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UNIVERSITY OF VAASA

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# **How ESG affects companies' business and cost of financing?**

School of Accounting and Finance  
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**UNIVERSITY OF VAASA****School of Accounting and Finance****Author:** Tarmo Savola**Title of the Thesis:** How ESG affects companies' business and cost of financing? :  
[Subject]**Degree:** Master of Science in Economics and Business Administration**Programme:** Master's Degree Programme in Finance**Supervisor:** Dimic Nebojsa**Year:** 2024 **Sivumäärä:** 61

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**ABSTRACT:**

Vastuullisen ajattelun suosio on kasvanut maailmanlaajuisesti ja valtiot, lainsäädäntö, osakkeenomistajat, yksityissijoittajat ja rahoituslaitokset ovat alkaneet vaatia yrityksiltä vastuullisuusraportteja. Etenkin yksityiset sijoittajat ovat alkaneet voiton maksimoinnin sijasta kiinnittää huomiota myös vastuullisuustekijöihin, kuten esimerkiksi siihen miten yritys huomioi toimintansa ympäristön ja yrityksen työntekijöiden hyvinvoinnin.

Tämän opinnäytetyön tarkoituksena on tarkastella yritysten ympäristön, sosiaalisen yhteiskuntavastuun ja hallinnointitapojen ” Environmental, Social ja Governance” (ESG) vaikutusta yrityksen liiketoimintaan ja sen rahoituskustannuksiin. Opinnäytetyö keskittyy havainnollistamaan konkreettisin esimerkein, miten yritysten liiketoiminta hyötyy siitä, kun yritys panostaa vastuullisuuteen ja saavuttaa korkeita ESG vastuullisuustuloksia. Opinnäytetyössä käydään lävitse ESG historiaa ja sitä, miten eri muuttujat kuten lainsäädäntä, ympäristötietoisuus, ilmastonmuutos, konfliktit ja kansainvälinen yhteistyö ovat vaikuttaneet ESG:n kehitykseen ja suosion kasvuun. Tutkimusosiossa opinnäytetyö keskittyy siihen, miten yrityksen ESG lukemat vaikuttavat sen rahoituksen hintaan ja onko korkeilla ESG lukemilla ja halvemmalla rahoituskustannuksilla havaittavissa yhteyttä.

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**KEYWORDS:** ESG, SRI, responsibility, finance, environment, business, financing

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**ABSTRACT:**

The popularity of responsible thinking has grown globally, and governments, legislation, shareholders, private investors, and financial institutions have started to demand responsibility reports from companies. Private investors, in particular, have begun to focus on responsibility factors, such as how a company considers environmental impacts and employee well-being in its operations, rather than solely maximizing profit.

The purpose of this thesis is to examine the impact of companies' Environmental, Social, and Governance (ESG) practices on their business operations and financing costs. The thesis aims to illustrate, with concrete examples, how companies benefit from investing in responsibility and achieving high ESG scores. It explores the history of ESG and how various factors such as legislation, environmental awareness, climate change, conflicts, and international cooperation have influenced the development and growing popularity of ESG. The research section of this thesis focuses on how a company's ESG scores affect its financing costs and whether a connection can be observed between high ESG scores and lower financing costs.

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## 1 Introduction

Environmental sustainability and the earth's carrying capacity are topics that have gained a lot of interest and discussion in the 20th century. As a result, the corporate world has developed a term ESG that comes from the words environmental, social, and governance to measure the company's responsibility (Henisz et al., 2019). In 2014 EU Commission presented the Corporate Sustainability Reporting Directive (CSRD) where large companies must publish information associated with environmental matters, social matters, treatment of employees, respect for human rights, anti-corruption, and bribery diversity on company boards (2014/95/EU).

It can be said that companies no longer have an option to ignore responsibility in their operations. Various regulations have become part of everyday operations and ignoring them can be expensive for the company itself and its image. According to (Henisz & McGlinch, 2019), the key is to find the balance between “overdoing and underdoing” responsibility. Overdoing means that the company invests too much time thinking about responsibility and the main business suffers from it. Underdoing it can lead to even worse consequences. (Henisz & McGlinch 2019) found that companies with weak ESG representation suffer from greater risks. (Henisz & McGlinch 2019) also found that companies that have losses in the ESG criteria-related events have massive declines in market capitalization.

Disclosing ESG has many benefits for the business of a company, and thus companies have increasingly disclosed those aspects over the last decade. The publication of ESG information brings transparency to the company's operations, which increases investors' interest in the company because they get a better understanding of the risks and opportunities of the company's operations (Henisz et al., 2019). By successfully implementing corporate responsibility strategies into a company's operations companies can achieve competitive advantage among other positive impacts. Henisz et al. (2019) point out five different factors that can be achieved if the company reaches a high ESG profile:

1. Cost reduction
2. Regulatory and legal inventions
3. Productivity uplift by employees
4. Investment, and asset optimization
5. Top-line growth

This thesis will point out the reasons why companies with good ESG ratings have access to cheaper financing and the reasons behind it. Hauptmann (2017) explains that if a company achieves high ESG ratings, its operations are often more transparent, and risks are better understood. When a company's risks are better understood banks have more confidence in the company's business and can grant a loan at a cheaper price (Duffie & Singleton, 2012).

The analysis will also examine how companies can reduce their financing costs by maintaining high ESG scores. According to Henisz et al. (2019), cost reductions associated with ESG arise from multiple small improvements rather than a single large factor. This thesis will demonstrate the link between cheaper financing and high ESG scores by providing concrete examples and breaking down the reasons behind this relatively new trend.

The financing section will also address how geographic and cultural factors affect financing costs. Companies in different regions may see varying benefits from high ESG scores, which reflect local regulations, cultural values, and investor priorities. The section will further explore “sin stocks,” companies in industries like tobacco or gambling, and how poor ESG scores impact their access to financing. This analysis will help illustrate the importance of a company's image and responsibility in today's business environment and how companies that neglect these factors can suffer financially.

In our study, we utilize ESG data sourced from LSEG Workspace, which includes Refinitiv's ESG scores. This data provides a detailed view of environmental, social, and

governance practices across companies, assessed based on over 630 metrics that cover 85% of the global market. Our approach applies the Capital Asset Pricing Model (CAPM), with the Cost of Equity (CoE) as the dependent variable. The primary independent variables in this analysis include the ESG Score and ESG Combined Score. These variables help us examine the relationship between a firm's ESG performance and its equity financing costs, aiming to capture how ESG metrics influence a company's overall cost of capital.

### **1.1 Purpose of the study**

The purpose of this thesis is to study how ESG factors affect a company's access to financing. The focus is on the benefits that companies with high ESG profiles gain, especially when it comes to reducing the costs of financing. According to Henisz et al. (2019), when a company manages its environmental, social, and governance factors well, it can achieve higher credit ratings, reduce downside risk, and lower loan expenses. This leads to the central hypothesis of the thesis:

**H1:** High ESG scores are correlated with lower cost of financing.

While the primary focus is on how ESG influences financing costs, this thesis also acknowledges that companies with strong ESG profiles can benefit in multiple ways, including improved performance and value creation. Henisz et al. (2019) show that effective ESG management links directly to better business outcomes. This perspective aligns with the broader view that companies should consider ESG factors not only for financing benefits but also for strengthening their overall operations and competitiveness.

Since ESG-related research is relatively new, it is challenging to make definitive conclusions about the hypothesis. However, Henisz et al. (2019) provide strong evidence that responsibility improves business outcomes, and Hauptmann (2017) presents compelling theories on how high ESG ratings reduce financing costs. One goal of this thesis is to explore these cause-and-effect relationships, offering concrete examples of why high

ESG ratings can lead to cheaper financing. Ultimately, this study aims to demonstrate that the importance of corporate responsibility, particularly regarding financing, will continue to grow in the future.

## **1.2 Structure of the study**

The structure of the study is as follows: First, the thesis explains what ESG is and how it affects companies' business and stakeholders. After that, the thesis will highlight why ESG has become such an important term as part of corporate strategy planning. The thesis creates a basis for the text by bringing out concrete facts about how ESG can be used to achieve an advantage over competitors while increasing confidence among its investors.

