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# Estimation of Impact of ESG Practices' Performance and Their Disclosure on Company's Value

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**Abstract**

Recently businesses began to consider different initiatives of integrating ESG activities into business decision-making process. The key initiative is maintaining non-financial reporting and performance integration when aligning value creation activities with Sustainable Development Goals (SDG's) and communicating to stakeholders. Particularly, this is true for ESG positioning of the company in the context of the ESG performance-disclosure dichotomy. The purpose of the paper is to understand what kind of ESG practices' factors influence value of companies from oil & gas and industrials sectors of the economy in developed capital markets the most in ESG performance-disclosure dichotomy. Our sample consists of 5388 observations of oil & gas and industrials companies for the period from 2016 to 2021. The results showed that investors do not appreciate either performance or disclosure separately, but they look at the activity of the firm in complex. Therefore, the company should employ both practices in order to be sound ESG-responsible company in the eyes of the market. The conclusions of the study could be of interest to companies building an ESG strategy to increase investor loyalty and improve financial performance. As well as to potential investors to evaluate companies and build an investment strategy implementing non-financial factors into decision making process.

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## 1. Introduction

Recently there is a process of economies reshaping towards sustainable ones through considering different initiatives of integrating ESG activities into business decision-making process. Businesses consider the rights of society and environment when conducting their operations. The key initiative is maintaining non-financial reporting and performance integration when aligning value creation activities with Sustainable Development Goals (SDG's) and communicating to stakeholders. A key role of all the relevant stakeholders surrounding the company play financial markets – platforms through which investors evaluate future direction of the firm and either show their confidence or mistrust in it, followed by endorsement or penalty to corporate choices [1]. Particularly, this is true for ESG positioning of the company in the context of the ESG performance-disclosure dichotomy, since investors can focus on the company's real ESG indicators, the image it projects, or both, which as a result will have an impact on the company's financial performance. The meticulousness of investors in studying and monitoring the company's activities leads to the creation of more ESG strategies, which range from excellence in ESG protection to ESG inaction and from unjustified modesty to exaggeration.

The existing literature contains limited number of studies about the connection of ESG performance-disclosure [2], [3]. However, these studies are concentrated on the environmental issues of company's ESG positioning and do not cover any social or corporate governance issues. This leads to the gap in literature exploring the relationship of company's ESG strategies regarding dichotomy performance-disclosure and its market performance.

The main purpose of the current study is to understand what kind of ESG practices' factors influence value of companies from oil & gas and industrials sectors of the economy in developed capital markets the most in ESG performance-disclosure dichotomy. In order to fulfill this aim the following objectives of the research were pointed out: (1) to investigate existing literature on the topic of ESG performance, ESG disclosure and the relationship of ESG positioning of the company and its value; (2) to construct four ESG positioning clusters on the basis of performance and disclosure indices; (3) to compare the positions of companies from different sectors and countries in the disclosure-performance rating; (4) to conduct mean-variance analysis of market performance between four clusters.

This study makes a significant contribution to the pool of literature examining the impact of ESG performance and disclosure on its value with the construction of four ESG positioning of the company as the existing literature on this topic is very limited. The results of this study may, on the one hand, be of interest to companies building an ESG strategy to increase investor loyalty and improve financial performance. On the other hand, investors will be able to use the performance-disclosure rating to evaluate companies and build an investment strategy.

The rest of the study is organised as follows: (1) part 1 includes literature review regarding CSR and ESG literature, ESG-positioning and the relationship of ESG activities and firm value; (2) part 2 contains data and methodology description and (3) part 3 discusses results of the conducted analysis. The final part of the research is the key findings and conclusions formulated.

## 2. Literature review

According to ISO 26000, which is the standard on Corporate Social Responsibility (CSR) defined by International Organization for Standardization (ISO), CSR is “an organization's responsibility for the effects of its decisions and activities on society and the environment, resulting in ethical behavior and transparency that contributes to sustainable development, including societal health and well-being; takes into account stakeholder expectations; complies with current laws and is consistent with international standards of behavior” [4]. Therefore, CSR refers to businesses' behavior and implementation of society beneficial initiatives, taking responsibility beyond law requirements, financial incentives and creating value for shareholders. From the point of view of management practices, CSR is a discretionary multidimensional activity of the firm, which includes environmental, social, political and ethical actions [5]. The purpose of firm's CSR strategy is to establish a trustful relationship with investors and society together with promoting long-term profit in order to address interests of all interested parties including policymakers and individual investors through enabling firm's survival [5], [6]. [7] compared CSR with an umbrella term in order to describe the implementation of economic, environmental and social responsibilities in their value chain. However, as the term of CSR is not uncontested being defined differently by different parties [7], which leads to the considerable and complicated conceptual and methodological challenges regarding CSR [8]. In the research of [9] there are 37 different

definitions of CSR analyzed. The common concepts of all definitions are the importance of stakeholders, economic, environmental and social aspects as well as the voluntariness of adoption and implementation of these aspects in firm's strategy.

