Master's Thesis

ESG and Corporate Financial Performance in The Extractive Industry

by

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Certification Page

I, ERDENETUGS Surenjargal (Student ID 52120005) hereby declare that the contents of this Master's Thesis are original and true, and have not been submitted at any other university or educational institution for the award of degree or diploma.
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ERDENETUGS Surenjargal
2022/01/11

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Summary

Research on impact of ESG on Corporate Financial Performance (CFP) has been emerging in recent years, however, the extractive industry which is facing water issues has been less explored. This study addresses the issue of sustainable strategy on water performance and examines the relationship between ESG score as well as Water score as measured by Bloomberg ESG framework, and Corporate Financial Performance as measured by Tobin's Q and ROE, in the extractive industry, a sector that heavily uses water. This study tests proposed hypotheses by applying hierarchical multiple regression and partial correlation with a data drawn from the Bloomberg terminal database to analyze 269 publicly listed extractive firms whose data is available at Bloomberg ESG scores in 2018. The results suggest that there is a weak but positive relationship between ESG score, and Corporate Financial Performance which is measured by Tobin's Q, and Return on Equity, and it is statistically significant. Furthermore, in examining environmental, social and governance score separately to determine each variable's association to CFP, we find a weak but positive relationship between each variable and Tobin's Q. However, in analyzing each variable's association to ROE, the results reveal that the social and governance disclosure score is not associated with ROE, whereas the water score and environmental score is positively associated to ROE.

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1. Introduction

1.1 Research Background

Corporate sustainability[1] (CS) as a derivation of Corporate Social Responsibility (CSR) has been emerging in "the fourth industrial revolution" context (Roblek, Pejić Bach, Meško & Kresal, 2020). In 1994, John Elkington proposes the term called "Triple Bottom Line", which is a "sustainability framework that examines a company's social, environment, and economic impact" (Elkington, 2018). The main idea behind this term is to call upon businesses to "track and manage economic (not just financial), social, and environmental value added - or destroyed" (Elkington, 2018). Since then, the sustainability sector has been growing rapidly. Global issues such as climate change, environmental pollution, a shortage of natural resources, social injustice, and business ethics are playing crucial roles on how business activities are being conducted (Kolk & Tulder, 2010). Firms are expected to contribute to a sustainable development, thus, integrating Corporate Social Responsibility (CSR) into every aspect of their business strategies (Perdeli Demirkan, Smith, Duzgun, & Waclawski, 2021). At the same time, many scholars have been attempting to explain factors that enhance sustainability performance (Artiach, Lee, Nelson, & Walker, 2010; Lourenco & Branco, 2013; Kuzma et al., 2020), and the relationship between "sustainability performance and a firm's financial performance" (Saeidi et al., 2015; Kim, Kim, & Qian, 2018; Lo, Yeung, & Cheng, 2012; Lin, 2011; Vincent & Yusuff, 2020; Simionescu et al., 2020).

Environmental issues, to be more specific, water related problems need attention from academic researchers as well as business managers because of the water scarcity,

[1] The use of "ESG", "Corporate Social Responsibility (CSR)" and "Corporate Sustainability (CS)" represent interchangeable meaning in this paper.

which is a global issue that world is facing now, and it has important implications for sustainability. The United Nations (2018) announced the 'Water action decade' to raise awareness in water management issues including a shortage of water, water pollution and water ecosystem deterioration. They further define 17 sustainable development goals for 2030, which include goals related to water issues; "Goal 6: Clean water and Sanitation" and "Goal 14: Life Below Water" (The United Nations, 2020). Research on the impact of Corporate Social Responsibility (CSR) on Corporate Financial Performance (CFP) has been emerging in recent years. However, the association between the firm's water related outcomes and the firm's financial performance has been less explored (Weber & Saunders-Hogberg, 2020). In addition, Barnett (2007) and Soana (2011) state that there is a lack of studies about ESG score and a firm's financial performance focusing on one specific industry, such as mining industry or hospitality industry. As an endorsement of green initiatives have been increasing significantly, companies might lose the opportunity of sustainable business in a long term if they do not invest in environmentally friendly projects (So, 2021). This study addresses the issue of sustainable strategy on water management and environment. Moreover, we investigate the correlation between a firm's water related outcomes which is a part of ESG and the corporate financial performance (CFP) of the extractive industry, an industry that heavily relies on water.

1.2 Problem Statement

The extractive industry, including mining and oil and gas companies is facing more pressure from their stakeholders in regards with environmental sustainability and corporate social responsibility (Perdeli Demirkan et al., 2021). Also, the extractive industry has a significant influence on an economy (Gray, Hellman, & Ivanova, 2019),

"the industry plays a classical role as the villains of climate change" (Lovell, 2010). The extractive sector has a significant impact on water resources by intensive usage of water to refine an ore and poor disposal system of contaminated water, and creates not only quantitative, but also qualitative damages to water systems (Masood, Hudson-Edwards, & Farooqi, 2020). More than half of the biggest coal mining companies are facing a water problem in their mining area (Masood et al., 2020). Coal producing and using countries such as South Korea, Indonesia and Japan are categorized as a highly water-stressed country due to increased water consumption which is more than the supply of water (Luo, Otto, Shiao, & Maddocks, 2014). Therefore, it is imperative to address environmental issues including water issues in the extractive industry and formulate environmentally sustainable extractive operations that do not sacrifice the wellbeing of future generations (Weber & Saunders-Hogberg, 2020; Nirino, Miglietta, & Salvi, 2020; Del Giudice, Khan, De Silva, Scuotto, Caputo, & Carayannis, 2017).

1.3 Significance of The Study

Using the arguments of Stakeholder theory, this study contributes to the development of sustainable corporate strategies that are valuable to an environment, society and firm's financial performance using extractive industry as an example. This research further addresses the issues that are related to water resource such as water use policy, and wastewater treatment in the extractive industry. Moreover, by analyzing each pillar of ESG, it will provide more in depth understanding on the sustainability context.

1.4 Research Objectives

The main objectives of this research are as follows:

- To analyze the connection between ESG ratings of firms in the global extractive industry using available public data
- To examine the impact of the firm's water score on the financial performance of the firms in extractive industry.

1.5 Research Question

This study aims to examine the impact of ESG outcomes on the firm's financial performance in the context of the extractive industry. Through this research, we will answer questions as follows:

1. Whether the firm's ESG performance has a positive effect on the firm's Corporate Financial Performance (CFP) in the extractive industry?
2. Whether the firm's water score has a positive effect on the firm's CFP in the extractive industry?
3. Whether the firm's each pillar of the firm's ESG, including Environmental, Social, and Governance score has a positive effect on the firm's CFP in the extractive industry?

1.6 Research Structure

This thesis consists of six chapters. General introduction of the study, a background of the problem and research questions are emphasized in Chapter 1. A review of relevant theories and prior studies and a discussion of the understanding of terms: Corporate Social Responsibility (CSR), Corporate Sustainability (CS), ESG, and the connection between

CSR and Corporate Financial Performance (CFP) have been provided in Chapter 2. A conceptual framework and a development of hypotheses are presented in Chapter 3. A research methodology, sample selection, data collection, and variable measurement have been included in Chapter 4. Descriptive statistics and results from the data analysis are summarized in Chapter 5. In addition, conclusion of the study, implications on literature and management practice, limitations of the study, and further research suggestions have been presented in Chapter 6.

2. Literature Review

2.1 Theoretical Framework

To study the correlation between Corporate Social Responsibility (CSR) and Corporate Financial Performance (CFP), several theories have been examined including Stakeholder theory and CSR theory. According to Daniel (2018), "Stakeholder theory and CSR theory address the same business issue from a different perspective". Moreover, using stakeholder theory for understanding an association between "Corporate Social Responsibility (CSR) and Corporate Financial Performance (CFP)" might be more suitable rather than CSR theory because the latter one prioritizes the need of society over other stakeholders, while the former one considers multiple stakeholders (Daniel, 2018). With the help of stakeholder theory, firms formulate strategies that can create value for the company as well as for relevant stakeholders (Vidal, Berman, & Van Buren, 2015). Stakeholder theory (Freeman, 2010; Porter & Kramer, 2006) proposes that managers conduct sustainable business activities which serve the best interest of stakeholders and these have a positive impact on firm's financial performance by positively contributing to the firm's reputation. According to Lu (2013) stakeholders are "all individuals or groups who can substantially affect, or be affected by, the welfare of the firm. The main stakeholders include not only shareholders and creditors but also employees, customers, communities, and regulators". Jensen (2002) states that "Stakeholder theory does not address the issue of trade-offs between the demand of stakeholders". To address this issue, they propose "Enlightened stakeholder theory" which suggests that a firm's main goal is "long-term value maximization" while meeting demands from several stakeholders (Jensen, 2002).

Meanwhile, shareholder theory proposes that companies have responsibility to only

one stakeholder group, which is a shareholder (Saeidi et al., 2015). This view further explains that CSR activities are used to satisfy several stakeholders needs with an expense to shareholders (Pagano & Volpin, 2005). The main notion of the shareholder-based view is the increasing expenditures that are involved in engaging in socially and environmentally responsible activities, which is a misappropriation of the shareholder's equity (Ferrero, Michael Hoffman, & McNulty, 2014). Shareholder theorists argue that increasing expenditure might have a negative impact on the competitive advantage of the firm by poor economic performance (Witkowska, 2016). As opposed to the shareholder-based view, the stakeholder's theory believes that firms have responsibility to all stakeholders including shareholders (Daniel, 2018).

2.2 Corporate Social Responsibility (CSR)

CSR has been in the center of attention of management literature (Nejati & Ghasemi, 2012) and business practice (Dahlsrud, 2008) over more than four decades now (Russo & Perrini, 2010). Globally, stakeholders have been demanding corporate managers to invest in CSR activities (Lin, 2011). For example, public campaigns such as ethics-oriented non-profit organizations, labor unions and media coverage urge organizations to conduct business in sustainable manner, while several stakeholders such as consumers, employees, suppliers and governments impose the similar demand (Zu & Song, 2009). However, finding a specific definition of CSR is still challenging (Malik, 2015). Carroll (1979) defines CSR as a "society's expectation that needs to be fulfilled by businesses which include economic, legal, ethical, and philanthropic expectations". They further argue that for the business case for CSR allows organizations to create competitive advantage and have a beneficial relationship with its stakeholders, including shareholders

(Carroll & Shabana, 2010). Therefore, CSR initiatives can be any activity that is conducted by firms to solve issues related to the environment, social development and the well-being of employees (Kim et al., 2018). McWilliams & Siegel (2001) suggest CSR is activities that advocate social goods beyond the shareholder's interest as well as legal compliance. According to Queen (2015), creating beneficial relationship with one stakeholder may have a positive effect on other stakeholders. For instance, engaging in sustainable business activities could intrigue competent employees, potential investors, and generate a great corporate image for the customers (Chan, Watson, & Woodliff, 2014). CSR carries ethical responsibility because its nature which is non-compulsory rather than being compulsory (Kim et al., 2018). According to Carroll (1979), both ethical responsibilities and economic responsibilities exist at the same time as part of the broader definition of social responsibility in one organization, thus they are not to be aggregated nor conflicting with each other.

Abdelhalim & Eldin (2019) discuss two types of CSR which are traditional CSR and a new generation of CSR. Traditional CSR is a normal type of CSR which includes philanthropic activities. In addition, philanthropy has three main sub types (Jamali & Jain, 2015).

(1) Pure philanthropy: in which this type of CSR, organizations usually help by improving the infrastructure for local communities and donate necessary resources such as providing health cares and educational needs. In return, they build trust in the firms and create values for them.

(2) Cause-related philanthropy: where firms choose a certain type of social issue and contribute to that particular issue to build a good reputation.

(3) Strategic philanthropy: whereby the organizations study philanthropic activities,

and they include these activities to the mission and vision of the organization to enhance competitive advantages of the organizations.

Contemporary CSR includes more strategic activities for inclusiveness, organizational cultures and sustainable developments (Abdelhalim & Eldin, 2019) and it reflects the firm's responsibility towards stakeholders' group with regards of economic, social and environmental performance (Ashrafi et al., 2020). To implement a new generation of CSR, the organizations ought to align with the ten UN Global Compact principles, in which include labor management, human rights & gender equality, SDG goals and anti-corruption (Abdelhalim & Eldin, 2019). A new generation of CSR helps firms to move forward, especially towards transformative change and sustainable development. Local communities, stakeholders, core operations and internal & external policies of the firms are the vital elements for sustainability in business operations. These elements encourage organizations to maintain their ethical operations and enhance the firm's competitive advantages. In developing countries, the local governments are facing difficulty in developing infrastructures. Both traditional and new generation of CSR activities have mutualistic benefits for organizations and local communities (Koch, Bekmeier-Feuerhahn, Bögel, & Adam, 2019).

The market and non-market environments are important factors for the performance of the business organizations (Baron, 2000). Non-market strategies (e.g. CSR) are even more important in pluralist western societies (Orlitzky et al., 2003), while it is considered as a philanthropic activity rather than environment and social activity in developing countries (Shahzad, Qu, Rehman, Zafar, Ding, & Abbas, 2020). Rasche et al. (2013) claim that trust between local community and business can be built by implementing CSR strategies. Business organizations should not harm the environment and society and CSR

is a tool to make balance for developing business operations and benefiting the local community and society (Mosaid & Boutti, 2012). Bhattacharya & Sen (2004) state that CSR has a direct effect on the business operations such as business development sectors and marketing management. In addition, CSR is the best approach to maintain the reputation of the organizations and to build a customer's loyalty. Moreover, according to Ajina et al. (2019), social issues can be improved by CSR strategies while business organizations are promoting their products or services. They further explain that customers, who have better knowledge in regards with environment and society, support organizations which have a proper CSR strategy, and it has direct impact on business performances (Ajina et al., 2019).