After this, the thesis goes through the history of ESG and aspects that have shaped its development over time. The thesis shows some of the most important concrete examples, such as changes in legislation, increased investor responsibility, and a general increase in interest regarding corporate responsibility. After an extensive primer, the thesis will move on to studying the connection between ESG and financing costs. The assumption in our work is that "high ESG scores can reduce a company's cost of capital." We study the topic in the light of the latest research and try to find answers to the question. We also expand our research in such a way that we aim to bring out the overall benefits of high ESG, which may affect the company's operations in many ways, even though the direct benefit may be difficult to perceive. Such benefits can be, for example, a better understanding of risks and an increased investor base.

In the final part of the thesis, the empirical analysis and research design are introduced to provide a clear understanding of the data used and the methodology behind the findings. The research design section presents the data sources, including detailed information on the S&P 500 companies analyzed for the years 2017–2023, sourced from LSEG Workspace.

Finally, the Conclusion summarizes the main findings of the thesis, discussing their implications for businesses, investors, and policymakers. It also addresses the limitations of the research and offers suggestions for future studies, such as exploring ESG's impact on different regions and industries or using alternative models to assess the cost of capital.

## **2 ESG and corporate social responsibility**

ESG and socially responsible investing (SRI) are concepts that are often heard and linked together (Caplan et al., 2013). In SR investing an investor considers the company's ESG factors as one of the criteria and allows them to influence whether to invest in the company or not. Investor attention may be drawn for example to the following matters in the potential company he would like to invest in: the company's responsibility, ethical operations, and social significance (Sandberg et al., 2009).

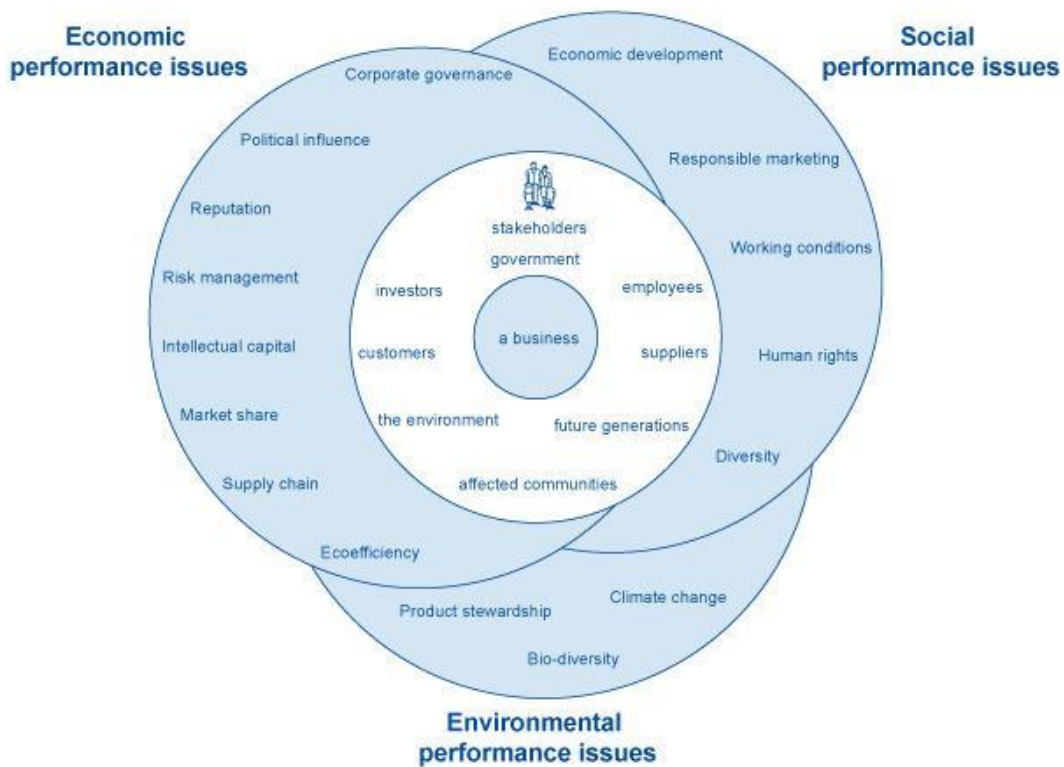
Traditionally investors try to maximize profit with minimum risk (Miller, 1977). However, ESG and SRI factors have come to explain the change in which investors consider also other factors instead of maximum return. These factors can be for example how the company takes the environment into account in its business, how much nonrenewable natural resources are used in its operations, and how the company treats its shareholders and employees (Sandberg et al., 2009).

People's mindset and behavior have changed, as awareness of the state of the environment and that everyone can make an impact with their actions has increased. According to a Communications (2016) study, 64 percent of millennials would not choose a job if there was a weak Corporate social responsibility (CSR) policy. The study also found that 88% of the respondents would find their work more meaningful if they could positively influence environmental issues in their work. The third thing observed was that three-quarters would be willing to take a pay cut if they could work in an environmentally responsible company.

Freeman's (1984) stakeholder theory supports the belief that companies must consider everyone whom the company influences (Stieb, 2009). Not only its shareholders but also people who work in the company's shops, people who live near the company's factories, the company's employees, and its suppliers must be considered. According to Friedman's theory, a company strives to consider the surrounding world in its operations and

treats everyone with respect, and by doing so, the company builds the best foundation for its business to shine (Stieb, 2009).

One of the cornerstones of CSR can be considered Freeman's (1984) stakeholder theory. According to it, a company's social responsibility is realized when the company voluntarily considers social and environmental responsibility issues in its everyday strategy. Freeman's stakeholder theory can be seen, for example, based on UNIDO (2022) operating principles, where the realization of responsibility requires that it be considered in the company's everyday operations.



**Figure 1.** Corporate social responsibility in business (UNIDO,2022).

The first figure illustrates well how many different variables must be considered in today's responsible business. According to UNIDO (2022), a good CSR concept can bring along a variety of different competitive advantages, such as enhanced access to capital

and markets, better sales and profits, improved quality and productivity, and improved brand and image reputation.

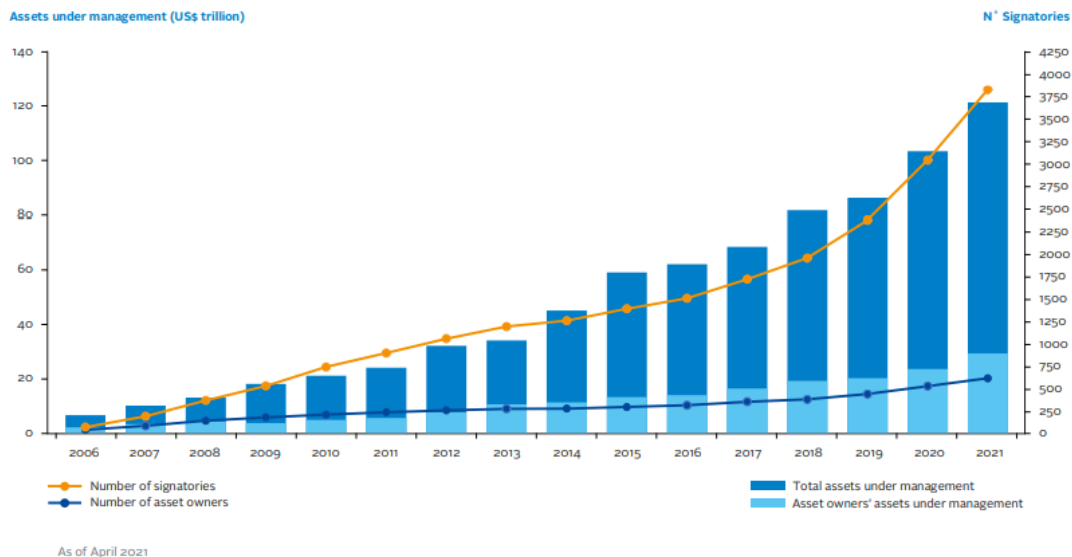
## **2.1 Socially responsible investing**

Schueth (2003) points out in his article that there are two types of SR investors. The first investors he describes are those who want to invest in companies whose values match their own. The second category includes investors who want to create a better future and society with their investment decisions. Giese et al. (2019) point out how value-based investing and impact investing have increased. This strengthens the theory that other factors than the pursuit of maximum profit influence investors' decisions.