The first mention of ESG concept was in early 2004 in the “Who Cares Wins” report launched by the United Nations [10] as a joint initiative of the financial industry and the UN Global Compact. According to [10] the main objective of the report is that the achievement of sustainable development of societies and stronger and more resilient investment market could be driven considerably by taking into consideration environmental, social and governance (ESG) factors. The UN Principles of Responsible Investment (PRI) stated the recommendation to investors to make investment decisions considering ESG scores as a key factor. However, ESG scores are used by investors, management consulting firms and researchers as a key indicator of overall CSR performance of the firm.

Although there is plenty of studies devoted to ESG concept, calculation and analysis of ESG scores, the framework is still not common. There are more than 125 methodologies of ESG data aggregation and ESG scores formulation among institutes [11], unless there is no clarity and uniformity in the industry. When measuring ESG scores the main concern is the way of all three pillars combination equally [12]. In current research it was decided to follow Thomson Reuters Eikon approach which coincides with approaches used in rating methodologies by MSCI (Morgan Stanley Capital International).

Regarding ESG-positioning, there is very limited literature about the connection of ESG performance-disclosure. The existed literature is concentrated on performance-disclosure dichotomy concerning only environmental issues. The first attempt was devoted to greenwash-brownwash dichotomy by [13] where authors studied these two opposite environmental strategies and their causes: from unjustified modesty to exaggeration. The identified gap of brownwashing environmental position understanding was addressed in the study of [14]. Authors studied 100 largest multinational companies and developed four main environmental performance-disclosure positions which are strategic environmental leadership, legitimization of existing practices, quiet environmental leadership and pollution haven. “Strategic environmental leadership” is the category where firms achieve competitive advantage by employing advanced environmental practices. The second category called “quiet environmental leadership” includes firms with high environmental performance and low disclosure most likely aiming at protecting confidential knowledge or keeping low attention of activists. Firms with low environmental performance and high disclosure belong to the category “legitimation of existing practices” with the purpose to improve or maintain company's reputation or to obtain license. The last position named “pollution haven” implies low environmental performance and environmental disclosure. Results of the research show that international companies from top 100 tend to disclose more with the dramatic difference to other companies, however these companies perform poorer comparing to other companies in their industry [14]. Another work devoted to studying performance-disclosure relationship was conducted by [2] where the authors constructed a matrix of four positions by comparing external CSR claim and internal actions and their effect on consumer perceptions. Four positions called uniform, apathetic, washing and discreet positions were formed by considering its congruence in CSR actions and claims. More recent and close work with the construction of four positioning clusters is the study by [3]. In this research authors construct a matrix of four environmental positions called green quiet companies, green leading companies, blackbird companies and green parrot companies. The main purpose was to understand which environmental positioning is most valued by investors and financial markets by conducting mean-variance analysis of market performance of the firms in these clusters. The results show that market is more likely to appreciate companies that have a high level of environmental disclosure irrespective of their performance. Following the call of [3] this study enhances the approach and built clusters using factors which characterizes company from all three perspectives: environmental, social and from the perspective of corporate governance.

### 3. Data and Methodology

#### 3.1. The Data

The sample contains yearly panel data set of Russian, European and American industrial and energy sectors public firms for the period from 2016 to 2021. This timespan has been chosen due to the large amount of missing data and limited number of firms existed before 2016. Besides, on the chosen period it can be seen the constant growth of UN PRI signatories and assets under management of UN PRI (Figure 1). The database is presented in an unbalanced panel format as the number of firms fluctuates from year to year. The full sample contains 5388 observations after exclusion of all missing data and outliers. The main source of data was Thomson Reuters Eikon. ESG Database of Thomson Reuters is the largest available database containing relevant, auditable and systematic environment, social and governance company-level data, both qualitative and quantitative, for public companies around the world.

