The results of the descriptive analysis support our research question and allow us to state that, although not in a completely homogeneous, each company in the sample pays particular attention to the disclosure of the SDGs.

However, some of companies, such as Brembo, Fincantieri and Prysmian for the Industry sector and Campari, Pirelli and Sogefi for the Consumer Goods sector, are more committed to the disclosure of sustainability. This could be linked to the specific activity they carry out, the results of which certainly have a greater impact in terms of information to be provided to stakeholders.

The regression analysis for Industry sector, returns a positive relationship between the disclosure of the SDGs and sustainable performance in both the environmental and economic fields. This cannot be confirmed, however, with reference to the performance of the social sphere whose relationship with the SDGs is negative. As regards the Consumer Goods sector, the results highlight a positive relationship between the disclosure of the SDGs and sustainable performance in the areas investigated: environmental, economic and social. from an immediate comparison between the industry sector and the consumer goods sector we can conclude that the disclosure of the SDGs by the Consumer Goods sector has a greater impact on sustainable corporate performance.

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SUMMARY

One of the main forces encouraging companies towards sustainability are the seventeen SDGs. The latter require that the economic development of companies must be combined with social inclusion and environmental sustainability. The company's ability to communicate and report behaviours, decisions and actions related to sustainability and SDGs in company's documents allows each of them to improve their image and gain new and lasting competitive advantages.

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