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IS ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) REPORTING FINANCIALLY USEFUL? EVIDENCE FROM TURKEY*

ÇEVRESEL, SOSYAL VE KURUMSAL YÖNETİM (ÇSYK) RAPORLAMASI FİNANSAL OLARAK FAYDALI MIDIR? TÜRKİYE ÖRNEĞİ

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Abstract

Sustainability reporting is attracting widespread interest as humanity is exposed to risks related to climate change and overexploitation of limited resources. Accordingly, many authorities have been and still are encouraging companies to disclose sustainability information to increase transparency and accountability in capital markets thereby ensuring stakeholder trust. However, the irregularity of sustainability reporting and the nature of non-financial information cast doubt on the usefulness of Environmental, Social, and Governance (ESG) disclosure. The objective of this study is to investigate the impact of sustainability reporting on financial performance. Panel regression tests were applied to companies listed on Borsa Istanbul Metal Products Machinery Index from 2009 to 2018 in this paper. As a result, no statistically significant relationship was found between sustainability disclosure and financial performance.

Keywords: Sustainability reporting, financial performance, ESG disclosure, non-financial information
JEL Classification: M14, M41, Q56

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Öz

İnsanlığın küresel ısınma ve kısıtlı kaynakların aşırı tüketimi gibi risklerle karşılaşması günümüzde sürdürülebilirlik raporlamasına olan ilgiyi giderek yaygınlaştırmaktadır. Bu doğrultuda birçok otorite, sermaye piyasalarında şeffaflığın ve hesap verilebilirliğin arttırılarak paydaş güveninin sağlanması amacıyla işletmeleri sürdürülebilirlik bilgilerini açıklamaya teşvik etmektedir. Halbuki sürdürülebilirlik raporlamasındaki kural eksikliği ve finansal olmayan bilginin yapısı, Çevresel, Sosyal ve Kurumsal Yönetim (ÇSKY) bilgilerinin faydalılığı konusunda şüphe yaratmaktadır. Bu çalışmanın amacı sürdürülebilirlik raporlamasının finansal performans üzerindeki etkisini incelemektir. Çalışma kapsamında 2009-2018 yılları arasında Borsa İstanbul Metal Eşya Endeksi'nde işlem gören işletmelere panel regresyon testleri uygulanmıştır. Araştırma sonucunda sürdürülebilirlik raporlaması ve finansal performans arasında istatistiki olarak anlamlı bir ilişki bulunamamıştır.

Anahtar Kelimeler: Sürdürülebilirlik raporlaması, finansal performans, ÇSKY açıklaması, finansal olmayan bilgi

JEL Sınıflandırması: M14, M41, Q56

1. Introduction

The Industrial Revolution led to the excessive consumption of non-renewable natural resources to supply the ever-growing need for energy. Environmental and social crises experienced over time revealed the fact that companies are an integral part of society and their actions directly affect the common welfare. In the early periods when the concept of sustainability was introduced, many believed that solely governments and philanthropic foundations were in charge of natural resources management. However, companies nowadays have been receiving much demand to disclose the way how they add or reduce value by means of Sustainability Reporting (SR). Accordingly, numerous international conceptual framework-setters have been collaborating to promote the disclosure of useful sustainability information. Commonly referred to as 'Environmental, Social and Governance (ESG) Reporting', SR is still not as systematic as financial reporting, which raises concerns about the accuracy of ESG-related performance measurement. This paper seeks to revisit the association between SR and Financial Performance (FP) while discussing the characteristics of Non-Financial Information (NFI). The remainder of this paper is organized as follows: the first section provides both the historical evolution and the theoretical framework of the SR. Then, it is focused on the characteristics of useful information thereby shedding light on the drawbacks of NFI. Next, the paper reviews the related literature in the fourth section. In the fifth section, the research hypotheses are developed and the empirical model is explained together with the variables. Afterward, the findings are discussed under the limitations of the research methodology and the concluding remarks are presented for further studies.

2. Theoretical Background

The classical approach in corporate finance which relied on the value maximization retarded and hampered the general acceptance of '*socially responsible*' companies (Liang& Renneboog, 2017). The invisible hand of *'laissez-faire' (let do)* economics was believed to establish the equilibrium in the market when all participants acted in their own interests (Frederick, 1960). Yet, laissez-faire capitalism

was harshly criticized after World Wars when social inequality and economic depressions explicitly came to light. In the first years of the 20th century, Corporate Social Responsibility (CSR) researchers sparked decades-lasting debates about whether companies should have social obligations in addition to their financial commitments (Heald, 1970; Chang et al., 2017). Clark (1916) who complained of inheriting an 'economy of irresponsibility' (p. 210), was the first to advocate for business ethics. Sheldon (1924), held management responsible for considering public justice while making strategic decisions such as remuneration and dividend payout. Bowen (1953) described businessmen as 'servants of society' and pioneered the first definition of CSR as *"the obligations of businessmen to pursue those policies, to make those decisions… which are desirable in terms of the objectives and values of our society"* (p.3-4). Honored as *'the father of CSR'* (Carroll, 2008; Acquier et. al, 2011; Zhang & Jung, 2020), Bowen (1953) emphasized the necessity of moral codes and compliance with legal requirements for the public good. Davis (1960) articulated that as economic units, companies that neglected *'socio-human'* responsibilities were condemned to go *'socially bankrupt'* (p. 74, 76). McGuire (1963) extended the scope of CSR and assumed that companies had "*certain responsibilities to society beyond economic and legal obligations*" (p.144). Davis (1967), characterized as *'joint ventures of responsible citizens'* (p.47) and promoted pluralism between companies and society since detrimental actions or decisions of a group would harm the other part in return.