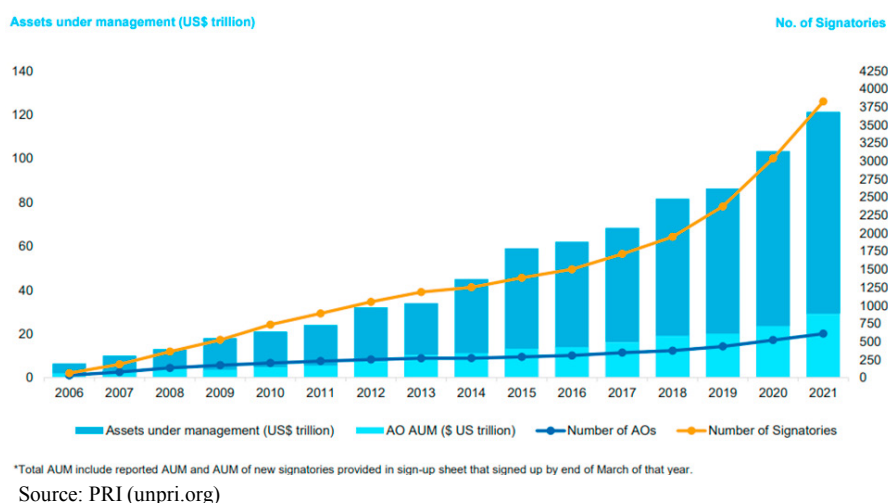


Fig. 1. AUM, total number of signatories and number of asset owner signatories of UN PRI.

To fulfill the aim of the research Market capitalization was used as the proxy for company's value.

#### 3.2. The Model

The degree of ESG performance and ESG disclosure impact on the firm's value should be estimated to understand what exactly investors look at while giving estimation of the company on the market. For this purpose, two dimensions of ESG-positioning should be considered:

- (1) ESG-performance of the company which is considered as quantifiable and measurable results of adopting non-financial management practices by the company [15].
- (2) ESG-disclosure of the company which is considered as the fact of company's non-financial reporting.

To construct the relationship of performance and disclosure, [3] approach was employed. Figure 2 represents two dimensions model which is based on two main axes: ESG-performance and ESG-disclosure, sorted from low to high scores. There are four clusters presented in this model:

- (1) quints, or companies with low level of disclosure and high level of performance;
- (2) leaders, or companies with high level of both positioning;
- (3) blackbirds, or companies with low level of both positioning;
- (4) parrots, or companies with high level of disclosure and low level of performance.

To measure whether the level of disclosure or performance is high or low, score of the company is compared to its industry peers.

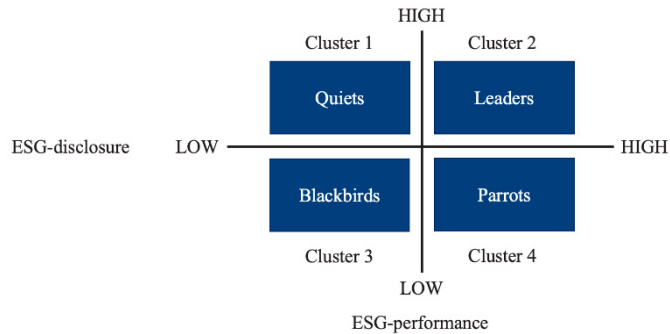


Fig. 2. ESG-positioning clusters based on performance-disclosure dichotomy.

Therefore, Cluster 1 companies or ‘quies’ are characterized with the ‘below industry average’ disclosure and ‘above industry average’ performance. Such companies have other names in literature, for instance, [2] named this cluster as ‘green hushing’ firms and [13] labeled them as ‘brownwash’. Contrariwise, Cluster 4 companies named ‘parrots’ are characterized with making great efforts to construct positive ESG-image while their actual ESG-performance is below industry average. Such companies employ the form of greenwashing called “green chattering” [16]. ‘Leaders’ or Cluster 2 are companies with ‘above industry average’ performance and disclosure which shows consistent behavior in terms of environmental, social activities and activities in corporate governance sphere [2]. Another consistent positioning shows companies fell into Cluster 3 or labeled as ‘blackbird’. Such companies show consistently ‘below industry average’ behavior as in non-financial disclosure as in performance in this sphere. Blackbirds are either small and medium enterprises with limited budget available to invest in ESG practices [17] or companies from high polluting industries where ESG inaction is not condemned. To construct the above-described clusters ESG performance and disclosure ratings are considered. Both dimensions are constructed as aggregated indices, following [18], [19], and [20]. Likewise, aggregated ESG-performance and ESG-disclosure indices were constructed following Thomson Reuters Eikon approach which coincides with approaches used in rating methodologies by MSCI.