2.3 Corporate Sustainability – Triple bottom line, ESG

The usage of the term "Corporate Sustainability" has become prevalent in business studies since 2000 (Vermeulen & Witjes, 2016). The term has emerged in regards with the idea of sustainable development (Roble et al., 2019). Business organizations have started realizing that their operations have some effect on society and environment, thus should be responsible for their decisions (Demetriades & Auret, 2014). All enterprises have somewhat effect on society and environment either positive or negative (Simionescu et al., 2020). Overall, CS refers to the firm's involvement in meeting "Sustainable development goals" and it also offers direction to an economic and social advancement and "environmental governance" (Roblek et al., 2020). Elkington (1999) defines CS scientifically based on triple bottom line concept which claims that goals of the organizations cannot be separated from society and environment in which the organization operates. In regards with sustainability, organizations can find a solution

where their activities can benefit the society without negatively affecting the environment, while also generating economic benefits (Simionescu at al., 2020). Some corporations carry out CSR activities to cover their business activities that harm environment or society (Selcuk & Kiymaz, 2017), while most organizations plan environmentally responsible activity to merely meet the regulatory requirements or calm the reactions from the public (Cordeiro & Sarkis, 1997). Nonetheless, CS incorporates both short-term and long-term environmental, social and governance aspect of business performance (Hahn, Figge, Aragon-Correa, & Sharma, 2017). Moreover, it pursues to establish a long term benefit to the firm's stakeholders including shareholders (Dyllick & Muff, 2016).

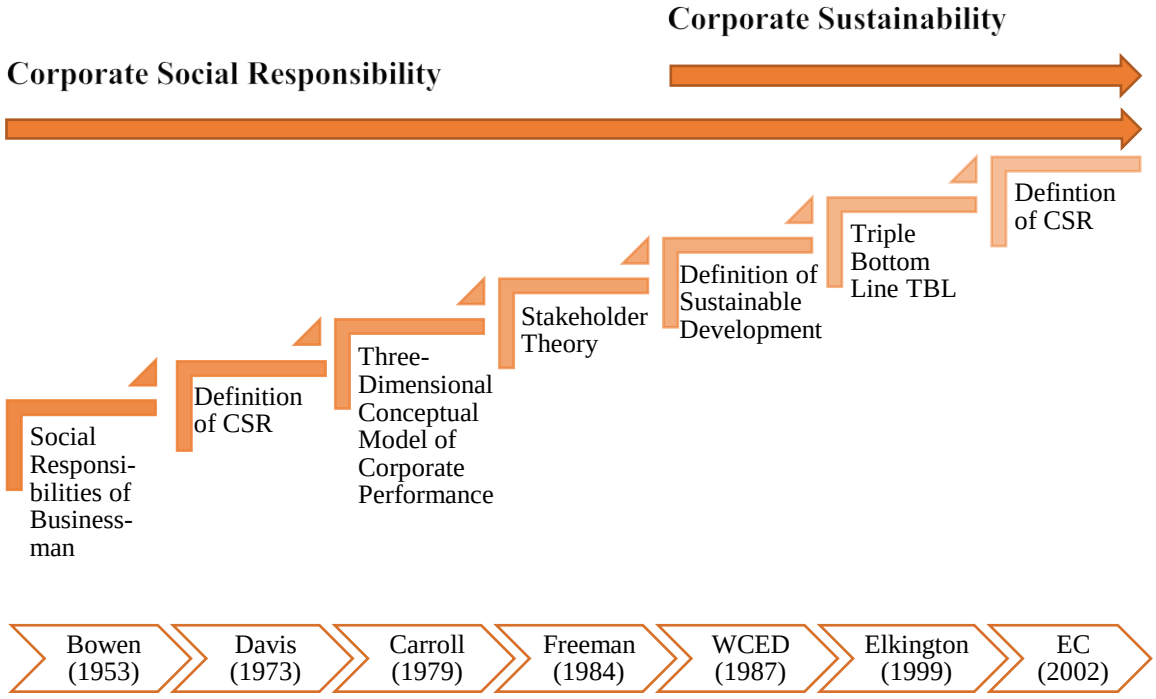
According to Galbreath (2013), the main measure of the firm's non-financial performance is ESG, and it also can be used to evaluate the capability of the firm's management. In addition, Barnett (2007) and Soana (2011) state that there is a lack of studies about ESG score and a firm's financial performance focusing on one specific industry, such as mining industry or hospitality industry. Each company has their individual strategies that show ESG performance and the impact of ESG performance on financial performances (Padgett & Galan, 2010). It enhances the reputation of the companies by showing how the companies act ethically to the society and environment. In addition, Roblek et al. (2020) claim that "ESG creates value for the business by (1) facilitating revenue growth, (2) reducing costs, (3) minimizing regulatory and legal intervention, (4) increasing employee productivity, and (5) optimizing capital expenditures and investment".

Issues such as a lack of awareness regarding environmental problems, inadequate human resources, and poor co-operation with stakeholders decelerate the firm's ESG performance (Kengkathran, 2018). Furthermore, Frynas (2005) argues that excessive

focus on managerial and technical concern is one of the challenges to enforce ESG activities. Therefore, ESG activities can be enhanced by interconnection with all stakeholders (Khemir et al., 2019). Additionally, to meet sustainable development goals, firms must incorporate social and environmental features into the main business model and eventually, it will create competitive advantage for the firm (Ashrafi et al., 2020). There is no model that can fit to sustainability of all organizations; thus, it requires a constant form to create business cases to maintain sustainability (Ashrafi et al., 2020)

Some scholars argue that Corporate Social Responsibility (CSR) and Corporate Sustainability (CS) are similar terms, but not exactly same, whereas others dispute that both terms should be integrated under sustainable strategies of firms (Ille, 2021). Both terms are brought together more in recent studies and using the same assumptions and measurements (Bansal & Song, 2017). According to Ashrafi et al. (2020), "the fundamental idea embedded in the contemporary CSR and CS notions is that businesses, in addition to focusing on profits, have an obligation to foster social and environmental stewardship". Figure 1 illustrates the "development and evolution of CSR and CS from their early stage and the main scholars who contributed to the understanding of concepts" which was developed by Ashrafi et al. (2020). Regardless of the difference in their theoretical aspect, applying various views for CSR and CS into the firm's strategic business decisions will help creating a shared value among all internal and external stakeholders (Ashrafi et al., 2020). Therefore, the author utilizes the term ESG conversely with Corporate Social Responsibility (CSR) and Corporate Sustainability (CS) in this research.

Figure 1. Timeline of the development of CSR and CS framework



Source: Ashrafi et al. (2020).

2.4 Corporate Financial Performance

Two streams of indicators have been used in empirical research when evaluating Corporate Financial Performance (CFP): accounting-based financial performance including return on assets, return on sales, return on equity, operating income growth, growth of sales; and market-based financial performance such as stock returns, Tobin's Q, fund returns and the market book value ratio. According to Cochran & Wood (1984), using accounting evaluations such as operating return on sales and operating return on assets as CFP is to highlight how does the firm's earning respond to management decisions, while ROA and ROE represent the firm's internal efficiency. Existing literatures such as Waddock et al. (1997), Saeidi et al. (2015), Nirino et al. (2020), Vincent & Yusuf (2020) use ROE evaluate the firm's bottom line.

Tobin's Q has been used in many CSR-CFP studies (Luo & Bhattacharya, 2006; Jo & Harjoto, 2011; Kim et al., 2018). Limited number of researchers have used both financial performance measures in their study, whereas scholars usually employ either one of the indicators in their research (Garg, 2015).

2.5 Previous research on the relationship between CSR/CS/ESG and CFP

Despite the number of studies that have been attempting to explain a relationship between CSR and CFP, the results show contradicting evidence. Since 1970, more than 2,000 empirical studies have used Environmental, social and governance (ESG) score to represent the firm's Corporate Social Performance (Friede, Busch, & Bassen, 2015).

Orlitzky et al. (2003) performs a systematic review assimilating 30 years of research on CSR-CFP relationship. The findings of the analysis show that corporate social performance has positive impact on corporate financial performance across industries and the association can vary from "highly positive" to "moderately positive" based on measurements of CFP, or a level of CSP transparency. Saeidi et al. (2015) conclude that positive correlation is found between CSR and CFP in Iranian consumer product firms and this association is mediated by competitive advantage, firm's reputation which are followed by higher customer satisfaction. Similarly, the impact of CSR on CFP among 190 food and beverage companies is examined and a positive connection between CSR and CFP has been identified (Nirino et al., 2020). Furthermore, Waddock and Graves (1997) develop a term called "a virtuous circle", that is, "better financial performance may lead to improved sustainability performance, better CSP may lead to improved financial performance". Orlitzky et al. (2003) support this argument which is "CSP and CFP mutually affect each other through a virtuous cycle" because firms that have financial

ability invest more in their sustainability activities, and CSP contributes to their financial success. Sustainable activities bring higher financial benefit to the company through gaining competitive advantage and improving customer satisfaction and firm's reputation (Saeidi et al., 2015).

Study on water use and firm's financial performance for Information technology sector by Simionescu et al. (2020) reveals total water use negatively impacts market-based financial performance, whereas it shows a positive effect on an accounting-based indicator of the firm's financial performance. Rassier & Earnhart (2010) argue that "the firm's financial performance which is measured by market-based measures such as Tobin's Q decreases when tight regulation on water use is imposed". Furthermore, they state that investors tend to lower their expectation on firm's performance in response to change is regulation (Rassier & Earnhart, 2010). There are some contradicting results which have found no relationship between firm's effort to address environmental issues and firm's bottom line which is measured by accounting measures (Nirino et al., 2020; Vincent & Yusuff, 2020). Dorfleitner et al. (2018) find commitment towards efficient use of natural resources and reducing environmental emissions can produce positive long-term stock returns.

Stakeholders influence the firm's environmental sustainability practices, e.g. environmental activists protest the firms to act responsibly, customers call upon the firm to obtain certification (Sharma & Henriques, 2005). Commitments toward high quality employment and a fundamental human rights convention enhance market-driven financial performance, while responsible activities toward customers reveal no significant impact on stock returns (Dorfleitner et al., 2018). Social outcomes which relate to the relationship with employees and customers (e.g. gender issues) enhance the firm's

financial performance through increasing the level of employees and customer satisfaction (Nirino et al., 2020). A positive association could be found in all accounting based financial performance indicators (Nirino et al., 2020).

Corporate governance plays an important role when formulating a sustainable strategy through regulating top management behavior (Jo & Harjoto, 2011). Moreover, Jo and Harjoto (2011) find evidence that shows a positive correlation between corporate governance and a firm value which is measured by Tobin's Q. Study carried out by Lu (2013) among 400 largest companies in the U.S. reveals that corporate governance moderates the correlation between corporate social performance and corporate financial performance by contributing added value to firm value. More transparent disclosures on firm's activities will enhance firm's value because it decreases an information imbalance between internal and external stakeholders, therefore (Jo & Harjoto, 2011).

3. Hypotheses Development

The main objective of this research is to understand the connection between Corporate Sustainability performance which is evaluated by ESG score, Water management and Corporate Financial Performance (CFP) in the extractive industry in which includes firms that are operating in coal, oil & gas, metals and mining industry. Based on a review of relevant literatures in chapter 2, we have formulated following hypotheses:

H1a: The higher are the ESG scores, the higher are firms' financial performance, which is measured by Tobin's Q in the extractive industry context.

H1b: The higher are the ESG scores, the higher are firms' financial performance, which is measured by ROE in the extractive industry context.

H2a: The higher are the Water scores, the higher are firms' financial performance, which is measured by Tobin's Q in the extractive industry context.

H2b: The higher are the Water scores, the higher are firms' financial performance, which is measured by ROE in the extractive industry context.

H3a: The higher are the E scores (environment), the higher are firms' financial performance, which is measured by Tobin's Q in the extractive industry context.

H3b: The higher are the E scores (environment), the higher are firms' financial performance, which is measured by ROE in the extractive industry context.

H4a: The higher are the S scores (social), the higher are firms' financial performance, which is measured by Tobin's Q in the extractive industry context.

H4b: The higher are the S scores (social), the higher are firms' financial performance, which is measured by ROE in the extractive industry context.

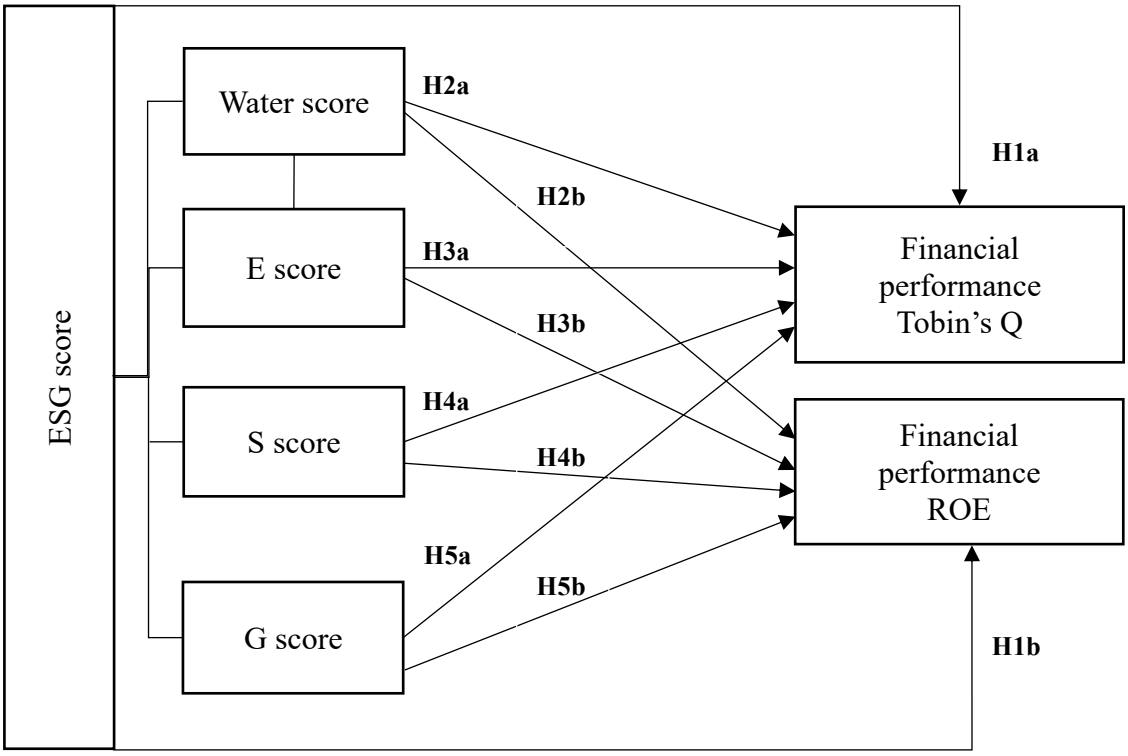
H5a: The higher are the G scores (governance disclosure), the higher are firms' financial

performance, which is measured by Tobin's Q in the extractive industry context.