On the other hand, a number of studies claimed that CSR-engagement would curtail corporate interests. Friedman (1962, 1970), the most known proponent of the shareholder theory, argued that companies had no other responsibility than maximizing shareholders' wealth, thus, considered CSR activities as additional costs which resulted in the waste of corporate resources (Husted & De Jesus Salazar, 2006). As "*the Great Laissez-Faire Partisan*' (Palley, 2006: 5041), Friedman (1970) suggested that the only social responsibility of companies was to company-owners and concluded that philanthropic activities were under the responsibility of governments and charitable organizations. Despite his opposing ideas to CSR, Friedman (1962,1970)'s contributions to deregulation and free competition made him one of the most influential economists in terms of the development of the current macroeconomic principles (Palley, 2006). Several studies revealed evidence that the cost of CSR increases prices for customers and lower wages for employees (Wartick & Cochran, 1985), causing opportunity costs since the marginal returns on CSR activities are less than earnings available from alternative investment expenditures (Manne and Wallich, 1972) or reduce stock returns (Vance, 1975).

In contrast to the shareholder approach, a holistic perspective started to prevail in the mid-1980s which comprised not only shareholders but also a broader set of interest groups who can also be affected by management's decisions (Hubbard, 2009). The stakeholder theory is based on the idea that the accomplishment of business strategies in the long term is contingent on the responsiveness of all stakeholders' demands (Freeman, 1984). Accordingly, the survival of companies directly depends on the primary stakeholders (shareholders, employees, customers, suppliers, and governmental organizations); whereas the secondary stakeholders (competitors, local communities, chambers of commerce, and unions) can only affect corporate strategies (Freeman, 1984).

In 1987, in response to the ever-increasing environmental crises, the World Commission on Environment and Development (WCED) (or the Brundtland Commission) was held by the United Nations to develop long-term strategies to eradicate poverty, protect endangered plant and animal species and combat climate change. The Brundtland Commission highlighted the importance of sustainable development which *"meets the needs of the present without compromising the ability of future generations to meet their own needs"* (WCED, 1987: 43). Although more than 300 definitions are estimated to be made within various interdisciplinary studies (Johnston et al., 2007), the WCED's definition still is the most cited definition of Sustainable Development among others (Steurer et. al, 2005). Another milestone organization, the Montreal Protocol, was held against the depletion of the ozone in 1987 and it is the only agreement signed by all countries over the world up to the present (UNEP, n.d.). Pursuant to the milestone agreements, there has been increasing stakeholder pressure on companies to incorporate sustainability goals into their business models (Baumgartner, 2014). 'Corporate Sustainability' (CS) indicates *"meeting the needs of a firm's direct and indirect stakeholders without compromising its ability to meet the needs of future stakeholders as well."* (Dyllick & Hockerts, 2002: 131).CS aims to develop an organizational culture in order to ensure the welfare of society as a whole (Linnenluecke & Griffiths, 2010) and introduces a new managerial approach comprising economic, social and environmental (EES) matters (Lozano et. al, 2015). CS disclosure can be perceived as the compulsory obedience to laws and regulations, a cost – minimization strategy or a tool of gaining competitive advantage (Hubbard, 2009). Companies that are engaged in EES activities aren't doing 'charity work' for the community; conversely, they are assumed to reimburse the society to which they owe the damages resulting from their operations (Jones,1980).

In the late 1990s, demand of accountability and transparency accelerated the preparation of stand-alone sustainability reports in addition to financial statements (Gray & Milne, 2007; Marimon et. al, 2012; Ioannou& Serafeim, 2017). The first concept for sustainability disclosure –widely called '*The Triple Bottom Line*' (TBL) was pioneered by Elkington (1998), who proposed drawing two additional lines underneath the traditional bottom line (profit or loss) in conformity with the sustainable development agenda (Ashrafi et. al, 2018). TBL is considered the landmark framework proposed for sustainability disclosure that permits internal and external stakeholders to evaluate the environmental and social performance of reporting companies (Jamali, 2006; Hubbard, 2009; Baumgartner, 2014; Chang et. al, 2017). According to Dyllick & Hockerts (2002), TBL measurement depends on mainly three types of capital: *(i) economic capital*, which ensures liquidity both with tangible and intangible assets for running daily operations and generating returns for investors and debtholders; *(ii) natural capital,* which comprises all living organisms and species that are indispensable for companies as going-concerns; *(iii) social capital,* which creates additional value for stakeholders by building employee loyalty, retaining qualified workforce and contributing to the society with civil services. TBL conduced to the evolution of manifold accounting and reporting frameworks, such as full cost accounting, Integrated Reporting, Environmental Profit & Loss approach, Environment, Social and Governance (ESG) criteria and so forth (Elkington, 2018). The main purpose of Sustainability Reporting (SR) is to reflect the intangible and non-monetary value that financial reporting falls short of (Barker& Eccles, 2018) and to give intrinsic clues about future performance (SASB, 2017) while

reducing potential organizational risks such as information asymmetry and other agency problems (Alsayegh et al., 2020). The objective of SR is to complement, not substitute financial reporting practices (Marimon et. al, 2012).