Responsible investing took a big step in 2005 when the world's largest institutional investors made a deal with the initiative of the United Nations and Principles of Responsible Investment (UNPRI) was made. The signatories of the agreement agreed to consider more ESG factors and responsible investment in their operations in the future. (UNPRI, 2021) The agreement also included six basic principles that create the basis for responsible investing:

1. We will incorporate ESG issues into investment analysis and decision-making processes.
2. We will be active owners and incorporate ESG issues into our ownership policies and practices.
3. We will seek appropriate disclosure on ESG issues by entities in which we invest.
4. We will promote acceptance and implementation of the principles within the investment industry.
5. We will work together to enhance our effectiveness in implementing the principles.
6. We will each report on our activities and progress towards implementing the principles.

The PRI has grown consistently since it began in 2006:



**Figure 2.** Principles for responsible investment 2006-2021 (UNPRI, 2021).

The second Figure 2. illustrates well the situation of how PRI has grown since 2016 and according to UNPRI (2022), the growth will continue in the future.

## 2.2 How ESG affects the company’s business

The effect of ESG on companies’ performance has been studied a lot. In the literature, there are indications of a positive, negative, and neutral relationship between a company's performance and ESG. Overall, the correlation is believed to be slightly positive, especially in the long run (Giese & et al., 2019).

ESG benefits affect the company's operations in many ways. Henisz et al (2019) point out five key points that a strong ESG proposition brings to the company. The first one on the list is top-line growth, which means that a strong ESG position attracts business-to-business and business-to-consumer customers with more sustainable products. According to Henisz & et al. (2014), companies with high ESG positions are more likely to have better access to resources through communities and good government relations.

The second key point Henisz et al. (2019) mark is cost reduction. Cost reduction can be seen in different sectors of the company. In their study, Henisz et al. (2019) found that companies that had taken their sustainable development strategy to the furthest had the lowest raw material prices. Another way ESG can be seen as cost reduction is that ESG forces companies to develop and invent new, more environmentally friendly ways of doing business. The environmentally friendly business also means a drop in the company's expenses when cost items become less raw-material-intensive and energy consumption will decrease (Henisz et al., 2019).

The third point that Henisz et al. (2019) bring out is that high ESG reduces regulation and legislative restrictions on doing business. A good reputation and responsible operations help companies receive state support and facilitate the operation of the company when the cornerstone of the operation is that everything is carried out responsibly. Investing in high-quality, low-emission equipment also often improves plant efficiency and product quality, which often has positive effects in the long run for the company's business. New equipment and responsible operations can also be seen as an advantage in the sense that it attracts employees.

The fourth point is that a strong ESG proposition boosts employees' productivity. Strong ESG proposition increases workers' motivation and the feeling that they are doing work that matters for this planet. This job satisfaction makes people also perform better which leads to the point where the company performs better, attracts talents through better social credibility, and makes better results (Henisz et al., 2019). Also, Edmans (2012) points out that high job satisfaction generates high stock returns in the long run. According to Edmans (2012), there are three different reasons why the best companies with high job satisfaction systematically beat analysts' earnings estimates. The first one is that job satisfaction leads to better corporate achievement, the second is that certain CSR

dimensions improve stock returns, and the third one is that the market is slow to fully value intangible assets.

The fifth and last point that Henisz et al. (2019) present is the optimization of investments and assets. With the help of optimization, the equipment of companies with a high ESG profile remains up-to-date, and new, more efficient production methods are constantly sought after, which ensures that the company will continue to be a pioneer in the future.

### **2.3 ESG and CSR impact on the company's reputation and its operations**

Reputation is an important concept in the business world and companies constantly strive to achieve high responsibility ratings to maintain it. Hamilton et al. (1993) explain that companies who act responsibly are more likely to get better media attention, make it easier to get funding, gain better trust from shareholders, and reduce the risk of falling off the ride of development because state-of-the-art technology goes hand in hand with the increase of responsibility.

In a slightly older study containing data from 1970-1990 Sauer (1997) points out that socially responsible companies don't perform better than companies with low social responsibility scores. Using data from Domini 400 social index and Domini Equity Mutual Fund Sauer seeks to find the answer if it pays to put extra dollars into responsibility matters in exchange for investors' interest. The study is quite old, so the results may have already changed, but it speaks volumes about interest and the fact that companies and people have been interested in the same topic for a long time.

The article highlights the benefits that a company is believed to achieve by investing in responsibility, such as fewer lawsuits, better product quality, more loyal customers and employees, more innovative thinking, and lower costs. According to Sauer (1997), companies with high responsibility may gain investors' popularity when their responsible operation address issues such as the treatment of women, customers, suppliers, and the

community. However, this must still be done without any sacrifices in the company's performance. The study highlights that at the turn of the year, there was a strong view that investing in responsibility does not mean giving up profit. Instead, responsible operations should be integrated into a company's operations without compromising their profitability.

However, sometimes companies cross the line when they want to emphasize their responsibility with ESG numbers. The phenomenon is called greenwashing. Greenwashing is when a company exaggerates its responsibility. An example of greenwashing is when a company prominently displays its ESG information and outwardly appears to be a highly responsible company but does not act responsibly in some or all its ESG areas. According to Yu et al. (2020), the reasons behind greenwashing are that the sustainable development reports published by companies have not been audited. As a result, there is no standardization in the disclosure rules or a global governing body that would ensure the accuracy of ESG reports. In this case, the companies can provide misleading information about their responsibility (Yu et al., 2020).

According to Dumitrescu et al. (2022), 29% of ESG funds in the US were found to engage in greenwashing during the 2016-2022 period. One of the primary reasons for this was the lack of standardization and regulation; currently, there is no universal standard or mandatory auditing process for ESG reporting, which leads companies to attempt to appear as favorable as possible on paper.

## **2.4 The history of ESG and CSR**

The roots of ESG can be seen to start when the first thoughts about CSR have originated. Responsible thinking has been trending more in the 20th century, but clear concrete actions were observed around the 1950s, when mine and electrical workers started investing pension funds in affordable health services and housing (Says, 2021). Since then, the development has been exponential, and the importance of CSR has grown and deepened. One important milestone in CSR history dates to the 1970s when the concept of a "social

contract” between society and business was declared. The idea behind the social contract was that businesses have a responsibility to serve the needs of society. The social contract was based on three cornerstones:

1. Provide employment and economic growth through optimized business.
2. Operate the business ethically and fairly regarding customers and the employees of the company.
3. The company actively participates in the development and improvement of the environment in which it operates.

The statements are still valid even today in the operations of responsible companies. (Jahn & Brühl, 2018). Also in the 1970s, Milton Friedman presented his shareholder value theory, according to which maximum profit should not be the core of the company's business. Friedman said that if the company's strategy takes into account responsible factors along with the pursuit of profit, the company will make a good responsible result in the long run (Robé, 2012).

Various world events have played a role in ESG development. For example, awareness of non-renewable energy sources that should not be used wastefully and climate change have increased people's interest in responsibility matters. Various events, such as wars, and natural and human-caused disasters, have played a role in ESG growth and have pushed responsible development forward. Legislation has become part of the development of companies' responsibility. Countries, investment companies, banks, and other organizations have started to demand the implementation of responsible actions and transparency which has pushed responsible action forward. (Says, 2021.)

Over the years companies' ESG has also been pushed forward by various global campaigns where common goals have been created to support the realization of companies' responsibility. A good example of cooperation between countries regarding global environmental issues is the Paris Climate Agreement (2016). In the Paris Agreement

technology must be renewed and reporting on environmental issues must be increased. (Glanemann et al., 2020). Such agreements reflect directly on the development of ESG, and they have been playing an important role in moving ESG progress forward.

Another good example made in Europe is the corporate sustainability reporting directive (CSRD) which applies to all large and listed European companies on regulated markets. According to the regulation, these companies must inform sustainability issues such as environmental, social, and human rights, as well as governance factors. These rules will be implemented in three stages over three years from 2024 to 2026. " New rules on corporate sustainability reporting", (2022).