The formula for index calculation is as follows:

$$ESG\ index = \frac{1}{3} * (\sum_{i=1}^{n_E} \frac{E_i}{n_E} + \sum_{i=1}^{n_S} \frac{S_i}{n_S} + \sum_{i=1}^{n_G} \frac{G_i}{n_G}), \quad (1)$$

where  $E_i, S_i, G_i$  – factors of corresponding pillar,  $n_E, n_S, n_G$  – number of factors in the corresponding pillar.

In order to build disclosure index factors from all pillars were used reflecting the fact whether the company do report on ESG activities (environmental fines, environmental R&D costs, independent board members, board gender diversity, CSR disclosure, etc.) or not. The full list of employed factors is represented in Appendix A.

Performance index was calculated using factors of ESG management practices implementation and its quantifiable and measurable results. Index includes the following examples of activities: managing and reducing environmental pollution employing different activities (i.e., environmental restoration activities, emissions trading, etc.), presence of CSR committee, board gender diversity, number of independent directors, number of employees and others. The full list of employed factors is represented in Appendix A.

The final step of cluster construction is to distribute companies into 4 categories: quies, leaders, blackbirds and parrots, by comparing two indices to its industry averages. In order to answer the research question ANOVA analysis is performed with a number of post-hoc tests named after famous statistician Henry Scheffe. This test helps to understand which pairs of means are significant precisely [21]. As dependent variable in variance analysis (ANOVA) of clusters market capitalization as proxy of firm value was taken [20], [3].

#### 4. Results and discussion

On the first step of analysis, it is necessary to look at industry distribution of constructed clusters. All 4 clusters are heterogeneously distributed among industries with the concentration in Machinery, Tools, Heavy Vehicles, Trains & Ships industry. The first two largest clusters are Blackbirds and Quiets clusters with 2002 and 1604 observations respectively highlighting the position of machinery, oil and gas and professional and commercial services. The sound result is that Leaders cluster being the third large cluster though still includes large number of observations which is 1380 concentrating in the same industries as the previous two groups. The smallest cluster is the cluster called ‘parrots’ with only 402 observations mainly belonging to machinery industry. Analyzing geographical distribution, we found that the US, Switzerland, Netherlands, Poland, Romania and Belgium are mainly represented with blackbird companies with more than 40% share among clusters. The UK, Ireland, Norway and Sweden are the countries with the highest share of quiet companies starting with about 40% share in Sweden and up to 75% share in Iceland. Leader are forging ahead in Russia, Spain, France, Italy, Portugal, Hungary and Greece. An interesting result that there are no parrots in Hungary, Ireland, Portugal and Romania. In order to fulfill the purpose, variance analysis (one-way ANOVA) of clusters in terms of market capitalization was conducted (Table 1). This analysis is helpful to confirm whether firms from the four ESG-positioning clusters (quiets, leaders, blackbirds and parrots) have significantly different means of market capitalization.

Table 1. One-way ANOVA analysis of market capitalization among clusters.

SUMMARY						
Groups	Count	Sum	Average	Variance		
Leaders	1380	8.0E+10	5.8E+07	4.3E+17		
Quiets	1604	5.6E+09	3.4E+06	1.2E+14		
Blackbirds	2002	4.3E+09	2.1E+06	1.3E+13		
Parrots	402	1.8E+09	4.4E+06	5.9E+13		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	3.1E+18	3	1.0E+18	9.64	0.00	2.61
Within Groups	5.8E+20	5384	1.0E+17			
Total	5.9E+20	5387				

Results of the ANOVA analysis shows that the null hypothesis about no difference among ESG-positioning could be rejected (F-stat. – 9.64, p-value – 0.00). This means that ESG behavior of the firm is important to investors. Nevertheless, to answer the research question a set of post-hoc tests should be performed. More precisely Scheffé’s post-hoc tests were performed (Table 2). This test allows to conduct all pairwise comparison of means from the F-distribution. Results indicates that companies from leaders’ cluster have significantly higher market capitalization than all three other groups. Moreover, leaders outperform blackbirds and quiets more that they outperform parrots which we can conclude from Sheffe’s statistics and mean difference of each pair. This evidence could indicate that market appreciates performance a bit more than disclosure. Results indicates that there is no statistical evidence of significant differences between quiets and blackbirds, quiets and parrots and blackbirds and parrots.

Table 2. Scheffe's post hoc tests.