The unveiling of accounting scandals and fraud cases such as Enron, WorldCom and Parmalat caused the global economy to lose billions of dollars, swept people's savings away and made tens of thousands of employees get sacked. The breach of confidence in capital markets and concerns about the independence of accounting firms rose the importance of investor protection. Consequently, principles of corporate governance have become a vital guideline for balancing the interests of all stakeholders under ethical behavior while achieving corporate goals and creating an environment of financial trust (Fama& Jensen, 1998; Katsoulakos& Katsoulacos, 2007; Aras & Crowther, 2008; Mason& Simmons, 2014; Rodriguez-Fernandez, 2016). Today, the 'Economy' pillar of the TBL approach is replaced by the 'Governance' since the financial performance is a *sine qua non* for companies (Beckmann et. al, 2014). ESG criteria are today considered the fundamental elements to improve productivity, gain corporate reputation and enhance legitimacy (Alsayegh et al., 2020).

3. Characteristics of Non-Financial Information

Unlike financial information, which is standardized by universal authorities and disclosed through uniform financial statements e.g. balance sheet and income statement (Aupperle et al., 1985), ESG disclosure, by nature, consists of non-financial information (NFI). NFI is "*corporate disclosure intended to reflect different views, such as linking performance to CSR, corporate governance, strategy, management quality, operating efficiency, or intellectual capital …and relies on different performance measures from those used to measure financial performance* (Erkens et. al., 2015: 24). In response to the growing interest in sustainability disclosure, several organizations – namely the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), the Integrated Reporting (IR), the Climate Disclosure Standards Board, (CDSB) and the Carbon Disclosure Project (CDP), have been and still are developing voluntary ESG guidelines for reporting entities to minimize the related sustainability risks. SR frameworks aim to enable information users to evaluate the intra-sectoral and inter-sectoral ESG performance of reporting companies over time. (Eccles et. al, 2012). NFI is "*not recognized in the financial statements but is nevertheless useful in investors' decision-making … and can be either quantitative or qualitative, and either historical or forecast"* (Barker & Eccles, 2018: 7). Therefore sustainability information is required to comprise the qualitative characteristics of useful financial information which are prescribed by the International Financial Reporting Standards (IFRS) under the Conceptual Framework (IFRS Foundation, 2020).

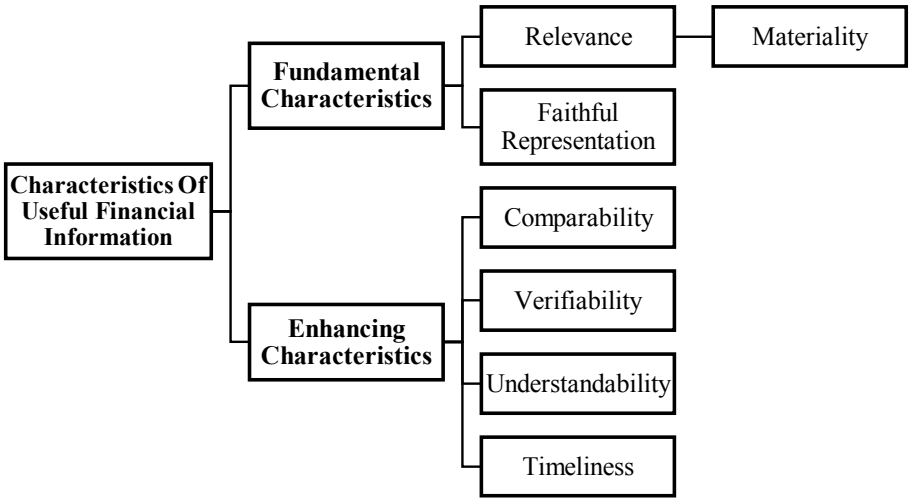

Figure 1: The Qualitative Characteristics of Useful Financial Information

Source: *International Accounting Standards Board (IASB, 2018)*

According to the IFRS Conceptual Framework, information is:

Table 1: Definitions of Characteristics of Useful Financial Information

Characteristics		Definition
Relevant		it is capable of making a difference to the decisions made by users
Material		if omitting, misstating or obscuring it could reasonably be expected to influence decisions
Faithfully Represented		it is complete, neutral and free from error
Comparable	*if*	enables users to identify and understand similarities in, and differences among, items
Verifiable		different knowledgeable and independent observers could reach consensus
Timely		it is available to decision-makers in time to be capable of influencing their decisions
Understandable		classifying, characterizing and presenting clearly and concisely make it understandable