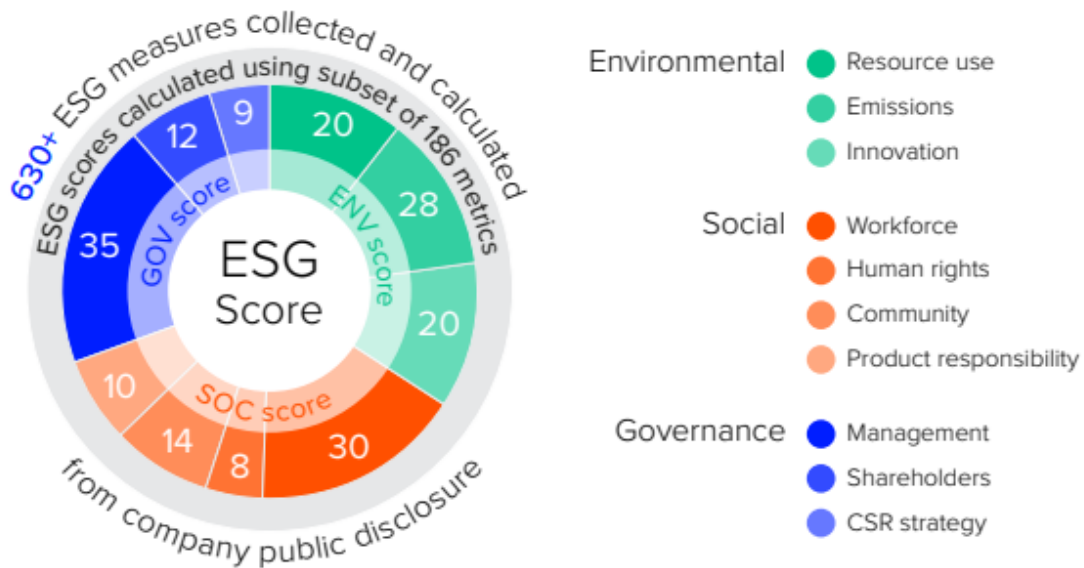
The second great example also made in European countries is the EU taxonomy classification system. This system establishes a list of environmentally sustainable economic activities. The system is being made to help European countries to increase sustainable investments. The classification system provides stakeholders, investors, and companies with clear definitions of activities that can be considered sustainable. The system helps investors to invest in environmentally responsible companies and this will direct money in the right direction. One great advantage of the system is also that it prevents corporate greenwashing (European Commission, 2022).

EU taxonomy classification system is used to push European responsibility forward. The COVID-19 pandemic made Europe realize that its businesses must be made more resilient against environmental and climate shocks. Taxonomy regulation established six environmental objectives:

1. Climate change mitigation
2. Climate change adaptation
3. The sustainable use and protection of water and marine resources
4. The transition to a circular economy
5. Pollution prevention and control

6. The protection and restoration of biodiversity and ecosystem  
(European Commission, 2022).

### 3 ESG areas in more detail



**Figure 3.** Summary of Refinitiv ESG score (Refinitiv, 2022).

#### 3.1 Government section of ESG

The letter G in ESG stands for the company's government responsibility. Government responsibility can be seen in companies how they make efficient decisions, hear out external stakeholders, and how they work and comply with the law (Henisz et al., 2019).

Gompers et al. (2003) studied how the treatment of shareholders' rights affects the success of companies. They chose 1,500 companies for their research in the 1990s. Gompers et al (2003) found that companies with stronger shareholder rights achieved higher sales, made fewer corporate acquisitions, and had lower capital expenditures. Gomper et al. (2003) also tested their theory with an investment strategy where they bought companies that had stronger shareholder rights and sold companies with weakest rights. As a result, Gompers et al. (2003) received an abnormal return of 8,5 percent per. year during the testing period.

### **3.2 Social section of ESG**

The letter S in ESG stands for the company's social responsibility. Social responsibility includes the company's relationships with its employees, customers, and various organizations. Social responsibility includes, for example; customer satisfaction, wage equality, employee engagement, and human rights (Henisz et al., 2019).

Social responsibility management is particularly important for the company's imago. Socially responsible actions can be seen internally and externally in companies' actions. A positive image of the company's responsibility attracts new potential employees and can be the main reason people buy company services and products. Taking care of social responsibility internally can be seen as increased work motivation and well-being in the organization (Henisz et al., 2019).

### **3.3 Environmental section of ESG**

The letter E in ESG stands for the environmental side. The environmental side includes all the company's activities that have an impact on the environment and the Earth. Environmental share is often associated with how much a company consumes natural resources such as energy, water, and oil (Henisz et al., 2019). Informing about environmental issues has become part of maintaining the company's image. Publicizing environmental care positively increases the company's transparency.

The environmental dimension applies especially to companies that operate in environmentally sensitive sectors. Such companies should think carefully about how they could minimize their risk in the environmental sector (Sasse et al., 2016).

Different parties: investors, suppliers, governments, and banks pay attention to the company's responsibility in the environmental sector. The interest has increased over the past 35 years, as people have become more environmentally aware and legislation has become involved in corporate responsibility activities (Jasch, 2006).

### 3.4 Importance of ESG Reporting Standards and Data Quality

Standardized ESG reporting frameworks create the basis for ESG data to be accurate, comparable and usable. In this part of the thesis, we go through how and why standardized ESG reporting is so important and highlight the most common institutions that do it, such as the GRI (Global Reporting Initiative), SASB (Sustainability Accounting Standards Board), and TCFD (Task Force on Climate-related Financial Disclosures). LSEG Workspace, (London Stock Exchange Group). At the end of the chapter, we examine possible problems and consequences related to data collection and ensuring its legitimacy

Ensuring ESG data legitimacy presents significant challenges, as companies may report selectively or inconsistently, influenced by regional regulations, internal priorities, or reputational concerns. These complexities highlight the need for standardized frameworks and reliable data sources to enhance consistency and comparability in ESG reporting (Christensen et al., 2021).

Christensen et al. (2021) conducted a study in the U.S. on “mandatory CSR and sustainability reporting”. highlighted two main regulatory approaches. The “narrow approach” that focuses on providing investors with material information relevant to their financial decision-making, showing only ESG factors that could impact the firm financially. And the “broad approach” that aims to inform all stakeholders by disclosing not only how ESG issues affect the firm but also the firm’s impact on society and the environment. This broader approach sees reporting as a tool for change, promoting transparency to encourage responsible behaviors.

As demand for sustainable investment options grows, so does the pressure on companies to integrate responsible practices into their operations. A study by Bernow et al. (2019) highlights the rising need for consistent and comparable ESG data. However, achieving compatibility remains a significant challenge. Kotsantonis & Serafeim (2019) identify four key issues affecting ESG data quality:

1. Data variety and Inconsistency
2. Benchmarking challenges
3. Data gaps and imputation methods
4. Provider disagreements with increased disclosure.

Data variety and inconsistency become apparent when there is an overwhelming range of metrics and reporting methods. Additionally, a lack of transparency among providers about how peer groups are defined and the ranges of ESG metrics used leads to inconsistencies across the market, which lowers the reliability of the data. The data gaps occur when companies use different imputation methods to fill in missing data. Finally, as the volume of publicly available information increases, disagreements among ESG data providers tend to grow, highlighting the need for a clearer approach to managing and interpreting ESG metrics.

According to Christensen et al. (2021) and Grewatsch and Kleindienst (2017), ESG reporting is increasingly becoming a mandatory component of company operations. In the United States, this shift is evident in the SEC's Investor Advisory Committee's requirement for companies seeking inclusion to disclose their ESG data. In Europe, ESG reporting has already been integrated into legislation through the Non-Financial Reporting Directive (NFRD 2014/95/EU). Since 2017, this directive has required companies with over 500 employees to disclose "non-financial and diversity information" in their reports.

But for companies, it seems to be worth paying close attention to giving enough quality information. According to Ioannou and Serafeim (2019), companies can benefit significantly by voluntarily choosing to have their disclosures assured by third parties and adopting recognized reporting guidelines. Their study, which examined mandatory ESG regulations in China, Denmark, Malaysia, and South Africa, found that companies subject to these regulations significantly increased their ESG disclosures compared to similar

firms not affected by the regulations. The study suggests that the increase in sustainability disclosures driven by regulation positively impacted firm valuations.

## 4 Cost of capital

The cost of capital chapter aims to provide the theoretical framework supporting this study. Going through the main finance theories and academic literature, this chapter can help to understand the linkage between companies' ESG performance and its cost of capital. We will examine the topic through the lens of the well-known risk-return relationship in economics, starting with first illustrating how ESG outcomes and company riskiness go hand in hand. Afterward, we will address the CAPM, Fama, and French Three Factor Model and WACC, followed by discussions on topics such as the risk-free rate and risk premium.

According to Bruner et al. (1998), the cost of capital is central to modern finance. Bruner et al. (1998) explain how the cost of finance affects the company's incentive systems, sales decisions, and investment decisions. A key insight from finance theory is that the use of capital imposes an opportunity cost on investors. With that, the aim is to direct funding to where the most return is made with the lowest opportunity cost and the lowest risk. Investors have several different investment opportunities in the financial market. The use of companies' capital can be compared to these capital market alternatives. This leads to the fact that the price of the company's capital provides a benchmark for investors. A company must be able to earn its cost of capital to generate profit for those who invest in it (Bruner et al., 1998).