H5b: The higher are the G scores (governance disclosure), the higher are firms' financial performance, which is measured by ROE in the extractive industry context.

Conceptual Framework

Figure 2. Conceptual Framework



4. Methodology

4.1 Population and Sampling

4.1.1 Population

The population of the study includes companies that are operating in oil & gas industry, metals & mining and steel industry, and coal industry according to Bloomberg Industry Classification Standard (BICS), which will be collectively referred as an extractive industry in this study. Bloomberg terminal data as of 2021, includes industry-specific environmental and social scores for 251 firms in the oil and gas industry, 169 companies in the metals & mining and steel industry, 18 companies in the coal industry. Industry specific methodology (March 2020 version) for Environmental and Social Scores for (1) Oil & Gas, (2) Metals & Mining and Steel industry, and (3) Coal industry has been obtained from Bloomberg terminal. According to the scoring methodology mentioned above, Oil and gas companies are divided into "(i) exploration and production (88 companies), (ii) integrated oils (31 companies), (iii) refining and marketing (41 companies), (iv) midstream (38 companies), (v) services - drilling and drilling support (16 companies), and (vi) services - oilfield services and equipment (37 companies)". Metals and mining and steel companies are divided into "(i) iron and base materials (64 companies), (ii) precious metals and mineral and precious stone mining (57 companies), and steel producers (48 companies)". The classification of industry and sector follows the Bloomberg Industry Classification Standard (BICS) which was updated in 2020.

4.1.2 Sample selection

First, in the Bloomberg proprietary ES score window, water management is filtered in the issue score and it includes data for 755 companies for the year of 2018. Each sub-industry has been given issue priority between 1 (the highest priority) and 7 (the lowest priority). Sub-industries in which water issue is prioritized as one to three are selected as samples, which gives us 343 companies. Those include Coal Mining (18 companies), Drilling & Drilling Support (15 companies), Exploration & Production (85 companies), Integrated Oils (31 companies), Iron & Base Metals (64 companies), Oilfield Services & Equipment (37 companies), Precious Metals and Mineral & Precious Stone Mining (53 companies), Refining & Marketing (40 companies). Companies which have been delisted or acquired by another company in the year of 2018 as well as 2019 have been excluded from the sampling due to unavailability and quality of the information. The remaining companies whose information is available are 269 companies. A description of sub industries and the metrics of water issue have been included in the Table 1 below.

Table 1. A list of sub sectors selected as samples and sector specific sub water issues

Industry	*Priority*	*Industry description*	*Quantitative metrics used*
Coal mining	2	Mining for coal used in the production of steel; as well as steam and subsequently electricity.	- Percentage of water recycled per total water used - Freshwater withdrawals (water use);
Drilling & Drilling support	2	Drilling & Drilling Support industry provides contract drilling and other services for drilling for and completing oil and natural gas.	- Percentage of Produced Water Recycled - Fracturing Fluid Use Policy - Water Policy
Exploration & production	3	Exploration & production companies include those that extract and produce crude oil and natural gas.	- Discharges to water - Produced Water and Flowback - Percentage of Produced Water Discharged - Percentage of Produced

Industry	*Priority*	*Industry description*	*Quantitative metrics used*
			Water Injected - Percentage of Produced Water Recycled - Fracturing Fluid Use Policy - Freshwater Withdrawals - Water Policy - Water Stress Exposure (Percentage)
Integrated oils	3	Integrated oil and gas companies include those that undertake surveying, producing, refining, and supplying of oil and gas.	- Discharges to water - Produced Water and Flowback - Percentage of Produced Water Discharged - Percentage of Produced Water Injected - Percentage of Produced Water Recycled - Percentage of Water Recycled per Total Water Used - Fracturing Fluid Use Policy - Freshwater Withdrawals - Water Policy - Water Stress Exposure - (Percentage)
Base metals & iron	1	Metal companies include those that extract metal and mineral reserves and are engaged in the production or refining of ores such as alumina, iron ore, copper, and zinc. Iron companies have similar activities with a larger focus on iron ore mining.	- Percentage of water recycled per total water used - Freshwater withdrawals (water use); - Water policy - Total water consumption - Water stress exposure
Oilfield Services & Equipment	1	Oilfield Services & Equipment industry provides services and equipment for finding and developing oil and natural gas. This includes onshore, offshore and subsea exploration services, contract drilling, well completions, tool rentals, seismic	- Percentage of Water Recycled per Total Water Used - Fracturing Fluid Use Policy - Water Policy

Industry	*Priority*	*Industry description*	*Quantitative metrics used*
		surveying, and equipment manufacturing.	
Precious metals and Minerals & precious stones	1	Precious metal mining companies include those that primarily extract metal and mineral reserves and are engaged in the production or refining of ores. This includes companies that produce precious metals such as gold, silver and platinum along with processed final goods. Mineral & precious stone mining companies include those that extract commodities like such as lithium and diamonds.	- Percentage of water recycled per total water used - Freshwater withdrawals (water use); - Water policy - Total water consumption - Water stress exposure
Refining and Marketing	3	The Oil and gas refining and marketing industry distils petroleum into products such as (gasoline, diesel, petrochemicals, etc.) and engages in distributing, wholesaling or retailing of petroleum products.	- Water Policy - Water Stress Exposure - (Percentage) - Freshwater Withdrawals - Percentage of Water Recycled per Total Water Used

Source: Environmental and Social Scores: Methodology Industry Guide by Bloomberg

4.2 Data collection and Data collection instrument

4.2.1 Data collection

First, for selected samples, water score, environmental score, social score and governance disclosure scores have been downloaded from Bloomberg Terminal.

Second, companies which were acquired by another entity or delisted in 2018 and 2019 were excluded due to unavailability and the quality of financial information.

Third, companies that were not included in the Bloomberg ES score for 2018-2019 were not taken into consideration.

Finally, financial information has been downloaded from Bloomberg Terminal and checked for accuracy into financial statements for 2018 and 2019.

4.2.2 Data collection instrument

Independent variables of this study have been determined using Bloomberg ES (Environmental and Social) score and G (Governance) disclosure scores. Many scholars use ASSET4, BCC industry index, MSCI index for assessing CSR and CS data (Daniel, 2018). In this study, Bloomberg proprietary ES score is selected due to suitability of scoring methodology for the purpose of this research. Dorfleitner, Halbritter, and Nguyen (2015) argue that ESG ratings provided by Thomson Reuters, MSCI and Bloomberg are appropriate proxy as a measurement of CSR regardless of different methodology they use. Bloomberg collects company reported sustainability information from direct sources including (a) sustainability reports, (b) annual reports, (c) corporate governance reports, (d) supplemental information, and official websites of companies. Based on those primary data, Bloomberg Intelligence identifies most material sustainability issues for each sub industry.

Table 2. List of factors that determine pillars of ESG

Environmental (E)	*Social (S)*	*Governance Disclosure (G)*
Air quality	Community rights & relations	Remuneration
Climate exposure	Ethics & compliance	Independency
Ecological impact	Labor & employment practices	Audit
Energy management	Occupational health & safety management	Shareholder rights
Environmental supply chain management	Operational risk management	Diversity
GHG emissions management	Product quality management	Entrenchment
Sustainable product	Social supply chain management	Overboarding
Waste management		
Water management		

Source: Bloomberg Terminal, last accessed in September 2021

Water management issue consists of sub issues such as wastewater, water use, and water use policies. Based on their research, Bloomberg intelligence ranks issues based on their priority in specific to industries. For example, the water issue is scored as 1 in terms of priority for Iron and base metals industry, while it is scored as 5 in terms of priority for steel producer sector. For prioritizing environmental issues, a range from 1 (highest) to 8 (lowest) has been used. For prioritizing social issues, a range from 1 (highest) to 5 (lowest) has been used. In general, companies are rated on a scale of 0 (worst) to 10 (best) in terms of Environmental and Social score. Bloomberg features scoring methodology that encourages better transparency and reporting, thus, the higher the scores are, the higher the positive sustainability performance as well as transparent disclosure. A governance score that considers the performance related factors, in addition to the level of disclosure is not fully developed in the Bloomberg Terminal system. Therefore, we use Governance disclosure score, which is based on the level of disclosure of Governance related factors mentioned in Table 2. ESG Disclosure score was first made available in 2009 by Bloomberg. "They currently gather approximately 300 data points from each of approximately 11,000 companies in 63 countries" (Fatemi, Glaum and Kaiser, 2018). Bloomberg calculates a disclosure score which ranges from 0.1 (lowest) to 100 (highest) taking into account industry specific measurements.

Bloomberg's scoring methodology

Bloomberg's ES scores are structured into the following hierarchy from the bottom to top. In this study, Environmental score and Social scores are represented as Pillar scores which is level four hierarchy which aggregate all sub level scores. Water score is represented as an Issue score which is level 3 score, one level below pillar score.

1. Fields: Field scores are aggregated into Pillar score which is used as ES score in this

study. Field scores are attributed by Issue (environmental and social) priority, Field type (values are quantitative or binary), Fit values (high, medium or low), Polarity (positive or negative mean is assigned to reflect the risk), Disclosure factor (A, B, or C is assigned to reflect the missing data), Activity metrics (to normalize sustainability performance relative to operating metrics).

2. Sub-issues: Field scores are aggregated into sub-issues based on a weighted fit/quality level. The fit/quality value determines the weight of individual fields, where High=9, Medium=4, and Low=1.
3. Issues: Issue scores are aggregated from sub-issue scores, additionally incorporating a disclosure factor which reflects the quantitative sustainability disclosures of companies. Issue score level highlights both of a sustainability performance score and transparent disclosure. The sustainability performance score is determined by an average of sub-issue score and the Disclosure factor 0 to 1 helps assigning issue score into appropriate range being 0-3 and 0-10, respectively.
4. Pillars: Pillar score is calculated by weighting issue scores, where the weight is decided by Issue priority ranking.

4.3 Variable Measurement

4.3.1 Dependent Variables: CFP

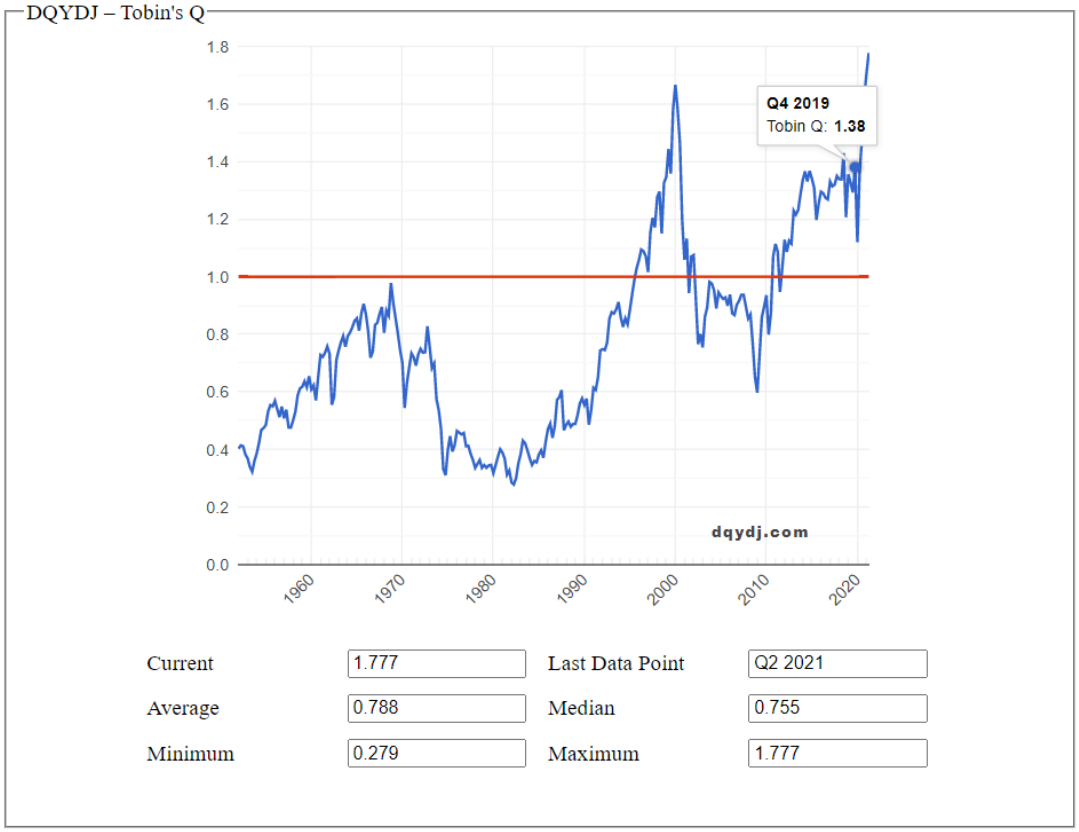
Tobin's Q and Return on Equity (ROE) are used in this research as determinants for the Corporate Financial Performance (CFP).