Source: *International Accounting Standards Board (IASB, 2018)*

Although reporting entities aim to convert their qualitative ESG efforts to quantitative values (Busco et. al, 2020), debates continue in the literature whether the information disclosed in sustainability reports meets the characteristics of useful financial information. Several studies have found evidence that ESG disclosure remains insufficient for NFI users while making decisions about reporting entities due to certain limitations:

3.1. Complexity of the Standardization

Standardization enhances the articulacy and the quality of sustainability information (Braam & Peeters, 2018). Despite the efforts of SR framework-setters, the substance of ESG information cannot be accurately standardized –which may deteriorate the relevance of non-financial information since it can be neither uniformed nor converted into universal stereotypes like financial statements (Flöstrand and Ström, 2006).

3.2. Multitude of Frameworks

The existence of various international ESG frameworks provides reporting entities the opportunity to adopt the most suitable reporting format. On the other hand, this plurality may obstruct the comparability – which is already compelling to be measured due to the lack of quantified indicators (Cardoni et. al, 2019). The deficiency of accounting practices, analytical tools, or quantitative methods precludes discriminating engaging companies from the others (Eilbirt & Parket, 1975). Hence, comparability enhances the accuracy of forecasts thereby reducing the cost of accessing information (Franco et. al, 2011). Additionally, the lack of a generally accepted standards-set for SR may result in inconveniencing comprehension of ESG information and violate the understandability criterion.

3.3. Lack of Mandatory Assurance Engagements

The rarity of assurance engagements on sustainability reports may constitute another drawback (Hubbard, 2009). As described in the International Standard on Assurance Engagements (ISAE) 3000, the objective of assurance engagements is to obtain either reasonable assurance or limited assurance, as appropriate, about whether the subject matter information is free from material misstatement (par. 10a). Even though reporting entity is not subject to mandatory assurance, third-party voluntary assurance improves the credibility of the ESG information disclosed (Kolk & Perego, 2010) thereby preventing management's discretional and optimistic misinformation (Unerman & Zappettini, 2014), increasing the stakeholder trust (Reimsbach et. al, 2017) and the corporate reputation (Diouf & Boiral, 2017). However, the negligence of assurance may prevent the fulfillment of the verifiability and faithfully representation characteristics of useful information because the credibility of information and the degree of confidence of the intended users (ISAE 3000, par.12a) are deemed questionable.

3.4. Non – Availability of Information

Unavailability or delay increases the probability of preemption of information by others, hence reducing the expected benefits (Ataise et. al, 1989). Also information users tend to perceive delay as a signal of bad news (Beaver, 1968). The absence of periodicity of SR is likely not to meet the timeliness

characteristic of useful information since information may not be accessible in time to influence information users' decisions (Diouf & Boiral, 2017).

Consistent with the related literature, a recent survey of the Chartered Financial Analyst (CFA) Institute (see **Figure 2)** revealed that the main problems that reporting entities confront about SR are: the absence of quantitative ESG data (55%), the inadequacy of comparability across other entities (50%), the unreliability of ESG information (45%) and the deficiency of sufficient material information (42%) (CFA Institute, 2017).

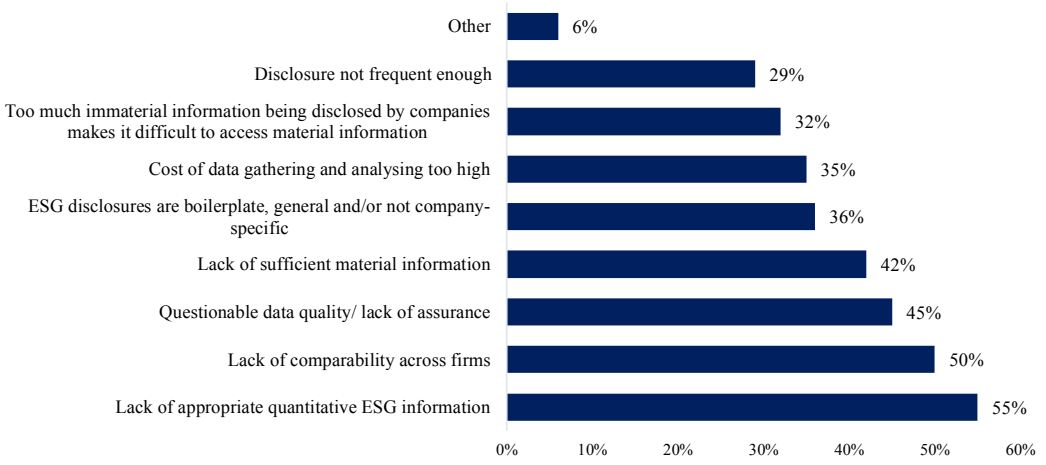

Figure 2: Factors Limiting the Use of NFI

Source: *CFA Institute (2017: 18)*

4. Literature Review

There is a vast amount of literature on the impact of Sustainability Reporting (SR) on Financial Performance (FP); yet the findings are contradictory despite decades of research (Aupperle et al., 1985; Mcguire et. al, 1988; Hirigoyen & Poulain-Rehm, 2015; Laskar, 2018; Barker & Eccles, 2018; Maqbool & Bakr, 2019). Various empirical studies have found that there is a positive link, negative link or even no link between SR and FP. They concluded that the SR-engagement based on a multi-stakeholder approach enhances transparency whereas others argued that shareholder value and corporate competitiveness are devastated due to additional costs (Ioannou & Serafeim, 2017).