According to Pratt and Grabowski (2014) "Cost of capital is the expected rate of return that the market participants require to attract funds to a particular investment "(p.3). The cost of capital represents the expected return that investors require as a motivation to allocate their funds to a company or project. Essentially, it is the necessary return that convinces investors to choose one investment over another, serving as a form of compensation for bypassing alternative investments with potentially higher yields. Therefore, if a more attractive investment opportunity exists, funds will naturally flow towards it. (Pratt & Grabowski, 2014, pp.3-4.)

According to Sharfman and Fernando (2008), there is a clear connection between a company's ESG performance and its risk management profile. This connection is based on several factors, including improved resource efficiency, decreased risk premiums through better risk perception, and enhanced organizational efficiency and transparency. (pp.571-573) Similar findings have been observed in other studies as well. For instance, Albuquerque et al. (2017) found that companies engaging in corporate social responsibility (CSR) activities reduce systematic risk and increase firm value while Oikonomou et al (2012) found that “corporate social responsibility is negatively but weakly related to systematic firm risk and corporate social irresponsibility is positively and strongly related to financial risk.” (p.1)

#### 4.1 CAPM and Fama and French Three Factor Model

Capital asset pricing model (CAPM) developed by Sharpe (1964), Lintner (1965), and Moss (1966) is one of the most known financial models describing the relationship between systematic risk and expected return for assets. The Capital Asset Pricing Model (CAPM) is an extension of the portfolio selection theory that Harry Markowitz introduced in 1959. According to Fama and French (2004), the Markowitz model expects investors to be risk averse and “they care only about the mean and variance of their one-period investment return.” (p.26) This causes investors to choose mean variance-efficient portfolios that 1) minimize the variance of portfolio return, given expected return, and 2) maximize expected return, given variance (Fama & French, 2004).

Here's a breakdown of CAPM main components and how it works:

$$E(R_i) = R_f + \beta \times (R_m - R_f)$$

$E(R_i)$  is the expected return on the investment,

$R_f$  is the risk-free rate,

$\beta$  is the beta of the investment,

$R_m$  is the expected return of the market,

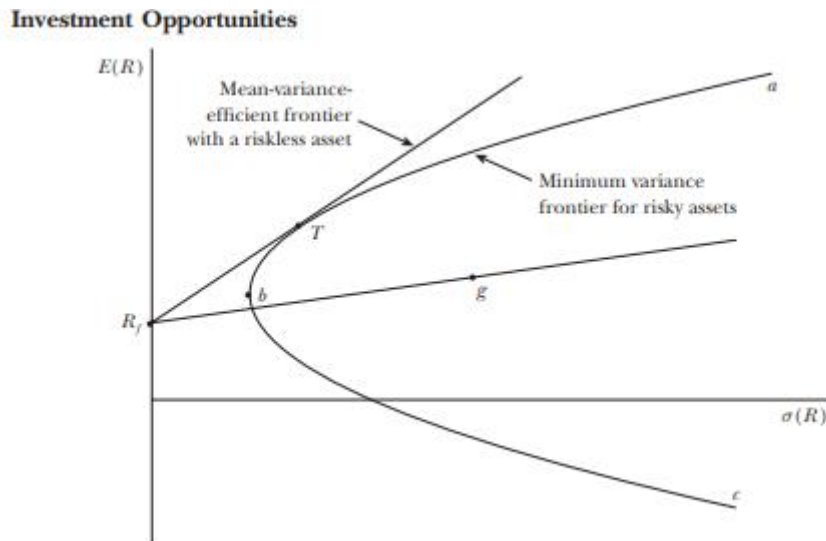
$(R_m - R_f)$  is the market risk premium, which is the additional return expected from the market above the risk-free rate.

CAPM gives investors a way to determine an appropriate expected return for an investment given its risk. It makes a theoretical argument that an investment's expected return should compensate for both the time value of money (risk-free rate) and the level of risk (risk premium based on beta) (Fama & French, 2004).

The following Figure 3 explains the CAPM portfolio opportunities. Curve (ABC) shows the lowest level of volatility (standard deviation, on the horizontal axis) that can be achieved for a given level of expected return (on the vertical axis) by optimally combining different risky assets into a portfolio. Every point on this frontier represents a portfolio of risky assets that has the smallest possible risk for its level of return. The Efficient Frontier: is the upper portion of the minimum variance frontier (above point T), where the expected return of the portfolio is maximized for a given level of risk. Portfolios on this part of the curve offer the best possible expected return for their level of risk and are therefore considered "efficient" by investors (Fama & French, 2004).

According to Fama and French (2004), CAPM is a tool for investors that allows them to determine the appropriate return for their investment in relation to the riskiness of the investment. CAPM logic is based on the general idea that the invested return should

compensate for the risk-free interest rate and the beta-based risk premium, in order to make the investment reasonable and profitable.



**Figure 4.** Investment opportunities illustrated by CAPM (Fama & French, 2004).

CAPM highlights the use of market beta to determine expected returns, but Fama and French (1992 and 1993) did not believe that beta alone sufficiently explained expected returns, so they added two additional factors (size and book-to-market equity ratio) to CAPM. (Lee & Upneja, 2008.) The size factor reflects that over long periods, small-cap stocks tend to outperform large-cap stocks, and the book-to-market factor captures the tendency of "value" stocks (those with high book-to-market ratios) to outperform "growth" stocks (those with low book-to-market ratios). This led to the creation of the model known as the Fama and French three-factor model (Eraslan, 2013).

Here is the formula of the Fama-French Three Factor Model:

$$E(R_i) = R_f + \beta(R_m - R_f)(R_m - R_f) + \beta_{SMB}(SMB) + \beta_{HML}(HML)$$

Where:

$E(R_i)$  is the expected return on the stock or portfolio,

$R_f$  is the risk-free rate,

$\beta(R_m - R_f)$  is the sensitivity of the stock returns to the market excess returns,

$\beta_{SMB}$  &  $\beta_{HML}$  are the sensitivity of the stock returns to the size and value factors, respectively,

$SMB$  is the size premium, and

$HML$  is the value premium.

## 4.2 WACC

Weighted Average Cost of Capital (WACC) has been developed to calculate capital costs. WACC is the average rate of interest that a company expects to pay to finance its assets. WACC represents a firm's average after-tax cost of capital from all sources, including common stock, preferred stock, bonds, and other forms of debt. It allows investors to determine the rate of return because the WACC formula brings out the return shareholders require to acquire capital for the company (Bruner et al., 1998).

$$WACC = \left(\frac{E}{V} \times Re\right) + \left(\frac{D}{V}\right) \times Rd \times (1 - Tc)$$

**Figure 5.** General Formula for the WACC. Source: (Farber, Gillet, & Szafarz, 2007).

WACC formula explanation:

E = Market value of the firm's equity

D = Market value of the firm's debt

V = E + D

Re = cost of equity

Rd = Cost of debt

Tc = Corporate tax rate

According to (Modigliani & Miller, 1958) WACC is particularly important for analysts, company executives, and investors. With the help of the WACC formula, those interested in the company can understand a lot about the current situation of the company. According to Koziol (2014) The WACC formula can be used for example to figure out the possibility a company of default risk or bankruptcy.

### **4.3 Risk-free rate and risk premium**

According to Pratt & Grabowski (2014, pp. 3-10.), the cost of capital is forward-looking. The cost of capital is based on the idea that investors have an expectation of their future account, when the risk-free interest rate, risk premium, and other possible risks have been considered in its calculation. Understanding the risk-free interest rate and the risk premium are especially important among the abovementioned concepts. When studying capital costs, these terms can be used to visualize the return expectation of an investment about the riskiness of the investment. Government bonds can be considered a good example of risk-free interest. The risk-free interest rate means the minimum return that an investor expects to receive from all his investments because there is no risk involved. This interest rate can be considered good basic information, as it can be used to create a basis for evaluating the return when calculating other riskier instruments. (Pratt & Grabowski, 2014, pp. 3-10.)

Risk premium refers to the additional return that the investor receives from the extra risk he takes. Bassen et al., (2006) explain the risk premium is quite simple in concept. The risk premium depends on the riskiness of the investment. The higher the risk, the higher the return should also be to get investors interested in the product.