Clusters	Mean diff	Scheffé's statistics	P-value
Leaders vs Quiets	54.75	20.47***	0.00
Leaders vs Blackbirds	56.06	23.63***	0.00
Leaders vs Parrots	53.80	8.29*	0.04
Quiets vs Blackbirds	1.30	0.01	0.99
Quiets vs Parrots	-0.96	0.00	0.99
Blackbirds vs Parrots	-2.26	0.02	0.99

These results indicate that investors do not appreciate either performance or disclosure separately, but they look at the activity of the firm in complex. Therefore, it is not enough just to publish ESG-reporting or to perform actions leading to measurable results in the sphere of corporate social responsibilities without reporting it. The company should employ both practices in order to be sound ESG-responsible company in the eyes of the market. Obtained results are partially coincides with [3] results. Authors also found evidence of leaders' outperformance of quints and blackbirds, however in their research there were significant difference between parrots & blackbirds and parrots & quints, which supported an assumption that although performance is important, disclosure itself is more important for the market.

## 5. Conclusion

This study aimed to determine what kind of ESG practices' factors has an effect on investors estimation of companies from oil & gas and industrial sectors of the economy in developed capital markets from the perspective of ESG performance-disclosure dichotomy. The analysis has shown that investors do not appreciate either performance or disclosure separately, but they look at the activity of the firm in complex. Therefore, it is not enough just to publish ESG-reporting or to perform actions leading to measurable results in the sphere of corporate social responsibilities without reporting it. The company should employ both practices in order to be sound ESG-responsible company for the market. It is a novel result with a step ahead finding of [3] where the most valuable action for the market was environmental disclosure irrespective of their environmental performance. The results obtained in the course of this research may, on the one hand, be of interest to companies building an ESG strategy to increase investor loyalty and improve financial performance. This study offers the framework helping to choose particular ESG positioning. On the other hand, developed cluster system could help potential investors to evaluate companies and build an investment strategy implementing non-financial factors into decision making process. The current study has some limitations which pave the way for further research. First of all, the dataset covers only developed markets. Future studies could consider conducted analysis in comparing developed and developing markets in terms of ESG positioning and the reaction of investors on it. The second limitation is that only two highly polluted sectors were taken into analysis, however the enrichment of the sample with different sectors and making a comparison of light and heavy industries, with the assumption that high-polluted industries should take care of their ESG-performance activities more, would make a great contribution to the existing ESG literature. Last, but not least, the list of factors included in indexes construction could be extended with more specific social factors such as support for human rights and international labor standards, workplace health and safety, fair pay and other labor practices, in order to better address social agenda and to build more comprehensive performance-disclosure index.

## 6. Acknowledgment

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## Appendix A. Disclosure and performance factors

№	Disclosure factors	Pillar	Performance factors	Pillar
1	Self-Reported Environmental Fines reporting (dummy)	E-factor	Board size	G-factor
2	Environmental R&D Expenditures reporting (dummy)	E-factor	Number of employees	S-factor
3	GRI Report Guidelines reporting (dummy)	E-factor	CO2 Emissions (tons per employee)	E-factor
4	Environmental Controversies Count reporting (dummy)	E-factor	NOx and SOx Emissions Reduction (yes/no)	E-factor
5	Recent Environmental Controversies reporting (dummy)	E-factor	Biodiversity Impact Reduction (yes/no)	E-factor
6	CO2 Emissions reporting (dummy)	E-factor	Emissions Trading (yes/no)	E-factor
7	Ozone-Depleting Substances reporting (dummy)	E-factor	Particulate Matter Emissions Reduction (yes/no)	E-factor
8	Total Waste To Revenues Score reporting (dummy)	E-factor	e-Waste Reduction (yes/no)	E-factor
9	Waste Recycled To Total Waste reporting (dummy)	E-factor	Environmental Restoration Initiatives (yes/no)	E-factor
10	Total Hazardous Waste / Revenue reporting (dummy)	E-factor	Staff Transportation Impact Reduction (yes/no)	E-factor

11	Total Water Pollutant Emissions / Revenue reporting (dummy)	E-factor	Number of Board Meetings	G-factor
12	EMS Certified Percent reporting (dummy)	E-factor	Board Gender Diversity, Percent	G-factor
13	CSR Sustainability External Audit reporting (dummy)	S-factor	Independent Board Members	G-factor
14	CSR Report disclosure (yes/no)	S-factor	CEO Chairman Duality	G-factor
15	Board Gender Diversity, Percent reporting (dummy)	G-factor	CEO Board Member	G-factor
16	Average Board Tenure reporting (dummy)	G-factor	Executive Members Gender Diversity, Percent	G-factor
17	Independent Board Members reporting (dummy)	G-factor	Average Board Tenure reporting (dummy)	G-factor
18	CEO Chairman Duality reporting (dummy)	G-factor	CSR Committee (yes/no)	S-factor
19	CEO Board Member reporting (dummy)	G-factor		
20	Executive Members Gender Diversity reporting (dummy)	G-factor		

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