Buallay (2019a) examined financial institutions from 2007 to 2016 and applied a linear regression model where Return on Asset (ROA), Return on Equity (ROE) and Tobin's Q were used as the dependent variables. The research depicted a negative relation between SR and FP. In their further studies, Buallay (2019b) observed companies from the manufacturing and banking sectors from 80 countries and concluded that the SR negatively affected the FP of the banking sector whereas, the

FP of the manufacturing sector had an inverse impact. López et. al. (2007) analyzed 55 CSR-engaged firms quoted on the Dow Jones Sustainability Index and 55 not-engaged firms quoted only on the Dow Jones Global Index during the years 1998-2004. They used profit growth as the indicator of FP and included revenue, ROA, ROE, cost of capital, leverage, size and industry as independent and control variables. They found evidence that sustainability practices had a short-term negative impact on FP due to the additional expenses for CSR adoption.

Karaman et. al, (2018) investigated 284 GRI-reporting companies from the aviation sector between the years 2006-2015. Multiple regression models pointed out that SR had a positive impact on firm size and leverage; however, no statistically significant impact was detected on profitability, free cash flow per share and asset growth. Velte (2017) analyzed the impact of CSR implementation on stakeholder trust after the 2008 financial crisis by sampling firms quoted on the German Prime Standard over 2010-2014. They used ESG scores as the independent variable to test the changes in ROA and in Tobin's Q ratio. Their research showed that CSR implementation had a positive influence on accounting-based indicators while no significant impact was found on market-based indicators. Laskar (2018) used content analysis with 36 listed nonfinancial Asian companies publishing SR in GRI format between the period of 2009-2014, then conducted logistic regression which showed a positive relationship between SR and FP specifically in developed countries. Hongming et al. (2020) examined non-financial Pakistani companies for the period of 2013-2017. After conducting content analysis, they applied two distinct regression models. The findings indicated a significant positive impact of environmental and social indicators on FP but a weak significant impact of health and safety indicators on FP.

Previous research has found mixed results due to the different measurement methods and/or characteristics of the samples such as size, sector, market, and country (Siminica, 2019). For instance, Sierra et al. (2013) investigated the most 35 liquid companies listed on the Madrid Stock Exchange over the period of 2005-2010 and performed a logistic regression analysis in which industry and auditor were the independent variables and ROA, ROE, leverage and total assets were the control variables. The results showed evidence that firm size had a significant positive impact on ROE but no significant relationship was detected between firm size and ROA together with leverage. Han et. al, (2016) examined the relationship between ESG disclosure and FP of Korea Stock Market listed firms from 2008 to 2014. By taking environmental, social and governance scores into account separately as the dependent variables, they selected ROE, market to book ratio (MBR) and stock returns as the proxy for measuring FP for the regression model. The empirical results revealed a U-shaped relationship between environmental score and FP, a positive relationship between governance score and FP; whereas no statistically significant relationship between social score and FP. The U-shaped link signifies that the expected returns of environmental disclosure can be gained after a certain period of time (Han et. al, 2016). Similar evidence was recorded by Wang et al, (2016) who studied construction companies from different countries over the period 2007-2013. The FP was tested by means of accounting measures and market-based measures. The panel data analysis revealed a curvilinear relationship between SR and FP, which also indicated that accounting-based indicators outperformed compared to market-based variables. Consistently, Barnett & Salomon (2012) also

concluded a U-shaped relationship between ROA and social disclosure –implying an initial decrease but a reascent at a certain threshold.

Studies that investigated the link between SR and FP for emerging markets still remain scarce (Lourenço & Branco, 2013). As a rapidly industrializing country, Turkey has committed to contributing to sustainable economic growth thereby protecting the environment and human rights. According to a recent research, Turkey's greenhouse gas emissions (GHG) (5,3%) are recorded below other G20 countries (average 7,5%) (Climate Transparency, 2021). Turkey ranks 42nd out of 61 countries at the overall Climate Change Performance Index 2022 – a scoring system to monitor climate protection performances of the most global carbon emitters (Climate Change Performance Index., 2022) Although Turkey receives a critically insufficient score with average warming of greater than 4°C, it ranks as the best performers on the renewable energy list (14th) (Climate Transparency, 2020: 11) and indicates a significant potential to take part in the carbon-neutral economy. According to the Human Development Index (HDI) published by the UNDP (2020), Turkey is ranked at 54th place in the highest quality category (p.345) In addition, the Capital Markets Board (SPK) and the Borsa Istanbul (BIST) have been encouraging companies to comply with the principles of corporate governance and to establish committees of audit, risk management, sustainability and ethics under their boards of directors. Although no mandatory or binding regulation exists in the field of SR, an increasing number of companies are engaged in ESG reporting. However, the empirical findings for Turkish companies investigating the relationship between SR and FP are generally inconsistent and controversial (see Aksu & Kosedag, 2006; Kılıç et. al, 2015; Kuzey & Uyar, 2017; Kılıç & Kuzey, 2019). This paper attempts to find evidence of the impact of SR on FP while interrogating the usefulness of ESG information.