Tobin's Q is calculated by dividing an asset's market value by its replacement value (Nasdaq, n.d). This measures the firm's ability to expand its business and sustain its success in the long term (Luo & Bhattacharaya, 2006). If a firm's Tobin's Q ratio is more

than one, it reflects a good investment decision by the firm, vice versa. This measure shows the firm's profit making ability in the future and it also shows expectations of an investor's (Rao, Agarwal, & Dahlhoff, 2004). So (2021) states that "Investors are one of the stakeholders. An increase in Tobin's Q value proves that investors' expectations for the company's future investment will rise with the improvement of CSR performance". They further explain that when companies reinforce their "social contract" by investing in sustainable activities, society will contribute to the companies' funds to keep with sustainable activities (So, 2021). A usage of Tobin's Q may have its drawbacks such as a bias in investor's decision making (Kim et al., 2018). Regardless of this limitation, several papers have been using Tobin's Q as a dependent variable in CSR-CFP because "CSR's outcomes are not necessarily realized in short-term profits" (Kim et al., 2018). After reviewing prior papers, Tobin's Q is selected as a dependent variable in this study. Following the argument of causality by Wang & Qian (2011) and Kim et al. (2018), financial performance is evaluated following the year in which ESG activities were conducted (a one-year lag).

Figure 2 below shows that average Tobin's Q in the Quarter 4 of 2019 among entities in the United States was 1.38. If a firm's Tobin's Q ratio is more than one, it reflects a good investment decision by the firm, vice versa (Nasdaq, 2021).

Figure 2. Tobin's Q for the United States



Source: (DQYDJ, 2021)

Return on equity, calculated by dividing the net income or profit after interest and taxes by shareholders' capital equity, is a common accounting-based measure of financial performance. ROE allows one to assess how company's management finance its business activities from shareholder's equity and how management decision contribute to business growth. Generally, the higher the ROE is, better the firm performance (So, 2021). We adjusted possible skewness by taking a natural logarithm of ROE. Before taking logarithm, 1 is added to each value in order to keep negative values (Vincent & Yusuff, 2020).

4.3.2 Independent Variables: ESG

This study uses ESG ratings to represent a firm's sustainability performance. Five scores namely: (1) "Collective ESG score"; each pillar of ESG ratings (2) "Environmental score", (3) "Social score" and (4) "Governance Disclosure score"; additionally (5) Water score are selected to use as explanatory variables in this thesis. ESG data has been obtained from the Bloomberg Terminal database. Issues and dimensions included in each score and scoring methodology has been discussed in 4.2 Data collection and data collection instrument section.

4.3.3 Control Variables

Firm size, a leverage ratio, return on asset and liquidity ratio have been selected as control variables to control features that might predict Tobin's Q. Firm size is determined by taking a natural logarithm of total assets and a firm size has been one of the important variables in CSP-CFP studies (Orlitzky, 2001) because the bigger the size of the firm, the higher the economies of scale might be (Wang & Qian, 2011). Additionally, there is different CSR governance or different ethics behavior between small or larger companies, thus firm size could affect their performance (Waddock and Graves, 1997). Leverage, as calculated as a ratio of total debts including that of short-term portion of total assets, has been selected as a control variable in many studies on social-financial performance relationships (Wang & Qian, 2011, Kim et al., 2018). Risk can be measured by leverage and higher leverage ratio shows that there could be a financial risk due to high rate of cost of capital, which can eventually show a negative effect on company's bottom line (Nirino et al., 2020). Continent dummies have been included to regulate for the influence of different countries on firm performance. To reinforce the causality argument, all control

variables are lagged by one year.

In summary, this study uses samples that have 10 variables and 269 observations which provides total 2,690 items for the analysis.

Table 3. Variable Operationalizations

Variable	Measure
Tobin's Q	((Total liabilities + (Number common shares outstanding × Stock price)) / Total assets
ROE	Net income / Average shareholder's equity
Water score	Bloomberg
Environmental score	Bloomberg
Social score	Bloomberg
Governance disclosure score	Bloomberg
ESG score	Derived variable: Average (Environmental score + Social score + Governance disclosure score)
Firm size	Ln (Total assets)
Return on assets	Net income / Average total assets
Leverage	(Long-term debt + Short-term debt) / Total assets
Liquidity	Current assets / Current liabilities

4.4 Model Specification

As previously mentioned, dependent variables are Tobin's Q and ROE to consider corporate financial performance from an accounting point of view and market-based measures. Independent variables are collective ESG score, Water Score, Environmental Score, Social Score, and Governance Disclosure Score which are continuous value ranging from 0 (lowest) to 10 (highest). Control variables are firm size, leverage, ROA, liquidity and dummy variables for continents.

This study uses hierarchical multiple regression models and partial correlation models to control for a set of independent variables. The author uses the IBM® SPSS® Statistics 28.0 as a main software for statistics analysis.

This study is conducted using a quantitative research method. In general, a quantitative research method is used when scholars try to measure social phenomena and the relationship between them (Bell, Bryman and Harley, 2019). Correlational study from non-experimental design is selected to analyze the correlation between Corporate sustainability performance measured by Bloomberg ESG score for the year of 2018 and Corporate Financial Performance (CFP) as measured by reviewing Tobin's Q and Return on Equity for the year of 2019. A one-year lag of Corporate Financial Performance (CFP) is used to control the reverse causality (Kim et al., 2018).

4.4.1 Model for Hypotheses 1a, 2a, 3a, 4a, 5a

$$CFP_{it+1} = B_0 + (B_1 \times IV_{it}) + (B_2 \times \text{Firm size}_{it}) + (B_3 \times \text{Leverage}_{it}) + (B_4 \times \text{Return on assets}_{it}) + (B_5 \times \text{Liquidity}_{it}) + (B_6 \times \text{Continent dummies}_{it}) + \varepsilon_{it+1}$$

(Equation 1)

i refers to a firm; *t* refers to a year; CFP refers to Tobin's Q; IV refers to each independent

variable including collective ESG score, Water score, Environmental score, Social score and Governance disclosure score; and e is the random error.

4.4.2 Model for Hypotheses 1b, 2b, 3b, 4b, 5b

$$CFP_{it+1} = B_0 + (B_1 \times IV_{it}) + (B_2 \times \text{Firm size}_{it}) + (B_3 \times \text{Leverage}_{it}) + (B_5 \times \text{Liquidity}_{it}) + (B_6 \times \text{Continent dummies}_{it}) + \varepsilon_{it+1}$$

(Equation 2)

i refers to a firm; *t* refers to a year; CFP refers to Return on Equity (ROE); IV refers to each independent variable including collective ESG score, Water score, Environmental score, Social score and Governance disclosure score; and e is the random error.

5. Data Analysis and Discussion

5.1 Descriptive Statistics

Variance Inflation Factor (VIF) is utilized to check for multicollinearity between independent variables. If VIF is lower than 5, it would not cause a multicollinearity issue (Akinwande et al., 2015). The VIF value of each independent variables for the Model 1 are below 5 with a maximum of 2.387 and an average of 1.43 per Table 4a below. Furthermore, the VIF value of each independent variables for the Model 2 are below 5 with a maximum of 2.383 and an average of 1.52 per Table 4b below. This indicates that the multicollinearity of independent variables and control variables would not pose a significant issue.

Table 4a. Model 1: Multicollinearity of Independent variables

Model		Collinearity Statistics	
		Tolerance	**VIF**
1	Water score	.518	1.930
	Environmental score	.419	2.387
	Social score	.611	1.636
	G disclosure score	.508	1.969
	Firm size	.733	1.364
	Leverage	.824	1.213
	ROA	.912	1.096
	Liquidity	.872	1.147
	Continent Africa	.901	1.110
	Continent Asia	.666	1.503
	Continent Australia	.773	1.293
	Continent Europe	.731	1.367
	Continent South America	.707	1.415

Source: Analysis of this study

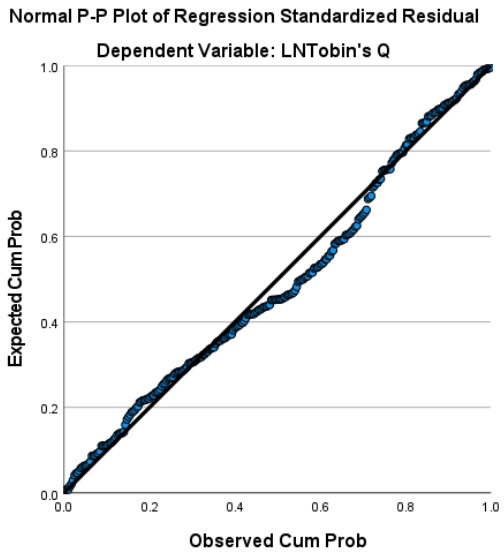
Table 4b. Model 2: Multicollinearity of Independent variables

Model		Collinearity Statistics	
		Tolerance	**VIF**
1	Water score	.519	1.928
	Environmental score	.420	2.383
	Social score	.613	1.632
	G disclosure score	.509	1.966
	Firm size	.735	1.361
	Leverage	.848	1.179
	Liquidity	.872	1.147
	Continent Africa	.904	1.106
	Continent Asia	.673	1.486
	Continent Australia	.784	1.276
	Continent Europe	.749	1.336
	Continent South America	.710	1.409

To identify the presence of autocorrelation in the residuals from a regression analysis, Durbin-Watson statistics test has been performed. Value which is close to 2.0 indicates the independence of residuals (Chatterjee, Samprit, Simonoff, Jeffrey, 2013). The Durbin-Watson score is 2.032 and 2.102 for Model 1 and Model 2, respectively. The results show there is no autocorrelation in the residuals.

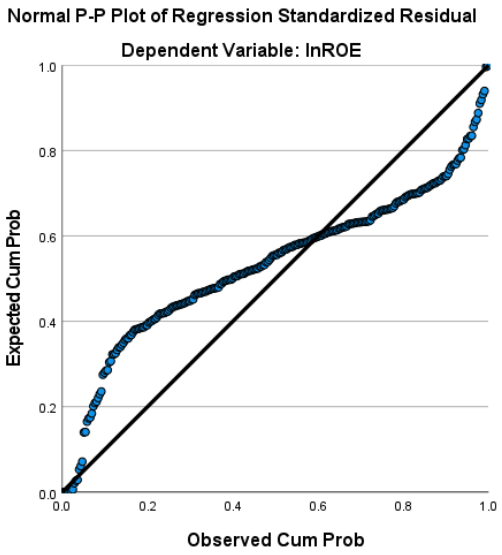
Normality assumption has been tested using Normal P-P Plot of Regression Standardized Residual for Tobin's Q and ROE. As illustrated in Figure 3 and 4, observed standardized residuals are normally distributed. Before performing normality test, variables have been transformed to natural logarithm.

Figure 3. Normal (P-P) Plot Regression Standardized Residual: Tobin's Q.



Source: Analysis of this study

Figure 4. Normal (P-P) Plot Regression Standardized Residual: Return on Equity.



Source: Analysis of this study

Descriptive Statistics

269 extractive companies have been analyzed in this research. The author describes the variables which shows descriptive statistics including minimum, maximum, mean, and standard deviation in Table 5. Statistics are presented for full sample of 269 firms.

Continent is a dummy variable where Continent=North America is a reference variable. Tobin's Q represents the fraction of an asset's market value to its replacement value (So, 2021). Average Tobin's Q for extractive companies before taking natural logarithm (LN) is 1.265, which indicates that firms' market value is higher than their replacement value. Average ROE, before taking natural logarithm is 0.047, which is less than 1. Lower ROE may indicate that the company is not utilizing its asset effectively. Average firm size which is determined by the natural logarithm of total assets (Firm size), is 11.73, implying average asset of 3,672 million USD. Additionally, on average, the ROA is about 4.18% and the average leverage (Leverage) is 23.82% of total assets. Average liquidity ratio is 2.06.

Table 5. Descriptive Statistics

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
CSP Measures					
ESG score	269	0.514	6.780	4.168	1.132
Water score	269	0.000	8.905	3.694	2.317
Environmental score	269	0.000	6.645	3.158	1.617
Social score	269	0.000	8.842	3.324	1.625
G disclosure score	269	0.000	8.036	6.022	0.987
CFP Measures					
LN Tobins Q	269	-0.844	1.580	0.139	0.417
Ln ROE	269	-2.070	1.030	0.014	0.286
Control variables					
Firm size	269	8.669	15.563	11.734	1.414
Leverage	269	0.000	1.274	0.238	0.159
ROA	269	-0.430	0.290	0.042	0.080
Liquidity	269	0.302	42.571	2.060	2.974
Continent=Africa	269	0	1	.03	.170
Continent=Asia	269	0	1	.21	.409
Continent=Australia	269	0	1	.09	.286
Continent=Europe	269	0	1	.20	.398
Continent=South America	269	0	1	.05	.223
Valid N (listwise)	269				

Source: Analysis of this study

5.2 Hypotheses Testing and Analysis

Hypothesis 1a

Hierarchical multiple regression analysis is conducted to test a relationship between collective ESG score and Tobin's Q, controlled by variables including firm size, leverage ratio, ROA, liquidity, and continent dummy variables. The results are reported in Table 6 and Table 7. First block analysis reports the effects of control variables: liquidity, past financial performance - ROA, firm size, and leverage ratio and the results are statistically significant ($p < 0.01$). R^2 value of 0.237 indicates that the control variables including firm size, leverage ratio, ROA, liquidity and continent dummies account for 23.7% of the variation in Tobin's Q. Additionally, consistent with Kim et al. (2018), "ROA is positively associated with Tobin's Q, whereas firm size is negatively associated with Tobin's Q".