According to Sharfman and Fernando (2008), investing in (ESG) environmental risk management improves the market's perception of risk associated with the company. Investors and analysts consider improvements in environmental risk management when making investment decisions and recommendations. This enhanced perception can lead to financial markets being willing to accept lower risk premiums on ownership or allowing

the company to achieve higher levels of leverage, which can, in turn, reduce the company's overall cost of capital. (pp.571-572)

Damodaran (2007) presents facts that explain why risk premiums are important in finance. With the help of risk premiums, it is possible to determine what kind of amounts should be determined for the operations of industries with high volatility. Such industries often have uncertain cash flows and are linked to higher risks. They act as a foundation for investors and enable informed risk-taking and it is essentially related to the second point (Pratt & Grabowski, 2014, pp.89-97) points out. They explain that risk premiums are particularly important to company executives and investors because the premiums help us understand investment decision-making and strategy planning.

## 5 How ESG affects companies' access to finance

The purpose of this section is to examine how ESG performance affects companies' access to finance. Specifically, this section will explore the connection between high ESG scores and financing costs, analyzing whether companies with strong ESG performance can achieve lower costs of capital. By reviewing existing research, we aim to understand the mechanisms that link ESG performance to financial outcomes, such as improved credit ratings, reduced risk perception, and increased investor interest.

This section also discusses contrasting views, including studies that have found high ESG scores to be associated with both lower and higher financing costs, depending on factors such as region, industry, and investor perception. For instance, Dahiya and Singh (2021) observed that in the Indian market, investors may not view CSR as a value-enhancing factor, leading to higher financing costs for socially responsible firms. This highlights the importance of understanding regional and cultural differences when assessing the impact of ESG on financing.

Finally, this section introduces the concept of "sin stocks" companies operating in sectors such as tobacco, nuclear power, and gambling which tend to have low ESG scores but may still achieve strong financial performance. We will explore why these companies face higher capital costs due to low ESG ratings yet continue to generate substantial returns, often due to factors like inelastic demand, regulatory barriers to entry, and potential undervaluation. This analysis provides a nuanced perspective on the impact of ESG scores on financing, suggesting that while high ESG ratings generally reduce financing costs, there are notable exceptions in certain industries and markets.

Companies believe that by including more ESG and CSR in their operations, they can create value for the company and improve their financial performance. One of the benefits linked to high-profile ESG companies is the reduced cost of capital. A lot of empirical studies have been done on this connection and there are many studies for and against it

(Magnanelli & Izzo, 2017). Theoretically thinking high responsibility should lower the cost of capital and the factors behind it are for example:

1. Transparent non-financial reporting
2. Fewer agency frictions
3. Reduced information asymmetry
4. Better reputation of the company
5. A clear understanding of the company's business and how its risks are distributed

(Magnanelli & Izzo, 2017). One connecting factor between a high ESG profile and lower borrowing costs can be seen as the reduction of information asymmetry, agency costs, and bankruptcy risk (Erragragui, 2018).

Dhaliwal et al (2011) studied in five different continents how high corporate social responsibility correspondent with changes to raising public debt cheaper. During their research, they found that high responsibility is associated with lower yield spread. Dhaliwal et al. (2011) also found that the majority of North American and European firms can remarkably reduce the costs of equity capital by handling environmental factors. In Western countries, the most effective ways are to focus on financial performance and environmental protection. They also found that most of the Asian countries' firms failed to reduce the cost of capital even with high CSR performance. Continent and culture also have a lot of influence on how ESG numbers affect business. For example, in the Nordic countries which act as pioneers of responsible action, responsibility is valued in a different way than it is in developing countries.

Banks and investors want interest in their loans. The interest rate is determined by the risk associated with the borrower (Duffie & Singleton, 2012). Christensen et al (2021) explain how ESG rating agencies have increased their importance recently as different institutions demand more and more information regarding responsibility from companies. The ESG chapter has become one of the benchmarks when different parties make

their investment decisions. According to Dhaliwal et al. (2011) companies with high ESG performance receive more attention and analyses which increase investor interest. Dhaliwal et al. (2011) also find that after the ESG publications companies with a high ESG profile receive a larger amount of equity capital than companies with a weak ESG profile.

Lins et al (2017) found that companies with high corporate social responsibility had 4-7% higher stock returns during the 2008-2009 financial crisis. Going through 1,673 non-financial firms, authors found that companies with high (CSR) also managed to experience more sales per employee, better profitability, and more raised debt compared to companies with low (CSR) during crisis time. This study highlights the importance of trust between investors and management during crisis periods.

Hauptmann (2017) highlights three different relationships explaining the lower cost of capital between a high ESG company and a bank: improved credit risk, increased trust due to the similarity between banks and borrowers, and reputational risk. Also according to the study, the above-mentioned things will only happen if the lending bank also shows strong sustainable development. Giese et al (2019) studied that ESG affects companies' valuation and performance in two ways. First, through systematic risk profile which means lower costs of capital and higher valuations. Secondly, through their idiosyncratic risk profile which means higher profitability and lower exposure to tail risk.

Eccles et al (2011) stated that the acquisition of funding can also take place through other channels. Various stakeholders, such as large investment institutions, individual investors, and various financial companies are interested in the responsibility and ESG figures of their potential customers. Hamilton et al. (1993) explain that investment funds favor companies that have good pollution control, good employee relations, and focus on alternative energy sources. The world is moving in a direction where financing requires companies to act responsibly.

Supporting our hypothesis “High ESG scores are correlated with lower cost of financing.”, Chen et al. (2022) found that companies with high ESG performance can significantly reduce their cost of equity capital. Examining data from Chinese A-share companies over the period 2010 to 2020, they show that firms with strong ESG practices benefit not only directly, through a reduced cost of equity but also indirectly, by lowering their market risk and broadening their shareholder base. The study proposes that high ESG scores reduce perceived firm risk, leading to lower expected returns from investors. Additionally, their study found that companies with strong ESG profiles tend to attract a more diverse pool of investors, which enhances liquidity and further decreases the cost of equity.

El Ghoul et al (2011) have similar findings in their study, showing that companies with stronger CSR rankings benefit from cheaper equity financing. Using a large sample of 12,915 US firm-year observations from 1992 to 2007, El Ghoul et al. (2011) found that CSR investments in responsible environmental policies and product strategies significantly reduce the cost of equity. They further observed that efforts aimed at improving employee relations, environmental sustainability, and product responsibility also substantially lower equity financing costs.

A similar study of Asian markets written by Ok and Kim (2019) found that certain CSR dimensions, such as socially responsible management and corporate governance, significantly lowered the cost of equity in the Korean market. Their data was collected from 2011-2015 and it included companies listed on the Korean stock exchange the authors used ESG grades provided by the Korea Corporate Governance Service (KCGS) as a measure of CSR performance. Their findings suggest that investor priorities may differ by region, with social and governance factors potentially holding greater weight in equity pricing in some markets than environmental practices.

Another study of S&P 500 firms written by Sharfman and Fernando (2008) conducted a study on 267 U.S. firms, finding that improved environmental risk management is

associated with a lower cost of capital. According to their findings, firms benefit from enhanced environmental risk management not only through a reduction in their cost of equity but also by achieving a more favorable financing mix, shifting from equity to debt. Additionally, they highlight that firms with strong environmental management practices can leverage higher tax benefits due to their ability to add debt.

Some studies found a link between high ESG scores and higher financing costs. For example, a study by Dahiya and Singh (2021) examined 68 Indian manufacturing firms listed on the National Stock Exchange of India Limited (NSE) 200. Their data was collected from the years 2013-2018, and in their study, they used the CAPM approach, which we also utilize in our research. Based on the results, they found a connection between high ESG scores and the cost of financing the reason behind the higher financing cost for firms with high ESG scores, is that investors in India do not view CSR as a value-enhancing factor. This suggests that socially responsible firms may be perceived as carrying additional costs or constraints that do not directly contribute to profit maximization.

## **5.1 Sin Stocks**

Also, the industry in which the company operates affects how cheaply the company gets financing. According to El Ghouli et al. (2011), companies that operate in industries involving nuclear power, gambling, tobacco products, or weapons suffer from higher capital costs. One reason behind the higher cost of capital is that the responsibility figures of the industries are low. People and financial institutions do not want to support irresponsible companies. These industries also have in common the fact that they suffer from low ESG figures. This supports the general claim that companies that hold strong ESG positions achieve higher valuation and lower risk (El Ghouli et al., 2011).