5. Research Methodology

5.1. Hypotheses Development

FP reflects a company's ability to achieve economic objectives over a period of time (Siminica, 2019). FP has been generally addressed by (i) accounting-based and (ii) market-based indicators. Accounting-based indicators reflect internal efficiency (Van Beurden & Gössling, 2008; Hirigoyen & Poulain-Rehm, 2015). On the other hand, the value that is assessed by market participants is determined by market-based approach (Barauskaite & Streimikiene, 2021). Accounting-based measurements are considered the main proxies for evaluating FP (Cochran & Wood, 1984) since market-based indicators may lead to misinterpretation due to macroeconomic factors (López et al., 2007) and be subject to miscellaneous parameters (Wang et al., 2016). The existing body of literature which tested the link between SR and FP employed ROA, ROE and Earnings per Share (EPS) (Albertini, 2013) as accounting indicators found strong impact on FP compared to market-based indicators (Orlitzky, et. al, 2003). ROA is one of the principal accounting-based variables which represents the profitability related to total assets (Velte, 2017). ROA is widely used as a measure of FP in the CSR literature (Barnett & Salomon, 2012). Return on Equity (ROE) is an essential indicator for assessing the profitability of companies that are operating in the same industry (Sierra et. al, 2013). Firm size

is calculated by the logarithm of the total assets (Buallay et. al, 2019a). Leverage is the ratio of total debts to total assets and decreases managerial latitude (Barnett & Salomon, 2012).

In this research, ROA and ROE were used as proxies of FP. The dummy variable is a categorical variable and takes the value '1' if the company published SR (GRI, IR, CDSB, SASB etc.) in the previous year and takes the value '0' otherwise. Companies with larger sizes are expected to have a greater tendency to publish SR compared to others since they face more ESG issues and are liable to a larger scale of stakeholders (Artiach et. al, 2010). Companies with higher leverage are also expected to publish SR less frequently or not at all due to the cost of reporting and/or enforcement of debtholders (Artiach et al., 2010).

Based on these assumptions, the hypotheses were put forth as follows:

H_{1a}: *SR has a significant positive impact on ROA.*

H_{1b}: *SR has a significant positive impact on ROE.*

5.2. Sample Selection and Data Collection

The initial sample included 33 companies indexed in the BIST Metal Products Machinery (XMESY) during the years 2009-2018. The industry provides a convenient research setting as it is a highly sensitive industry for environmental risks, putting it in the public spotlight. Observations begin in 2009, after the recent global financial maelstrom, so that the adverse effects of the aftermath of the crisis do not affect the analysis. Furthermore, observations belonging to the last three years (2019, 2020 and 2021) are excluded from the sample to mitigate the adverse and extraordinary impact of Coronavirus (COVID-19) on FP. The financial data were manually collected from the annual independent audit reports which were publicly available at the Public Disclosure Platform (KAP) (https://www.kap.org.tr/tr/). SR were gathered from companies' websites and any form of SR (GRI, SASB, CDP, CDSB etc.) were included in the sample. 7 companies were excluded from the sample due to the lack of financial data for the research period. The final sample was composed of 25 companies which indicates that 76% of the index was subjected to the analysis (250 observations). Since the ESG reports were published at the beginning of the following year, it was examined whether SR had a significant impact on FP of the subsequent year. Moreover, in the case when companies published two-year report; the first year was neglected, assuming the lack of a published report in the first year could not have affected the FP. All analyses were carried out using STATA.

5.3. Empirical Model

The proposed models are presented as follows:

$$ROA_{i,t} = \alpha_0 DUMMY_{t-1} + \alpha_1 SIZE_{i,t} + \alpha_2 LEVERAGE_{i,t} + u_{i,t} \quad (1)$$

$$ROE_{i,t} = \alpha_0 DUMMY_{t-1} + \alpha_1 SIZE_{i,t} + \alpha_2 LEVERAGE_{i,t} + u_{i,t} \quad (2)$$

Where;

Table 2: List of the Variables

Variable Type	Variable	Symbol	Definition
Dependent	Return on Assets	ROA	Net Income/ Total Assets
Dependent	Return on Equity	ROE	Net Income/ Equity
Categorical	Dummy	DUMMY	'1' presence of SR '0' absence of SR
Control	Firm Size	SIZE	Logarithm of Total Assets
Control	Leverage Ratio	LEVERAGE	Total Debts/ Total Assets

5.4. Results

The descriptive statistics of the research are presented in **Table 3**. The mean of ROA is 0.525 and the mean of ROE is 0.895 whereas the standard deviation of ROA is 0.116 and the standard deviation of ROE is 0.452.