For the second block analysis, the independent variable, ESG score is added to the analysis and the result is statistically significant ($p < 0.01$). Moreover, adding ESG score to the model explains additional 2.1% changes in Tobin's Q (R^2 change = 0.021). As seen in the Table 7, regression coefficient for the interaction between ESG score and Tobin's Q is positive and statistically significant ($\beta = 0.033$, $p < 0.01$). Hence, Hypothesis 1a is accepted. The result indicates that if the firms can improve their ESG related performance and transparency, it can positively influence the firm's market performance. Model 1 reports that Tobin's Q is higher for African and Australian companies as compared with North America ($p < 0.01$, $p < 0.05$, respectively). Nevertheless, the p-value ($p > 0.05$) of Asian companies which is not statistically significant as compared to North America. In addition, Model 2 reports that, after the effect of ESG score is considered, Tobin's Q is higher for Asian companies ($p < 0.05$) as compared to companies that are operating in North America.

This implies that financial performance of Asian firms could be enhanced by improving their ESG performance and disclosing ESG activities more transparently.

Model Summary

Table 6. Hierarchical multiple regression results, H1a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.487[a]	.237	.211	.21188	.237	8.958	9	259	.000
2	.509[b]	.259	.230	.20931	.021	7.403	1	258	.007
a. Predictors: (Constant), Liquidity, ROA, Firm size, Leverage ratio, Continent dummies									
b. Predictors: (Constant), Liquidity, ROA, Firm size, Leverage ratio, Continent dummies, ESG score									
Dependent Variable: LN Tobins Q; Significant at p < 0.05 level.									

Source: Analysis of this study

Table 7. Hierarchical multiple regression results, Coefficients, H1a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.019	.121		8.394	.000
	Firm size	-.030	.010	-.178	-3.062	.002
	Leverage	.102	.087	.069	1.170	.243
	Liquidity	.000	.005	-.002	-.035	.972
	ROA	1.170	.169	.391	6.907	.000
	Continent Africa	.282	.078	.201	3.599	.000
	Continent Asia	.065	.035	.112	1.861	.064
	Continent Australia	.110	.051	.131	2.169	.031
	Continent Europe	.057	.036	.095	1.571	.117
	Continent South America	.048	.061	.045	.787	.432

Table 7. Hierarchical multiple regression results, Coefficients, continued

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	.982	.121		8.132	.000
	Firm size	-.039	.010	-.232	-3.817	.000
	Leverage	.132	.087	.088	1.512	.132
	Liquidity	-.001	.005	-.010	-.167	.868
	ROA	1.175	.167	.392	7.020	.000
	Continent Africa	.251	.078	.179	3.220	.001
	Continent Asia	.069	.035	.118	1.985	.048
	Continent Australia	.100	.050	.119	1.991	.047
	Continent Europe	.050	.036	.083	1.387	.167
	Continent South America	.064	.060	.060	1.064	.288
	ESG score	.033	.012	.159	2.721	.007
Dependent Variable: LN Tobins Q; Significant at $p < 0.05$ level.						

Source: Analysis of this study

Table 8 shows the result of partial correlation analysis conducted to test Hypothesis 1a. There is a weak, positive correlation between the dependent variable, "Tobin's Q", and independent variable, "ESG score", whilst controlling for firm size, leverage, liquidity, return on assets and continents dummy variables, which is statistically significant ($r = 0.167$, $p < 0.01$). Thus, Hypothesis 1a is supported. This shows that the higher level of ESG performance can enhance the firm's financial performance.

Partial Correlations

Table 8. Correlation matrix, H1a

Control Variables			*LN Tobins Q*	*ESG score*
Firm size & Leverage & Liquidity & ROA & Continent Africa & Continent Asia & Continent Australia & Continent Europe & Continent South America	LN Tobins Q	Correlation	1.000	.167
		Significance (2-tailed)	.	.007
		df	0	258
	ESG score	Correlation	.167	1.000
		Significance (2-tailed)	.007	.
		df	258	0

Source: Analysis of this study

Hypothesis 1b

Hierarchical multiple regression analysis is conducted to test a relationship between collective ESG score and Return on equity, controlled by variables including firm size, leverage ratio, liquidity, and continent dummy variables. The results are reported in Table 9 and Table 10. Similar as H1a, control variables including firm size, leverage ratio, liquidity and dummy variables for continents have been included in the first block analysis and the result reveals to be not statistically significant ($p > 0.05$). Moreover, control variables explain only 5.3% of the variation in ROE. ($R^2 = 0.053$).

The independent variable, ESG score is added to the second block analysis and the result is statistically significant ($p < 0.01$). Addition of ESG score to the model explains 2.6% of the change in ROE (R^2 change = 0.026). Additionally, As seen in the Table 10, regression coefficient for the interaction between ESG score and ROE is positive and significant ($\beta = 0.044$, $p < 0.01$). Thus, Hypothesis 1b is supported. The result reflects that the firm's ESG performance enhances its financial performance. ROE is higher for Asian and European firms as opposed to North American companies ($p < 0.05$). This shows that Australian and African companies have a higher market performance as compared to North American firms, while Asian and European enterprises have a higher financial performance as compared to North American entities.

Model Summary

Table 9. Hierarchical multiple regression results, H1b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.230[a]	.053	.024	.28282	.053	1.818	8	260	.074
2	.280[b]	.078	.046	.27952	.026	7.169	1	259	.008
a. Predictors: (Constant), Liquidity, Firm size, Leverage ratio, Continent dummies									
b. Predictors: (Constant), Liquidity, Firm size, Leverage ratio, Continent dummies, ESG score									
Dependent Variable: Ln ROE, Significant at p < 0.05 level.									

Source: Analysis of this study

Table 10. Hierarchical multiple regression results, Coefficients, H1b

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.220	.162		-1.355	.177
	Firm size	.015	.013	.074	1.140	.255
	Leverage	-.060	.115	-.034	-.524	.601
	Liquidity	.007	.006	.070	1.082	.280
	Continent Africa	.148	.104	.088	1.419	.157
	Continent Asia	.127	.046	.182	2.740	.007
	Continent Australia	.021	.067	.021	.309	.758
	Continent Europe	.110	.048	.153	2.306	.022
	Continent South America	.100	.081	.078	1.237	.217
2	(Constant)	-.269	.161		-1.667	.097
	Firm size	.003	.014	.015	.218	.828
	Leverage	-.022	.115	-.012	-.194	.846
	Liquidity	.006	.006	.061	.964	.336
	Continent Africa	.108	.104	.064	1.038	.300
	Continent Asia	.132	.046	.188	2.875	.004
	Continent Australia	.008	.066	.008	.119	.905
	Continent Europe	.101	.047	.140	2.134	.034
	Continent South America	.122	.080	.095	1.516	.131
	ESG score	.044	.016	.174	2.677	.008
Dependent Variable: Ln ROE, Significant at p < 0.05 level.						

Source: Analysis of this study

Table 11 shows the result of partial correlation analysis conducted to test Hypotheses 1b. There is a weak, positive correlation between the dependent variable, "ROE", and independent variable, "ESG score", whilst controlling for firm size, leverage, liquidity, and continents dummy variables, which is statistically significant ($r = 0.164$, $p < 0.01$). Thus, Hypothesis 1b is supported. As H1b suggests, the firm's ESG performance and the transparency of the disclosure positively influences the firm's financial performance.

Partial Correlations

Table 11. Correlation matrix, H1b

Control Variables			*Ln ROE*	*ESG score*
Firm size & Leverage & Liquidity & Continent Africa & Continent Asia & Continent Australia & Continent Europe & Continent South America	Ln ROE	Correlation	1.000	.164
		Significance (2-tailed)	.	.008
		df	0	259
	ESG score	Correlation	.164	1.000
		Significance (2-tailed)	.008	.
		df	259	0

Source: Analysis of this study

Hypothesis 2a

Hierarchical multiple regression is conducted to test a relationship between Water score and Tobin's Q, controlled by variables including firm size, leverage ratio, ROA, liquidity, and continent dummy variables. The results are reported in Table 12 and Table 13. The first block analysis includes control variables and continent dummy variables. "Return of assets is positively associated with Tobin's Q, whereas firm size is negatively related to Tobin's Q" ($\beta = -0.03$, $p < 0.05$). This is in line with Kim et al. (2018) which studies the CSR-CFP relationship in the software industry. Model 2 shows that water score is positively related to CFP ($\beta = 0.012$, $R^2 = 0.25$, $p < 0.05$), which is measured by Tobin's Q. Thus, Hypothesis 2a is supported. This implies that the higher the water

performance and disclosure, the higher the financial performance will become.

Model Summary

Table 12. Hierarchical multiple regression results, H2a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.487[a]	.237	.211	.21188	.237	8.958	9	259	.000
2	.500[b]	.250	.221	.21050	.013	4.412	1	258	.037
a. Predictors: (Constant), Liquidity, ROA, Firm size, Leverage ratio, Continent dummies									
b. Predictors: (Constant), Liquidity, ROA, Firm size, Leverage ratio, Continent dummies, Water score									
Dependent Variable: LN Tobins Q; Significant at p < 0.05 level.									

Source: Analysis of this study

Table 13. Hierarchical multiple regression results, Coefficients, H2a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.019	.121		8.394	.000
	Firm size	-.030	.010	-.178	-3.062	.002
	Leverage	.102	.087	.069	1.170	.243
	Liquidity	.000	.005	-.002	-.035	.972
	ROA	1.170	.169	.391	6.907	.000
	Continent dummies	FE	FE	FE	FE	FE
2	(Constant)	1.012	.121		8.382	.000
	Firm size	-.034	.010	-.199	-3.404	.001
	Leverage	.119	.087	.079	1.360	.175
	Liquidity	-.001	.005	-.007	-.114	.909
	ROA	1.153	.168	.385	6.842	.000
	Continent dummies	FE	FE	FE	FE	FE
	Water score	.012	.006	.117	2.100	.037
Dependent Variable: LN Tobins Q; Significant at p < 0.05 level.						

Source: Analysis of this study

Table 14 shows the result of partial correlation analysis conducted to test Hypothesis 2a. There is a weak, positive correlation between the dependent variable, “Tobin’s Q”, and independent variable, “water score”, whilst controlling for firm size, leverage, liquidity, return on assets and continents dummy variables, which is statistically

significant ($r = 0.130$, $p < 0.05$). Thus, Hypothesis 2a is supported. This indicates that an improvement in water related initiatives could enhance the firm's market performance in the extractive industry.

Partial Correlations

Table 14. Correlation matrix, H2a

Control Variables			*LN Tobins Q*	*Water score*
Firm size & Leverage & Liquidity & ROA & Continent dummies	LN Tobins Q	Correlation	1.000	.130
		Significance (2-tailed)	.	.037
		df	0	258
	Water score	Correlation	.130	1.000
		Significance (2-tailed)	.037	.
		df	258	0

Source: Analysis of this study

Hypothesis 2b

Hierarchical multiple regression is conducted to test a relationship between Water score and ROE, controlled by variables including firm size, leverage ratio, liquidity, and continent dummy variables. The results are reported in Table 15 and Table 16. First block analysis includes control variables and continent dummy variables. However, model 1 is not statistically significant ($p > 0.05$).

The second block analysis shows that water score is positively related to CFP ($\beta = 0.026$, $R^2 = 0.09$, $p < 0.05$), which is measured by Return on Equity (ROE). Thus, Hypothesis 2b is supported. This implies that the higher the water performance and disclosure, higher the financial performance will become.

Model Summary

Table 15. Hierarchical multiple regression results, H2b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.230[a]	.053	.024	.28282	.053	1.818	8	260	.074
2	.308[b]	.095	.063	.27705	.042	11.937	1	259	.001
a. Predictors: (Constant), Liquidity, Firm size, Leverage ratio, Continent dummies									
b. Predictors: (Constant), Liquidity, Firm size, Leverage ratio, Continent dummies, Water score									
Dependent Variable: Ln ROE; Significant at p < 0.05 level.									

Source: Analysis of this study

Table 16. Hierarchical multiple regression results, Coefficients, H2b

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-.237	.159		-1.491	.137
	Firm size	.007	.013	.034	.530	.597
	Leverage	-.022	.113	-.012	-.191	.848
	Liquidity	.006	.006	.062	.977	.329
	Continent dummies	FE	FE	FE	FE	FE
	Water score	.026	.008	.212	3.455	.001
Dependent Variable: Ln ROE; Significant at p < 0.05 level.						

Source: Analysis of this study

Table 17 shows the result of partial correlation analysis conducted to test Hypothesis 2b. There is a weak, positive correlation between the dependent variable, “ROE”, and independent variable, “water score”, whilst controlling for firm size, leverage, liquidity, and continents dummy variables, which is statistically significant ($r = 0.210$, $p < 0.05$). Thus, Hypothesis 2b is supported. The result shows that a higher level of water disclosure and performance can have a positive impact on the firm’s financial performance.

Partial Correlations

Table 17. Correlation matrix, H2b

Control Variables			*Ln ROE*	*Water score*
Firm size & Leverage & Liquidity & Continent dummies	Ln ROE	Correlation	.210	1.000
		Significance (2-tailed)	.001	.
		df	259	0
	Water score	Correlation	1.000	.210
		Significance (2-tailed)	.	.001
		df	0	259

Source: Analysis of this study

Hypothesis 3a

Hierarchical multiple regression is conducted to test if a relationship between Environmental score and Tobin's Q, controlled by control variables including firm size, leverage, ROA, liquidity and continent dummy variables. The results are reported in Table 18 and Table 19. Second block analysis shows that environmental score is positively related to CFP ($\beta = 0.018$, $R^2 = 0.25$, $p < 0.05$), which is measured by Tobin's Q. Thus, Hypothesis 3a is supported. This indicates that higher the environmental performance and disclosure, higher the financial performance will become.