The industries operating in the above-mentioned sectors are also called sin stocks. Sin stocks have raised lots of interest because these companies often get poor ESG results, but still somehow achieve good results (Paradis & Schiehl, 2021). Therefore, I want to

point out some reasons why some companies with low ESG still have good results and bring a slightly different perspective on ESG numbers.

One reason why sin stocks are successful is because their demand is moderately inelastic, and their business can withstand various types of recessions (Richey, 2020). Secondly, it is difficult to enter the industries where sin stock companies operate because they are strictly regulated by law. This makes it difficult for new competitors to enter the market. The third reason why investors can achieve better returns by investing in sin stocks is that sin stocks may be undervalued by various institutions (Richey, 2020). Fabozzi & et al (2008) created a sin stock portfolio that produced an annual return of 19%. According to them the reason for this return was indeed the undervaluation of their shares and a monopoly position on the market (Fabozzi & et al., 2008).

Although sin stocks make great profits, they still suffer from their low ESG figures. Sin stocks suffer from various political risks. Sin stock industries are tried to be punished with many different political agreements because their business is according to the general view, unethical. One great example is sin taxes that affect companies' profits significantly (Paradis & Schiehl, 2021).

El Ghouli et al (2011) found that firms in certain "sin" sectors—specifically tobacco and nuclear power—tend to face higher equity financing costs. These findings suggest that negative perceptions associated with these industries may increase their capital costs, contrasting the positive impacts observed for high CSR or ESG performers.

## **5.2 Green bonds**

ESG is closely connected to green bonds. Green bonds are debt instruments or loans designed to finance environmentally friendly projects. Green bonds can be thought of as a direct ESG action, as their issuance is a sign of a company's commitment to responsible investments and its efforts to reduce its environmental impact Flammer (2021).

According to Tang and Zhang (2020), the green bond market has grown rapidly since 2007. Tang and Zhang (2020) studied the announcement returns and real effects of green bond issuance. Their study included firms from 28 countries and covered the period 2007-2017. In their study, they found no evidence that green bonds would be cheaper or that they would have a significant positive impact on the company's share price performance.

Larcker and Watts (2020) investigate whether green loans can achieve additional benefits and whether investors are willing to pay extra to do good for the environment. Larcker and Watts show that, by default, green loans are slightly more expensive than normal loans: borrowing costs are on average approximately 10% higher for green securities than almost identical non-green securities" (p,2.) This green bond price is called "greenium". In their study, they focus on United States municipal issuers because they are one of the biggest issuers of green bonds. They conclude that investors are not yet willing to sacrifice their returns for the sake of "greenium They conclude that investors are not yet ready to give up returns for the sake of "greenium."

This study confirms the research presented by Sauer (1997) at the turn of the century, which I discussed earlier in Chapter "2.3 ESG and CSR Impact on Company's Reputation and Operations." Sauer (1997) highlighted that even at that time, people were not willing to sacrifice returns in the name of responsibility.

Flammer's (2021) research takes a similar approach to that taken by Sauer (1997) a couple of decades ago, examining other potential, less direct benefits that companies can gain by investing in environmentally friendly green bonds. Flammer (2021) approaches the topic from a slightly different perspective and highlights the benefits of green bond issuance in his research. He emphasizes how investors react positively to the issuance of green bonds. He emphasizes that the positive effect is greater if the bonds are certified by third parties. He also emphasizes the multiplier effects of issuing bonds: higher

environmental ratings, increase in investor base, positive media attention, more green investors, and credible signals of commitment towards environmental issues.

It must be noted, however, that the total volume of green bonds in the market is still relatively small. Nevertheless, they may evolve significantly in the future, as demand appears to be increasing, according to the following studies and authors.

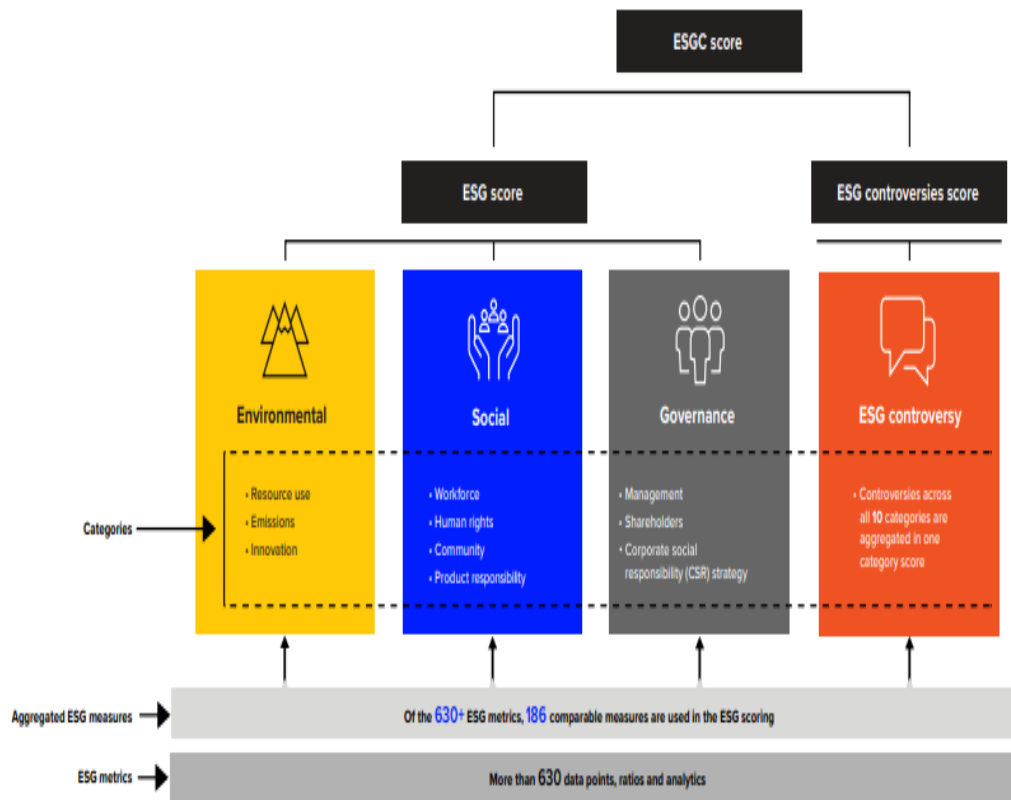
## **6 Research design**

The purpose of this section is to present the data and methods used in the research. Our research uses data on S&P 500 companies from 2017–2023. The necessary information has been collected from the LSEG Workspace, which contains Refinitiv's ESG scores. These scores are based on more than 630 metrics covering environmental, social, and governance factors. In addition, we discuss the main dependent and independent variables of the study and briefly explain the reasons for their selection.

### **6.1 Data introduction**

The main goal of this thesis is to get answers to how success in the environmental, social, and governance sectors affects the overall success of a company, especially from the perspective of potentially cheaper financing. The work uses as a primary data source the LSEG Workspace, which provides comprehensive financial and ESG data on both public and private companies worldwide, covering more than 85% of the global market capitalization. Refinitiv's ESG scoring system, integrated within LSEG Workspace, leverages over 630 metrics to assess companies' environmental, social, and governance practices. Refinitiv (2022).

According to Refinitiv (2022), the ESG score is calculated based on over 630 individual metrics, of which a subset of 186 material and comparable metrics per industry is used to assess a company's performance across three pillars: environmental, social, and governance. These metrics are grouped into 10 categories, which then contribute to the three pillar scores. The environmental and social category weights are industry-specific, whereas governance weights remain consistent across all industries. Each category score is combined into a total ESG score, reflecting the company's performance based on publicly reported data.



**Figure 6.** Refinitiv ESG and ESGC Score Formation (Refinitiv, 2022)

Additionally, Refinitiv introduces an ESGC score that incorporates an overlay of controversies. When a company is involved in significant controversies, a separate score (ESG controversies score) is calculated based on media reports on topics such as governance failures or environmental damage. This ESGC score adjusts the ESG score by discounting these controversies, providing a more comprehensive view of a company's sustainability impact. This means that companies without any controversies have the same ESGC and ESG scores (Refinitiv, 2022).

In this study, I use both the ESG score and the ESGC score to analyze the impact of a company's environmental, social, and governance performance on its cost of equity. The ESG score provides an assessment of the company's commitment and effectiveness in these areas, while the ESGC score incorporates an additional layer by adjusting for any significant controversies reported in the media. By examining both scores, we aim to

capture a comprehensive view of each company's ESG performance, accounting for both proactive sustainability efforts and potential risks associated with ESG controversies.