Table 3: Descriptive Statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
ROA	250	0.525	0.116	-0.328	0.509
ROE	250	0.895	0.452	-3.929	1.942
SIZE	250	1.92e+9	3.90e+9	2.16e+7	2.84e+10
LEVERAGE	250	0.578	0.256	0.053	1.656

Before performing panel data regression, the Levin-Lin-Chu unit root test was applied to determine whether the series are stationarity (Buallay et. al, 2020). The null hypothesis (H0) of the Levin-Lin-Chu unit root test states that the panel series contains a unit root, while the alternative hypothesis (H1) states that the panel data is stationary. **Table 4** shows findings of the Levin-Lin-Chu unit root test. The adjusted t* p-values for ROA without trend (0.000) and with trend (0.000) are significantly less than 0.05. For ROE, the adjusted t* p-values without trend (0.000) and with trend (0.000) are also significantly less than 0.05. Similar results were also recorded for LEV (0.000) without trend and (0.000) with trend. The findings demonstrate that the series are stationary except SIZE.

Table 4: Levin – Lin – Chu test for stationarity

Adjusted t*	ROA	ROE	SIZE	LEVERAGE
Trend	-4.666	-4.001	9.679	-3.558
Not – Included	(0.000)	(0.000)	(1.000)	(0.000)
Trend	-11.451	-8.465	0.721	-7.082
Included	(0.000)	(0.000)	(0.765)	(0.000)

Note: (…) represent the significance levels of the test

Later, the Hausman test was applied for endogeneity with two static panel approaches: fixed-effects, and random-effects models. Under the null hypothesis (H0) the estimators are consistent and significant to the model; whereas under the alternative hypothesis (H1) the estimators should have differing probability limits. The fixed-effects model analyzes the impact of variables that change overtime, and time-invariant characteristics are assumed to be unique to each entity and therefore should not be correlated with other individual characteristics. The random-effects model was also used to estimate the effects for time-invariant variables (Alsayegh et al., 2020).

As **Table 5** shows**,** the Hausman test provides evidence of the acceptance of the null hypothesis since the Prob> chi2 values for n-regressors (0.715) and (n-1) binary regressors (0.788) are greater than 0.05 it leads to the random-effects model –which assumes that the differences in coefficients are not systematic. Additionally, the results of the p> |z| values for SR (for n-regressors 0.660 and n-1 binary regressors 0.793) and SIZE (for n-regressors 0.234 and n-1 binary regressors 0.877) indicate a statistically significant impact of LEV (for n-regressors 0.000 and for n-1 binary regressors 0.000) on ROA whereas no significant impact of SR and SIZE on ROA was found.

Table 5: Panel Regression between ROA and SR

		n-regressors		**n-1 binary regressors**
	Fixed Effects Model	Random Effects Model	Fixed Effects Model	Random Effects Model
$\widehat{\beta_0}$ (cons)	0.176 (0.000) ***	0.180 (0.000) ***	0.007 (0.276)	0.008 (0.127)
$\widehat{\beta_1}$ (DUMMY)	0.007 (0.786)	0.011 (0.660)	0.003 (0.923)	-0.005 (0.793)
$\widehat{\beta_2}$ (SIZE)	2.510 (0.331)	2.790 (0.234)	2.930 (0.741)	1.090 (0.877)
$\widehat{\beta_3}$ (LEVERAGE)	-0.223 (0.000) ***	-0.232 (0.000) ***	-0.323 (0.000) ***	-0.308 (0.000) ***
F test Prob>F	0.000	.	0.000	.
Hausman Test		Prob > chi2 = 0.715		Prob > chi2 = 0.788

*Note: *,**,*** indicate that the estimates are significant at 10%, 5% and 1% margins of error, respectively.*

As shown in **Table 6**, the Hausman test provides evidence of the acceptance of the null hypothesis since the Prob> chi2 values for n-regressors (0.772) and n-1 binary regressors (0.682) are greater than 0.05 leads to the random-effects model which indicates that the differences in coefficients are not systematic. Additionally, the results of the p> |z| values for SR (for n-regressors 0.482 and n-1 binary regressors 0.919) and SIZE (for n-regressors 0.513 and n-1 binary regressors 0.880) indicate a statistically insignificant impact of SR and SIZE on ROE for the sampled Turkish firms whereas LEV provides mixed results (for n-regressors 0.173 and for n-1 binary regressors 0.004).