Model Summary

Table 18. Hierarchical multiple regression results, H3a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.487[a]	.237	.211	.21188	.237	8.958	9	259	.000
2	.501[b]	.251	.222	.21045	.013	4.539	1	258	.034
a. Predictors: (Constant), Liquidity, ROA, Firm size, Leverage ratio, Continent dummies									
b. Predictors: (Constant), Liquidity, ROA, Firm size, Leverage ratio, Continent dummies, Environmental score									

Source: Analysis of this study

Table 19. Hierarchical multiple regression results, Coefficients, H3a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	1.026	.121		8.507	.000
	Firm size	-.036	.010	-.211	-3.529	.000
	Leverage	.123	.087	.082	1.406	.161
	Liquidity	.000	.005	-.003	-.056	.955
	ROA	1.155	.168	.386	6.859	.000
	Continent dummies	FE	FE	FE	FE	FE
	Environmental score	.018	.008	.123	2.130	.034
Dependent Variable: LN Tobins Q; Significant at $p < 0.05$ level.						

Source: Analysis of this study

Table 20 shows the result of partial correlation analysis conducted to test Hypothesis 3a. There is a weak, positive correlation between the dependent variable, "Tobin's Q", and independent variable, "environmental score", whilst controlling for firm size, leverage, liquidity, return on assets and continents dummy variables, which is statistically significant ($r = 0.131$, $p < 0.05$). Thus, Hypothesis 3a is supported. The result indicates that an environmentally sustainable activities could improve the firm's financial performance.

Partial Correlations

Table 20. Correlation matrix, H3a

Control Variables			*LN Tobins Q*	*Environmental score*
Firm size & Leverage & Liquidity & ROA & Continent dummies	LN Tobins Q	Correlation	1.000	.131
		Significance (2-tailed)	.	.034
		df	0	258
	Environmental score	Correlation	.131	1.000
		Significance (2-tailed)	.034	.
		df	258	0

Source: Analysis of this study

Hypothesis 3b

Hierarchical multiple regression is conducted to test a relationship between Environmental score and Return on Equity, controlled by control variables including firm size, leverage, liquidity and continent dummy variables. The results are reported in Table 21 and Table 22. Second block analysis shows that environmental score is positively related to CFP ($\beta = 0.029$, $R^2 = 0.07$, $p < 0.05$), which is measured by ROE. Thus, Hypothesis 3b is supported. This indicates that the higher the environmental performance and disclosure, the higher the financial performance will become.

Model Summary

Table 21. Hierarchical multiple regression results, H3b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.230[a]	.053	.024	.28282	.053	1.818	8	260	.074
2	.278[b]	.077	.045	.27973	.024	6.778	1	259	.010
a. Predictors: (Constant), Liquidity, Firm size, Leverage ratio, Continent dummies									
b. Predictors: (Constant), Liquidity, Firm size, Leverage ratio, Continent dummies, Environmental score									

Source: Analysis of this study

Table 22. Hierarchical multiple regression results, Coefficients, H3b

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-.208	.160		-1.300	.195
	Firm size	.006	.013	.029	.435	.664
	Leverage	-.025	.115	-.014	-.216	.829
	Liquidity	.007	.006	.068	1.070	.286
	Continent dummies	FE	FE	FE	FE	FE
	Environmental score	.029	.011	.166	2.603	.010
a. Dependent Variable: Ln ROE; Significant at $p < 0.05$ level.						

Source: Analysis of this study

Table 23 shows the result of partial correlation analysis conducted to test Hypothesis

3b. There is a weak, positive partial correlation between the dependent variable, "ROE", and independent variable, "environmental score", whilst controlling for firm size, leverage, liquidity, and continents dummy variables, which is statistically significant ($r = 0.160$, $p < 0.05$). Thus, Hypothesis 3b is supported. Therefore, activities that are designed to address the negative impact of firm's activities on environment can enhance the firm's financial performance.

Partial Correlations

Table 23. Correlation matrix, H3b

Control Variables			*Ln ROE*	*Environmental score*
Firm size & Leverage & Liquidity & Continent dummies	Ln ROE	Correlation	1.000	.160
		Significance (2-tailed)	.	.010
		df	0	259
	Environmental score	Correlation	.160	1.000
		Significance (2-tailed)	.010	.
		df	259	0

Source: Analysis of this study

Hypothesis 4a

Hierarchical multiple regression is conducted to test a relationship between Social score and Tobin's Q, controlled by control variables including firm size, leverage, ROA, liquidity and continent dummy variables. The results are reported in Table 24 and Table 25. Second block analysis shows that social score is positively related to CFP ($\beta = 0.017$, $R^2 = 0.24$, $p < 0.05$), which is measured by Tobin's Q. Thus, Hypothesis 4a is supported. This indicates that the higher the social performance and disclosure, higher the financial performance will become.

Model Summary

Table 24. Hierarchical multiple regression results, H4a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.487[a]	.237	.211	.21188	.237	8.958	9	259	.000
2	.499[b]	.249	.220	.21062	.012	4.092	1	258	.044
a. Predictors: (Constant), Liquidity, ROA, Firm size, Leverage ratio, Continent dummies									
b. Predictors: (Constant), Liquidity, ROA, Firm size, Leverage ratio, Continent dummies, Social score									

Source: Analysis of this study

Table 25. Hierarchical multiple regression results, Coefficients, H4a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	1.009	.121		8.354	.000
	Firm size	-.034	.010	-.202	-3.426	.001
	Leverage	.129	.088	.087	1.470	.143
	Liquidity	-.001	.005	-.009	-.158	.874
	ROA	1.183	.168	.395	7.024	.000
	Continent dummies	FE	FE	FE	FE	FE
	Social score	.017	.008	.115	2.023	.044
Dependent Variable: LN Tobins Q; Significant at $p < 0.05$ level.						

Source: Analysis of this study

Table 26 shows the result of partial correlation analysis conducted to test Hypothesis 4a. There is a weak, positive correlation between the dependent variable, "Tobin's Q", and independent variable, "social score", whilst controlling for firm size, leverage, liquidity, return on assets and continents dummy variables, which is statistically significant ($r = 0.125$, $p < 0.05$). Thus, Hypothesis 4a is supported. As H4a proposes, the firm's effort to address social issues can have a positive impact on the firm's financial performance.

Partial Correlations

Table 26. Correlation matrix, H4a

Control Variables			*LN Tobins Q*	*Social score*
Firm size & Leverage & Liquidity & ROA & Continent dummies	LN Tobins Q	Correlation	1.000	.125
		Significance (2-tailed)	.	.044
		df	0	258
	Social score	Correlation	.125	1.000
		Significance (2-tailed)	.044	.
		df	258	0

Source: Analysis of this study

Hypothesis 4b

Hierarchical multiple regression is conducted to test a relationship between Social score and Return on Equity, controlled by control variables including firm size, leverage, liquidity and continent dummy variables. The results are reported in Table 27 and Table 28. Second block analysis shows that social score is positively related to CFP ($\beta = 0.020$), however the result is not statistically significant ($p > 0.05$), which is measured by ROE. Thus, Hypothesis 4b is not supported. The result indicates that the social performance and disclosure does not significantly affect the firm's financial performance.

Model Summary

Table 27. Hierarchical multiple regression results, H4b

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.230[a]	.053	.024	.28282	.053	1.818	8	260	.074
2	.254[b]	.065	.032	.28161	.012	3.246	1	259	.073
a. Predictors: (Constant), Liquidity, Firm size, Leverage ratio, Continent dummies									
b. Predictors: (Constant), Liquidity, Firm size, Leverage ratio, Continent dummies, Social score									
Dependent Variable: Ln ROE, Significant at $p < 0.05$ level.									

Source: Analysis of this study

Table 28. Hierarchical multiple regression results, Coefficients, H4b

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-.231	.161		-1.432	.153
	Firm size	.010	.013	.050	.759	.449
	Leverage	-.030	.116	-.017	-.256	.798
	Liquidity	.006	.006	.063	.974	.331
	Continent dummies	FE	FE	FE	FE	FE
	Social score	.020	.011	.114	1.802	.073
a. Dependent Variable: Ln ROE, Significant at p < 0.05 level.						

Source: Analysis of this study

Table 29 shows the result of partial correlation analysis conducted to test Hypothesis 4b. There is a weak, positive correlation between the dependent variable, "ROE", and independent variable, "social score", whilst controlling for firm size, leverage, liquidity, and continents dummy variables, which is not statistically significant ($r = 0.111$, $p > 0.05$). Thus, Hypothesis 4b is not supported.

Partial Correlations

Table 29. Correlation matrix, H4b

Control Variables			*Ln ROE*	*Social score*
Firm size & Leverage & Liquidity & Continent dummies	Ln ROE	Correlation	1.000	.111
		Significance (2-tailed)	.	.073
		df	0	259
	Social score	Correlation	.111	1.000
		Significance (2-tailed)	.073	.
		df	259	0

Source: Analysis of this study

Hypothesis 5a

Hierarchical multiple regression was conducted to test a relationship between Governance disclosure score and Tobin's Q, controlled by control variables including

firm size, leverage ratio, ROA, liquidity, continent dummy variables. The results are reported in Table 30 and Table31. Second block analysis shows that social score is positively related to CFP ($\beta = 0.039$, $R^2 = 0.26$, $p < 0.05$), which is measured by Tobin's Q. Thus, Hypothesis 5a is supported. This shows that the transparent disclosure on corporate governance can positively influence the firm's financial performance.

Model Summary

Table 30. Hierarchical multiple regression results, H5a

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.487[a]	.237	.211	.21188	.237	8.958	9	259	.000
2	.506[b]	.256	.227	.20972	.018	6.351	1	258	.012
a. Predictors: (Constant), Liquidity, ROA, Firm size, Leverage ratio, Continent dummies									
b. Predictors: (Constant), Liquidity, ROA, Firm size, Leverage ratio, Continent dummies, G disclosure score									
Dependent Variable: LN Tobins Q; Significant at $p < 0.05$ level.									

Source: Analysis of this study

Table 31. Hierarchical multiple regression results, Coefficients, H5a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	.896	.130		6.911	.000
	Firm size	-.040	.011	-.239	-3.830	.000
	Leverage	.098	.087	.066	1.134	.258
	Liquidity	-.001	.005	-.009	-.162	.872
	ROA	1.187	.168	.396	7.074	.000
	Continent dummies	FE	FE	FE	FE	FE
	G disclosure score	.039	.015	.161	2.520	.012
Dependent Variable: LN Tobins Q; Significant at $p < 0.05$ level.						

Source: Analysis of this study

Table 32 shows the result of partial correlation analysis conducted to test Hypothesis 5a. There is a weak, positive partial correlation between the dependent variable, "Tobin's Q", and independent variable, "Governance disclosure score", whilst

controlling for firm size, leverage, liquidity, return on assets and continents dummy variables, which was statistically significant ($r = 0.155$, $p < 0.05$). Thus, Hypothesis 5a is supported. More transparent disclosure on corporate governance issues such as diversity, remuneration and shareholders right can enhance the firm's financial performance.

Partial Correlations

Table 32. Correlation matrix, H5a

Control Variables			*LN Tobins Q*	*G disclosure score*
Firm size & Leverage & Liquidity & ROA & Continent dummies	LN Tobins Q	Correlation	1.000	.155
		Significance (2-tailed)	.	.012
		df	0	258
	G disclosure score	Correlation	.155	1.000
		Significance (2-tailed)	.012	.
		df	258	0

Source: Analysis of this study

Hypothesis 5b

Hierarchical multiple regression is conducted to test a relationship between Governance disclosure score and Return on Equity, controlled by control variables including firm size, leverage, liquidity and continent dummy variables. The results are reported in Table 33 and Table 34. Second block analysis shows that governance disclosure score is positively related to CFP ($\beta = 0.040$), however the result is not statistically significant ($p > 0.05$), which is measured by ROE. Thus, Hypothesis 5b is not supported.

Model Summary

Table 33. Hierarchical multiple regression results, H5b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.230[a]	.053	.024	.28282	.053	1.818	8	260	.074
2	.257[b]	.066	.034	.28140	.013	3.634	1	259	.058
a. Predictors: (Constant), Liquidity, Firm size, Leverage ratio, Continent dummies									
b. Predictors: (Constant), Liquidity, Firm size, Leverage ratio, Continent dummies, G Disclosure score									
Dependent Variable: Ln ROE, Significant at p < 0.05 level.									

Source: Analysis of this study

Table 34. Hierarchical multiple regression results, Coefficients, H5b

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	-.344	.174		-1.977	.049
	Firm size	.004	.014	.022	.318	.751
	Leverage	-.066	.114	-.037	-.576	.565
	Liquidity	.006	.006	.064	.989	.323
	Continent dummies	FE	FE	FE	FE	FE
	G disclosure score	.040	.021	.136	1.906	.058
a. Dependent Variable: Ln ROE						

Source: Analysis of this study

Table 35 shows the result of partial correlation analysis conducted to test Hypothesis 5b. There is a weak, positive correlation between the dependent variable, “ROE”, and independent variable, “Governance disclosure score”, whilst controlling for firm size, leverage, liquidity, and continents dummy variables, which is not statistically significant ($r = 0.118$, $p > 0.05$). Thus, Hypothesis 5b is not supported.

Partial Correlations

Table 35. Correlation matrix, H5b

Control Variables			*Ln ROE*	*G disclosure score*
Firm size & Leverage & Liquidity & Continent dummies	Ln ROE	Correlation	1.000	.118
		Significance (2-tailed)	.	.058
		df	0	259
	G disclosure score	Correlation	.118	1.000
		Significance (2-tailed)	.058	.
		df	259	0

Source: Analysis of this study

This research proposes 10 hypotheses and of which 8 hypotheses have been supported and 2 have been rejected. The details are as shown in Table 36 below.

Table 36. Summary of Hypotheses Testing Results

No	*Hypotheses*	*Findings*
H1a	The higher are the ESG scores, the higher are firms' Tobin's Q.	Supported
H1b	The higher are the ESG scores, the higher are firms' ROE.	Supported
H2a	The higher are the Water scores, the higher are firms' Tobin's Q.	Supported
H2b	The higher are the Water scores, the higher are firms' ROE.	Supported
H3a	The higher are the E scores, the higher are firms' Tobin's Q.	Supported
H3b	The higher are the E scores, the higher are firms' ROE.	Supported
H4a	The higher are the S scores, the higher are firms' Tobin's Q.	Supported
H4b	The higher are the S scores, the higher are firms' ROE.	Not supported
H5a	The higher are the G scores, the higher are firms' Tobin's Q.	Supported
H5b	The higher are the G scores, the higher are firms' ROE.	Not supported

Additionally, to make a comparison analysis between companies that are operating in developed markets and those who are from emerging markets, two more additional tests have been conducted below.

Table 37 and 38 show the results of partial correlation analysis conducted to test proposed hypotheses for the companies which are operating in the developed economies. ESG score ($r = 0.230$, $p < 0.05$), Environmental score ($r = 0.196$, $p < 0.05$), Social score

(r = 0.170, p < 0.05), and Governance disclosure score (r = 0.194, p < 0.05) are positively correlated to CFP which is measured by Tobin's Q, whilst controlling for firm size, leverage, ROA, and liquidity. ESG score (r = 0.177, p < 0.05), Water score (r = 0.196, p < 0.05), Environmental score (r = 0.184, p < 0.05) is positively correlated to CFP which is measured by Return on Equity, whilst controlling for firm size, leverage, and liquidity. Results of this analysis indicate that an overall corporate sustainability performance is positively associated with corporate financial performance of extractive industry in the developed economies context.

Table 37. Partial correlation result for Developed economies, H1a-H5a

	H1a	*H2a*	*H3a*	*H4a*	*H5a*
Correlation	.230	.112	.196	.170	.194
Significance (2-tailed)	**.003**	.150	**.011**	**.028**	**.012**
df	165	165	165	165	165

Note: Dependent variable is Tobin's Q. Control variables: Firm size, Leverage, ROA, and Liquidity.

Table 38. Partial correlation result for Developed economies, H1b-H5b

	H1b	*H2b*	*H3b*	*H4b*	*H5b*
Correlation	.177	.196	.184	.110	.121
Significance (2-tailed)	**.022**	**.011**	**.017**	.155	.119
df	166	166	166	166	166

Note: Dependent variable is ROE. Control variables: Firm size, Leverage, and Liquidity.
Emerging economies

Table 39 and 40 show the results of partial correlation analysis conducted to test proposed hypotheses for the firms which are operating in Emerging economies. H1a-H5a and H1b-H4b are not supported. Governance disclosure score (r = 0.230, p < 0.05) is positively correlated to CFP which is measured by ROE. The results indicate that corporate sustainability performance, except governance disclosure score, cannot predict financial performance of extractive companies which are operating in emerging countries.

Table 39. Partial correlation result for Emerging economies, H1a-H5a

	H1a	*H2a*	*H3a*	*H4a*	*H5a*
Correlation	.077	.085	.047	.008	.158
Significance (2-tailed)	.461	.414	.652	.936	.128
df	92	92	92	92	92

Note: Dependent variable is Tobin's Q. Control variables: Firm size, Leverage, ROA, and Liquidity.

Table 40. Partial correlation result for Emerging economies, H1b-H5b

	H1b	*H2b*	*H3b*	*H4b*	*H5b*
Correlation	.194	.173	.107	.145	.230
Significance (2-tailed)	.060	.095	.303	.162	**.025**
df	93	93	93	93	93

Note: Dependent variable is ROE. Control variables: Firm size, Leverage, and Liquidity.

5.3 Analysis on reverse direction of causality

Surroca, Tribo and Waddock (2010) suggests that researchers who are analyzing the relationship between Corporate Social Responsibility (CSR) and Corporate Financial Performance (CFP) should consider the reverse viewpoint where causal link exists in the other direction. The main hypotheses in this study are "The higher are the cumulative ESG score, Water score, Environmental score, Social score, and Governance disclosure score, the higher are the firm's financial performance" while Slack resources theory by Waddock and Graves (1997) argues that there is a "backward loop" exists in the relationship between CSR and CFP. Furthermore, firms that have slack resources afford to invest more in ESG activities, thus it leads to better sustainability performance. Several studies find a positive relationship between Corporate Financial Performance (CFP) and Corporate Social Performance (CSP) and the causality goes both ways (Orlitzky et al., 2003, Surroca et al., 2010). In order to verify this, we perform additional tests with the reverse viewpoint which hypothesizes that "The higher are the firm's Tobin's Q and ROE,

the higher are the firm's cumulative ESG score, Water score, Environmental score, Social score, and Governance disclosure score".

Dependent variables are cumulative ESG score, Water score, Environmental score, Social score, and Governance disclosure score for the year of 2018.

Independent variables are Tobin's Q and ROE for the year of 2017.

Control variables are Firm size, a leverage ratio, return on asset and liquidity ratio for the year of 2017. Independent variables and control variables are lagged by one year to control for reverse causality. Continent dummies have been included to regulate for the influence of different countries on firm performance. Detailed results of the statistical analysis are included in Appendices. There is no multicollinearity problem as VIF factors of all independent variables were below 5. There is no autocorrelation in the residuals, Durbin Watson values are near 2.0.

As Table 41 reports, regression coefficient for the association between Tobin's Q and Governance disclosure score is positive and statistically significant ($\beta = 0.828$, $p < 0.01$). Nevertheless, the prediction of ESG/Water/E/S score from Tobin's Q is not statistically significant ($p > 0.05$). Thus, the results indicate that the firm's market performance does not significantly affect the firm's ESG performance. This result contradicts Orlitzky et al.'s (2003) findings that good financial performance leads to a better sustainability performance. This could be due to the nature of extractive industry where their operations are usually subject to strict regulations and guidance and the firms are required to invest in ESG activities to some extent despite the poor financial performance. Additionally, Barnett (2007) argues that CSR initiatives taken by the firms who are performing particularly well in profitability could be deemed insufficient. Because "doing too well can lead stakeholders to perceive that a firm is not doing enough good".

Table 41. Effect of the independent variable (Tobin's Q) on each dependent variable

Variables	*ESG*	*Water score*	*Environmental Score*	*Social Score*	*G Disclosure score*
Firm size	0.324**	0.428**	0.369**	0.287**	0.316**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Leverage	-0.414	-0.338	-0.255	-1.071	0.083
	(0.338)	(0.716)	(0.687)	(0.100)	(0.805)
ROA	0.728	3.540	1.612	1.544	-0.971
	(0.456)	(0.093)	(0.260)	(0.293)	(0.201)
Liquidity	0.110*	0.210*	0.156*	0.113	0.060
	(0.023)	(0.043)	(0.027)	(0.118)	(0.111)
Continent Africa	0.996**	0.906	1.623**	0.540	0.826**
	(0.010)	(0.277)	(0.004)	(0.353)	(0.006)
Continent Asia	-0.126	-0.959*	0.052	0.279	-0.708**
	(0.470)	(0.011)	(0.838)	(0.286)	(0.000)
Continent Australia	0.276	-0.021	0.831*	0.023	-0.027
	(0.264)	(0.969)	(0.022)	(0.950)	(0.888)
Continent Europe	0.166	-0.476	0.256	0.557*	-0.315*
	(0.359)	(0.223)	(0.334)	(0.042)	(0.026)
Continent South America	-0.510	-0.819	-0.193	0.387	-1.726**
	(0.089)	(0.203)	(0.659)	(0.389)	(0.000)
LN Tobins Q	0.252	0.299	-0.152	0.081	0.828**
	(0.372)	(0.623)	(0.713)	(0.849)	(0.000)

Note: The table summarizes the result of multiple regression analysis. Dependent variables are cumulative ESG score, Water score, Environmental score, Social score and Governance disclosure score. P values **p<0.01, *p<0.05

As Table 42 reports, regression coefficient for the association between Return on equity and Water score is positive and statistically significant ($\beta = 1.887$, $p < 0.05$). Nevertheless, the prediction of ESG//E/S/G scores from return on equity is not statistically significant ($p > 0.05$). The results indicate that the firm's financial performance does not significantly affect the firm's ESG performance besides water performance. On the one hand, our result disagrees with Waddock and Graves's (1997) view that CSR-CFP relationship goes both directions. On the other hand, we agree that extractive firm's water related activities could be enhanced by a better financial performance. Additionally, enhanced water activities

can improve the firm's profitability.

Table 42. Effect of the independent variable (ROE) on each dependent variable

Variables	*ESG*	*Water score*	*Environmental Score*	*Social Score*	*G Disclosure score*
Firm size	0.305**	0.383**	0.361**	0.270**	0.285**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Leverage	-0.611	-0.966	-0.564	-1.337*	0.066
	(0.169)	(0.314)	(0.387)	(0.047)	(0.852)
Liquidity	0.101*	0.186	0.141*	0.105	0.057
	(0.038)	(0.076)	(0.048)	(0.151)	(0.144)
Continent Africa	0.936*	0.740	1.574**	0.470	0.765*
	(0.015)	(0.372)	(0.005)	(0.417)	(0.013)
Continent Asia	-0.074	-0.815*	0.135	0.358	-0.714**
	(0.668)	(0.029)	(0.594)	(0.168)	(0.000)
Continent Australia	0.300	0.066	0.855*	0.056	-0.012
	(0.221)	(0.901)	(0.018)	(0.879)	(0.949)
Continent Europe	0.163	-0.420	0.272	0.578*	-0.360*
	(0.360)	(0.276)	(0.299)	(0.032)	(0.012)
Continent South America	-0.497	-0.796	-0.189	0.393	-1.694**
	(0.096)	(0.216)	(0.664)	(0.381)	(0.000)
Ln ROE	0.538	1.887*	0.678	0.503	0.433
	(0.218)	(0.045)	(0.289)	(0.444)	(0.214)

Note: The table summarizes the result of multiple regression analysis. Dependent variables are cumulative ESG score, Water score, Environmental score, Social score and Governance disclosure score. P values **p<0.01, *p<0.05

5.4 Discussion

We have argued that the firm's sustainability performance enhances the firm's financial performance by evoking positive responses from its stakeholders, including employees, customers, society and investors. Our statistical analysis generally supports this argument using either accounting or market based financial performance measures.

As for Hypothesis 1, which expects a positive relationship between collective ESG score and Corporate Financial Performance (CFP), we find it is valid for both regression results. H1 is in line with results of the research conducted by Friede et al., (2015), that

found a positive ESG impact on CFP over time across various regions. The positive association suggests that if firms could increase their sustainable activities, the probability of higher financial profit will also increase (Ofori et al., 2014). In addition, transparent disclosures by extractive firms seem to be paying well as utilities and materials sectors tend to disclose their ESG related activities a more transparent way than other sectors due to its sensitivity to environmental issues (Smeesters & Mottet, 2018). Furthermore, a positive relationship between ESG score and CFP can be observed only in developed economies, whereas the result is insignificant for emerging countries. On the one hand, this result is consistent with other studies that have analyzed the association between ESG performance and CFP in country specific contexts in developed countries (Friede et al., 2015; Fatemi et al., 2018; Dorfleitner et al., 2018). On the other hand, Maqbool & Bakr (2018) find curvilinear relationship between sustainability performance and CFP in the Indian context, which suggests that initiatives related to sustainability do not show immediate increase in financial performance, but after a certain threshold.

As for Hypothesis 2, which expects a positive relationship between Water score and Corporate Financial Performance (CFP), we find it is valid for both regression results. This is in line with the view “do well by doing good” by Waddock and Graves (1997), and companies can address the water related issues as part of their sustainability strategy which can eventually create a positive influence on their bottom line. Furthermore, the results are also consistent with the studies that suggest companies to formulate CSR strategies for material issues for long term benefit creation (Dorfleitner et al., 2018). We can observe a positive association between Water score and CFP in the firms that are operating in developed countries; however, the results are insignificant in the firms that are operating in emerging countries. Zhou, Zhang, Chen, Zeng & Chen (2020) state that

as opposed to developed countries, Chinese firms are lacking behind in terms of understanding the issues associated with water and less motivated to disclose more than required by the regulation. Similarly, mining sector in Africa is found to be lacking around water issues in logistics (Askham & Van der Poll, 2017).

As for Hypothesis 3, which expects a positive relationship between Environmental score and Corporate Financial Performance (CFP), we find it is valid for both regression results. H3 is consistent with findings of the paper by So (2021), which states that increase in environmental contribution beyond the minimum requirement by policy or standard enhances the firm's financial performance. Investors tend to think of environmental measures as possible expense or penalty, therefore they tend to have negative effect on firm performance (Simionescu et al., 2020). However, environment related CSR activities have positive effect on firm's innovation, thus leads to a better financial performance (Lioui & Sharma, 2012). Furthermore, while environment dimension of ESG is positively associated with CFP in developed economies, it appears to be insignificant for emerging countries. Amoah & Eweje (2020) find that environment sustainability is mainly driven by post closure compliance including land closure planning in the mining companies in Ghana. However, as opposed to developed countries, the policy related to mine closure is less primitive in the emerging countries (Morrison-Saunders et al., 2016). Environmentally sustainable practices appear to be merely complying with existing policies and to obtain international certifications in emerging countries (Amoah & Eweje, 2020). Nevertheless, if extractive firms which are operating in emerging countries choose not to invest in environmentally sustainable activities beyond their regulation compliance, they might be losing an opportunity of being sustainable and improve their bottom line in the future.