Table 6: Panel Regression between ROE and SR

	n-regressors		**n-1 binary regressors**	
	Fixed Effects Model	Random Effects Model	Fixed Effects Model	Random Effects Model
$\widehat{\beta_0}$ (cons)	0.146 (0.130)*	0.181 (0.077)*	0.023 (0.515)	0.026 (0.376)
$\widehat{\beta_1}$ (DUMMY)	0.071 (0.631)	0.096 (0.482)	0.003 (0.987)	-0.010 (0.919)
$\widehat{\beta_2}$ (SIZE)	6.020 (0.663)	7.740 (0.513)	1.370 (0.773)	5.600 (0.880)
$\widehat{\beta_3}$ (LEVERAGE)	-1.469 (0.403)	-0.201 (0.173)	-0.900 (0.003)***	-0.779 (0.004)***
F test Prob>F	0.759	.	0.033	.
Hausman Test		Prob > chi2 = 0.772		Prob > chi2 = 0.682

*Note: *,**,*** indicate that the estimates are significant at 10%, 5% and 1% margins of error, respectively*

The empirical study investigated the relationship between SR and FP for 25 Turkish companies indexed in the BIST Metal Products Machinery (XMESY) between the years 2009-2018. The analysis revealed no statistically significant relationship between ROA and SR but a statistically significant link between ROA and LEV. The second Hausman test also found no statistically significant relationship between ROE and SR. In other words, no correlation was identified between SR and FP –measured by either ROA or ROE. As ancillary findings, SIZE has no significant impact on FP while LEV negatively affects FP at conventional significance levels. The results provide evidence that NFI does not fulfill the qualitative characteristics of useful information.

5.5. Discussions

The findings can be justified in two ways. As discussed in the prior sections, the Turkish economy has been and still is struggling with financial instabilities and dramatic currency fluctuations. Companies that suffer financing losses may not be willing to bear the additional expenses of SR under the current economic circumstances. Moreover, companies may not engage in SR if it is

perceived that the expected benefits of reporting don't outweigh the costs or create added value since the NFI isn't useful for stakeholders.

Following the International Federation of Accountants (IFAC)'s emphasis on broadening the scope of the accountancy profession and corporate reporting in November 2019 (IFAC, 2019), the leading 5 SR framework-setters published a statement of intent to collaborate to eliminate the confusion arising from the multitude of frameworks and to prepare a globally-agreed set of standards for the disclosure of comparable, reliable and material ESG information (CDP, CDSB, GRI, IR, 2020: 3). In the most recent 5-year Trustees, the IFRS Foundation (Foundation) proposed to create a sustainability board that aims to develop a global set of SR standards with the 'climate-first approach' (IFRS Foundation, 2020: par. 23-24) that aims to help reporting entities disclose material ESG information which will be relevant for a wide range of stakeholders (par. 46-48). The Foundation also promoted the assurance of SR and declared cooperation with the International Auditing and Assurance Standards Board (IAASB) (par 52-54). Additionally, the Foundation officially announced the establishment of the International Sustainability Standards Board (ISSB) – which aims to develop a comprehensive global basis of high-quality sustainability disclosure that provides capital markets ESG information for making decisions (IFRS, 2022), at the United Nations Climate Change Conference of the Parties (COP26) in November 2021. The IASB and ISSB will cooperate to ensure that sustainability standards are complementary and compatible with accounting standards to fulfill stakeholder needs (IFRS, 2022). The ISSB has published two open-for-comment Exposure Drafts on March 31, 2022 – namely "IFRS S1: General Requirements for Disclosure of Sustainability-related Financial Information" and "IFRS S2: Climate-related Disclosures". The tasks aim to provide the first universal guidance for ESG – reporting entities to disclose related material sustainability matters.

6. Conclusion

For years, humanity believed that nature would adapt to uncontrolled industrialization due to the invisible hand. While the shareholder intimacy had made fortunes for company owners, the costs had been billed to future generations. As the building blocks of the global economy, companies cannot be sustainable in geographies where poverty, inequality and environmental problems are prevalent. SR is one of the most prominent corporate communication channels through which companies can disclose ESG performances to both internal and external stakeholders thus, ensuring them to be responsible and accountable for the consequences arising from their business activities. The standardization efforts of the ISSB in ESG disclosure are expected to enhance the characteristics of sustainability information and increase the intentions of SR among companies and capital market participants.

This paper has attempted to demonstrate that the lack of uniform regulations poses obstacles for the usefulness of NFI. The quantitative analysis concluded that the SR has no significant impact on the FP of Turkish machinery companies. It is plausible that a number of limitations could have influenced the results obtained. First, this research has a limited sample size which narrows the generalizability

of the findings. Secondly, this analysis only covers one country. Also in line with the prior literature, more variables such as market indicators might be used in order to investigate whether any other factors affect SR practices. Future research can also expand the period of observation to increase the validity of the findings.

Author Contribution

CONTRUBUTION RATE	EXPLANATION	CONTRIBUTORS
Idea or Notion	Form the research idea or hypothesis	Eylül Özdarak Çağatay Akarçay
Literature Review	Review the literature required for the study	Eylül Özdarak
Research Design	Designing method, scale, and pattern for the study	Eylül Özdarak Çağatay Akarçay
Data Collecting and Processing	Collecting, organizing, and reporting data	Eylül Özdarak
Discussion and Interpretation	Taking responsibility in evaluating and finalizing the findings	Eylül Özdarak Çağatay Akarçay

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Resume

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