As for Hypothesis 4, which expects a positive relationship between Social score and Corporate Financial Performance (CFP), we find it is valid for regression result using Tobin's Q as a CFP. The result suggests that Social score positively influences firm value (Tobin's Q), however it does not necessarily have positive impact on firm profitability (ROE). This may be because engaging in activities which address community and society related issues are highly appreciated by market and it is reflected in the firm's share price. Therefore, financial performance measured by market-based indicator shows a significant and positive result as opposed to insignificant impact on ROE. Nevertheless, existing studies show inconsistent results in determining an impact of social outcomes on firm's accounting measures. Nirino et al., (2020) which reveal a positive association between social outcome and ROE in a food and beverage industry. Moreover, Duque-Grisales & Aguilera-Caracuel, (2021) find a negative impact of social dimension on ROA in Latin American multinationals.

As for Hypothesis 5, which expects a positive relationship between Governance disclosure score and Corporate Financial Performance (CFP), we find it is valid for regression result using Tobin's Q as a CFP. The results of hypothesis 5 is conforming to findings by Jo and Harjoto (2011), in which corporate governance positively influences firm performance which is measured by Tobin's Q. They further argue that choice of whether to engage in CSR is positively associated to Corporate governance characteristics (Jo & Harjoto, 2011). However, as for H5b, Governance disclosure score is not unable to predict Return on equity. This is consistent with findings by Orlitzky et al. (2003) which state that "there is no theoretical causal mechanism between CSP disclosures and internal (that is, accounting) CFP measures". As Wood & Jones's (1995) stakeholder mismatching thesis suggests, "stakeholders have different expectations, therefore, no

positive correlation could be expected between variables that cannot be linked theoretically, (e.g., governance disclosure score and ROE)".

As for analysis on reverse direction of causality, which expects a positive relationship between lagged financial performance and ESG performance, we find it is insignificant for regression results using both Tobin's Q and ROE as measures of CFP. Our results contradict with Waddock and Graves' (1997) view which suggests that the firms with extra financial resources perform well in sustainability activities because they afford to do so. Nonetheless, the regression result suggests that the firm's profitability (ROE) positively influences firm's water score. The extractive firms which are doing well in terms of the firm's profitability invest more in water management activities, which leads to better water performance. And better water score attracts better firm performance which is measured by ROE.

Based on the discussion and analysis in this paper, managerial implications are summarized as follows.

Studies on ESG impacts on firm performance in extractive industry have not been sufficiently explored or undertaken. Furthermore, water score, which measures the company's water policy, water use performance and wastewater treatments have not been studied in concurrent with other ESG pillars. Empirical results from this study provide helpful information for extractive companies, managers, investors and legislators in their endeavors fostering sustainable business activities.

As Baron (2000) proposes, successfully integrating nonmarket strategy with market strategy could enhance firm's competitiveness. Empirical results indicating a positive impact of ESG outcome on CFP could leverage managers to include sustainability into their business strategy to enhance firm's performance and add value to their business.

Furthermore, greater sustainability performance can enhance firm's reputation, therefore, managers should pay attention to public's perception of the firm's ESG activities (Orlitzky et al., 2003).

Efforts to address environmental issues require a certain amount of time to demonstrate actual outcomes, however, firms should not ignore the importance and severity of environment related issues. This research proposes that addressing major water and environment related issues would not harm the firm performance in the extractive industry. The results of this study also suggest that enhancing environment related performances, including water management, and transparent reporting creates positive impact on environment (ESG) as well as financial performance (CFP).

6. Conclusion

This research aims to determine the effect of firm's ESG outcomes on Corporate Financial Performance (CFP) in the context of extractive industry. Extractive firms can greatly impact the environment, specifically water, and society. Therefore, it is crucial to comprehend how these companies' ESG performance as well as transparency of ESG activities can affect their financial performance, which is still currently the shareholders' main interest. Overall, hypotheses that propose a positive effect of ESG on CFP have been accepted. Moreover, according to this research each pillar of ESG performance including "Environmental score", "Social score" and "Governance disclosure score" are weak but positively correlated to CFP. Nevertheless, the results could not find any significant relationship between "Social score" and Return on equity; "Governance disclosure score" and Return on equity. Furthermore, the water score, which is represented by the firm's effort and the level of disclosure in regards with the water related issues such as water use policy, water use and wastewater, is positively associated with CFP which suggests that the extractive firms can improve their water use policies without harming firm's financial performance. In addition, comparison analysis on a developed versus emerging countries reveals a positive ESG-CFP association in only in developed economies. The results of the data analysis support the view of Stakeholder theory, which suggests that firms can create value for multiple stakeholders to improve the company's bottom line.

Limitations of the study include inherent limitations related to a sample selection and the availability of an accurate data. First, we have analyzed firms with ESG scores available in Bloomberg ESG database and selected firms are all listed on stock exchange. Thus, they could have better ESG score as compared to private firms. Second, to accurately measure the association between ESG outcomes and Corporate Financial

Performance, several years of data are needed. Bloomberg started developing proprietary ESG scores, which attempts to measure ESG performance as well as the level of disclosure, recently. Proprietary ES score include data from 2015 to 2019, which might not be sufficient to perform time-series analysis.

This study has been conducted using data from the extractive industry. Future researchers could extend the study by comparison analysis with other industries. This study has analyzed the ESG-CFP relationship using data from one year, researchers could conduct a longitudinal study to test the association between Sustainability performance and CFP in the long run.

In this study, secondary data has been used, and it has its inherent limitations. Scholars could perform mixed analysis by collection of primary data through questionnaires and interviews for ESG variables.

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Appendices

Appendix A. Descriptive statistics, Analysis on reverse direction of causality

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
ESG score	269	.514	6.780	4.16802	1.132287
Water score	269	.000	8.905	3.69386	2.316963
Environmental score	269	.000	6.645	3.15797	1.617284
Social score	269	.000	8.842	3.32380	1.625434
G disclosure score	269	.000	8.036	6.02230	.987377
LN Tobins Q	269	.00	2.30	.8437	.24864
ln ROE	267	-.09	2.42	.0221	.15332
Firm size	269	8.050	15.434	11.59139	1.448266
Leverage	269	.000	1.399	.24167	.162700
ROA	269	-.216	.415	.04738	.071848
Liquidity	269	.233	11.188	1.96428	1.512869
Valid N (listwise)	267				

Appendix B. Multiple regression results, Analysis on reverse direction of causality

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
		B	*Std. Error*	*Beta*		
1	(Constant)	.016	.715		.022	.983
	Firm size	.324	.050	.414	6.466	.000
	Leverage	-.414	.432	-.060	-.960	.338
	ROA	.728	.975	.046	.747	.456
	Liquidity	.110	.048	.146	2.282	.023
	Continent Africa	.996	.386	.150	2.581	.010
	Continent Asia	-.126	.174	-.045	-.723	.470
	Continent Australia	.276	.246	.069	1.119	.264
	Continent Europe	.166	.181	.058	.919	.359
	Continent South America	-.510	.299	-.100	-1.710	.089
	LN Tobins Q	.252	.282	.055	.894	.372
a. Dependent Variable: ESG score						

Appendix C. Multiple regression results, Analysis on reverse direction of causality

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
		B	*Std. Error*	*Beta*		
1	(Constant)	-1.702	1.539		-1.106	.270
	Firm size	.428	.108	.267	3.968	.000
	Leverage	-.338	.928	-.024	-.364	.716
	ROA	3.540	2.098	.110	1.688	.093
	Liquidity	.210	.103	.137	2.032	.043
	Continent Africa	.906	.831	.067	1.090	.277
	Continent Asia	-.959	.374	-.170	-2.566	.011
	Continent Australia	-.021	.530	-.003	-.039	.969
	Continent Europe	-.476	.389	-.082	-1.223	.223
	Continent South America	-.819	.642	-.079	-1.275	.203
	LN Tobins Q	.299	.607	.032	.492	.623
a. Dependent Variable: Water score						

Appendix D. Multiple regression results, Analysis on reverse direction of causality

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
		B	*Std. Error*	*Beta*		
1	(Constant)	-1.485	1.047		-1.418	.157
	Firm size	.369	.073	.330	5.028	.000
	Leverage	-.255	.632	-.026	-.404	.687
	ROA	1.612	1.427	.072	1.130	.260
	Liquidity	.156	.070	.146	2.218	.027
	Continent Africa	1.623	.565	.171	2.872	.004
	Continent Asia	.052	.254	.013	.204	.838
	Continent Australia	.831	.361	.147	2.304	.022
	Continent Europe	.256	.265	.063	.968	.334
	Continent South America	-.193	.437	-.027	-.441	.659
	LN Tobins Q	-.152	.413	-.023	-.369	.713
a. Dependent Variable: Environmental score						

Appendix E. Multiple regression results, Analysis on reverse direction of causality

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
		B	*Std. Error*	*Beta*		
1	(Constant)	-.315	1.075		-.293	.770
	Firm size	.287	.075	.256	3.809	.000
	Leverage	-1.071	.649	-.107	-1.650	.100
	ROA	1.544	1.466	.068	1.053	.293
	Liquidity	.113	.072	.105	1.568	.118
	Continent Africa	.540	.580	.057	.930	.353
	Continent Asia	.279	.261	.070	1.068	.286
	Continent Australia	.023	.370	.004	.062	.950
	Continent Europe	.557	.272	.136	2.048	.042
	Continent South America	.387	.449	.053	.863	.389
	LN Tobins Q	.081	.424	.012	.191	.849
a. Dependent Variable: Social score						

Appendix F. Multiple regression results, Analysis on reverse direction of causality

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
		B	*Std. Error*	*Beta*		
1	(Constant)	1.846	.556		3.319	.001
	Firm size	.316	.039	.464	8.112	.000
	Leverage	.083	.336	.014	.248	.805
	ROA	-.971	.758	-.071	-1.281	.201
	Liquidity	.060	.037	.091	1.597	.111
	Continent Africa	.826	.300	.142	2.751	.006
	Continent Asia	-.708	.135	-.294	-5.238	.000
	Continent Australia	-.027	.192	-.008	-.141	.888
	Continent Europe	-.315	.141	-.127	-2.238	.026
	Continent South America	-1.726	.232	-.389	-7.431	.000
	LN Tobins Q	.828	.219	.209	3.773	.000
a. Dependent Variable: G disclosure score						

Appendix G. Multiple regression results, Analysis on reverse direction of causality

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
		B	*Std. Error*	*Beta*		
1	(Constant)	.523	.620		.843	.400
	Firm size	.305	.048	.393	6.337	.000
	Leverage	-.611	.444	-.087	-1.378	.169
	Liquidity	.101	.048	.135	2.086	.038
	Continent Africa	.936	.383	.142	2.443	.015
	Continent Asia	-.074	.172	-.027	-.429	.668
	Continent Australia	.300	.244	.076	1.226	.221
	Continent Europe	.163	.178	.057	.918	.360
	Continent South America	-.497	.297	-.098	-1.670	.096
	ln ROE	.538	.435	.073	1.236	.218
a. Dependent Variable: ESG score						

Appendix H. Multiple regression results, Analysis on reverse direction of causality

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
		B	*Std. Error*	*Beta*		
1	(Constant)	-.645	1.338		-.482	.630
	Firm size	.383	.104	.240	3.685	.000
	Leverage	-.966	.957	-.067	-1.009	.314
	Liquidity	.186	.104	.122	1.784	.076
	Continent Africa	.740	.827	.055	.895	.372
	Continent Asia	-.815	.371	-.143	-2.196	.029
	Continent Australia	.066	.527	.008	.124	.901
	Continent Europe	-.420	.384	-.072	-1.093	.276
	Continent South America	-.796	.642	-.077	-1.241	.216
	ln ROE	1.887	.939	.125	2.011	.045
a. Dependent Variable: Water score						

Appendix I. Multiple regression results, Analysis on reverse direction of causality

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
		B	*Std. Error*	*Beta*		
1	(Constant)	-1.374	.909		-1.511	.132
	Firm size	.361	.071	.325	5.116	.000
	Leverage	-.564	.650	-.056	-.867	.387
	Liquidity	.141	.071	.132	1.991	.048
	Continent Africa	1.574	.562	.166	2.803	.005
	Continent Asia	.135	.252	.034	.534	.594
	Continent Australia	.855	.358	.152	2.389	.018
	Continent Europe	.272	.261	.067	1.041	.299
	Continent South America	-.189	.436	-.026	-.434	.664
	ln ROE	.678	.638	.064	1.063	.289
a. Dependent Variable: Environmental score						

Appendix J. Multiple regression results, Analysis on reverse direction of causality

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
		B	*Std. Error*	*Beta*		
1	(Constant)	.071	.935		.076	.940
	Firm size	.270	.073	.242	3.719	.000
	Leverage	-1.337	.669	-.132	-1.998	.047
	Liquidity	.105	.073	.098	1.439	.151
	Continent Africa	.470	.578	.049	.814	.417
	Continent Asia	.358	.259	.090	1.381	.168
	Continent Australia	.056	.368	.010	.152	.879
	Continent Europe	.578	.269	.141	2.154	.032
	Continent South America	.393	.448	.054	.877	.381
	ln ROE	.503	.656	.047	.766	.444
a. Dependent Variable: Social score						

Appendix K. Multiple regression results, Analysis on reverse direction of causality

Model		*Unstandardized Coefficients*		*Standardized Coefficients*		
		B	*Std. Error*	*Beta*	*t*	*Sig.*
1	(Constant)	2.871	.495		5.802	.000
	Firm size	.285	.038	.419	7.406	.000
	Leverage	.066	.354	.011	.186	.852
	Liquidity	.057	.039	.087	1.467	.144
	Continent Africa	.765	.306	.132	2.502	.013
	Continent Asia	-.714	.137	-.295	-5.206	.000
	Continent Australia	-.012	.195	-.004	-.063	.949
	Continent Europe	-.360	.142	-.145	-2.532	.012
	Continent South America	-1.694	.237	-.383	-7.140	.000
	ln ROE	.433	.347	.067	1.247	.214
a. Dependent Variable: G disclosure score						