However, ESG data methodologies are not without limitations. As noted by Berg et al. (2021), ESG scores from providers like Refinitiv can undergo backdated adjustments that may affect how companies are classified in terms of ESG performance over time. These changes, which are often unreported, can alter the relationship between ESG ratings and financial returns. This in turn distorts the results, which is why it is so important to understand how data providers construct and manipulate ESG scores when using them for performance analysis.

## 6.2 Variables

### 6.2.1 Dependent variable

The dependent variable of the study is the cost of equity capital. It describes the return requirement that a company must provide to investors in return for their invested capital. It can also be viewed as the expected rate of return that investors require, which may vary based on the perceived risk associated with the company's stock. Attig et al., (2013).

The dependent variable of the study is the Cost of Equity (COE). COE is calculated by using the capital asset pricing model (CAPM). Because the study is on USA-based firms the study utilizes the risk-free rate for the 12-month U.S. Treasury bills. The S&P 500 index is used as the market return, which also serves as a reference point for expectations. The beta values of the study are used to obtain company-specific risk for each company in the study and are calculated annually for each S&P 500 company.

$$COE = Risk - free rate + \beta x (Market return - Risk - free rate)$$

**Figure 7.** General Formula for the Cost of Equity (Pfister et al., 2019).

In our study, the risk-free rate represents an investment with no risk, specifically the yield on 12-month U.S. Treasury bills. Beta represents the sensitivity of corporate returns (S&P 500 companies) to the overall market returns. Market return represents the expected return, which in our research is the S&P 500 index. Lastly, the market risk premium is the additional return that results when the risk-free rate is removed from the return.

### **6.2.2 Control variable**

This study builds on the methodologies of Attig et al. (2013) and El Ghouli et al. (2011), incorporating established control variables, including size (SIZE), beta (BETA), book-to-market ratio (BTM), and leverage (LEV), to ensure robust analysis of financing costs. In addition to these standard financial variables, this research uniquely includes ESG Score and ESG Combined Score as independent variables, allowing a closer examination of how ESG factors impact the cost of equity.

In the study (SIZE) is calculated using the natural logarithm from the company's total assets. This enables standardization between companies of different sizes. According to Bowen et al. (2008), the relationship between firm size and the cost of equity (CoE) is always negative. This is due to the greater attention received by large companies. In larger companies, more analysis-based reporting is performed, which increases risk detection and response.

According to Dahiya and Singh (2020) (BETA) captures the systematic risk and measures security sensitivity to overall market movements. Higher beta values imply a greater level of risk, as investors expect a higher rate of return to compensate for the added uncertainty in stock returns. In our study, a positive relationship is expected between beta and the cost of equity.

In research, The Book-to-Market Ratio (BTM) represents the book value of equity relative to the market value of equity. It is also important that the comparison is always made at the beginning of the year. According to Dahiya and Singh (2020), the Book-to-Market

(BTM) ratio allows companies to calculate the market value of the company in relation to the book value. They explain that "a higher ratio implies a higher perceived risk. Because it has a positive relationship with the CoE" (p.9).

According to Dahiya and Singh (2020) leverage (LEV). is defined as the ratio of total debt to total assets. This measure reflects a company's solvency; a higher leverage ratio suggests increased risk due to reduced long-term solvency. This indicates a positive association between leverage and the cost of equity.

The additions of ESG Score and ESGC Score are key components of this study. According to Refinitiv (2022), a higher ESG Score generally reflects stronger performance in managing sustainability-related risks and opportunities, which can positively shape investor perceptions of the company. The ESGC Score builds upon the ESG Score by incorporating any significant, material controversies that might impact on the company's reputation and risk profile. If a company is involved in ESG-related controversies, the ESGC score lowers the ESG score accordingly, capturing the potential impact of these issues on investor confidence.

## 7 Empirical analysis and results

### 7.1 Descriptive statistics

Statistic	COST_OF	BETA	SIZE	BOOK_TO	LEVERAGE	ESG_SCORE	ESG_COMBINED
Mean	0.08	1.06	16.93	0.00000244	0.31	62.36	57.24
Median	0.20	1.04	16.83	0.000001	0.29	65.06	58.37
Maximum	3.25	5.02	22.04	0.000534	3.92	93.34	92.52
Minimum	-8.00	0.01	12.04	-0.000008	0.00	0.00	9.10
Std. Dev.	0.80	0.51	1.41	0.000021	0.24	16.09	15.92
Skewness	-1.70	1.15	0.37	21.58	4.58	-0.61	-0.27
Kurtosis	13.35	8.38	3.53	52.24	22.36	2.86	2.45
Jarque-Bera	17027.68	4900.03	119.04	32989301.00	359963.70	218.47	84.88
Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sum	262.09	3643.32	58291.81	0.01	1076.13	214767.40	197124.70
Sum Sq. Dev.	2225.23	879.43	6860.51	0.000002	202.02	891349.50	872899.90
Observations	3444.00	3444.00	3444.00	3444.00	3444.00	3444.00	3444.00

**Figure 8.** Descriptive statistics.

At the beginning, I conducted the descriptive statistics on S&P 500 firms for the selected variables, including Cost of Equity (CoE), Beta, Size, Book-to-Market Ratio (BTM), Leverage, ESG Score, and ESG Combined Score. The mean Cost of Equity (CoE) across the sample was 0.076, with a median value of 0.196, indicating a generally low average cost of equity among S&P 500 companies.

Beta had a mean of 1.058, suggesting that, on average, these companies have similar volatility to the overall market. The Size variable, represented as the natural logarithm of total assets, had a mean of 16.93, reflecting the substantial scale of firms in this index. The Book-to-Market Ratio (BTM) and Leverage also show meaningful variation, with the BTM mean close to zero, highlighting a typical market valuation relative to book value for these firms. Leverage had an average of 0.31, indicating moderate debt levels relative to assets.

For the ESG measures, the ESG Score had a mean of 62.36, while the ESG Combined Score averaged 57.24. This suggests that most S&P 500 firms demonstrated strong

performance in sustainability metrics, though scores can vary significantly, as seen by the range between minimum and maximum values.

The descriptive statistics highlighted that S&P 500 firms generally maintain low debt levels and reasonable market valuation relative to book value. This baseline suggests that firms with higher ESG scores might benefit indirectly from these financial fundamentals, particularly given the positive association between firm size and ESG scores.

The weak correlations between ESG scores and Cost of Equity (CoE) suggest that while ESG factors may contribute to reputation and transparency, they are not the primary determinants of financing costs within this sample. These descriptive statistics provide an overview of the central tendencies for each variable, laying the groundwork for further correlation and regression analyses in this study.

## 7.2 Correlation analysis

	BETA	COST_OF	ESG_COMBINED	ESG_SCORE	LEVERAGE	BOOK_TO	SIZE
BETA	1,00	-0,71	0,00	0,01	-0,06	-0,02	0,02
COST_OF	-0,71	1,00	0,03	0,00	0,05	0,01	0,00
ESG_COMBINED	0,00	0,03	1,00	0,77	0,03	-0,11	0,10
ESG_SCORE	0,01	0,00	0,77	1,00	0,04	-0,13	0,40
LEVERAGE	-0,06	0,05	0,03	0,04	1,00	-0,06	-0,13
BOOK_TO	-0,02	0,01	-0,11	-0,13	-0,06	1,00	0,09
SIZE	0,02	0,00	0,10	0,40	-0,13	0,09	1,00

**Figure 9.** Correlation statistics.

Next, I conducted a correlation analysis to examine the relationships between the key variables in this study. The correlation matrix shows the pairwise correlations among Beta, Cost of Equity (CoE), ESG Combined Score, ESG Score, Leverage, Book-to-Market Ratio (BTM), and Size. The ESG Combined Score and ESG Score are highly correlated (0.774), indicating a strong relationship between a company's general ESG performance and the adjusted ESG score that accounts for incidents. Size is positively correlated with ESG Score (0.402), suggesting that larger firms tend to have higher ESG scores, possibly because they have more resources to dedicate to sustainable practices and are subject

to greater public oversight. The ESG Combined Score has a weak positive correlation with the Cost of Equity (0.031), suggesting a slight, almost negligible relationship between the combined ESG score (which accounts for incidents) and the cost of equity.

### 7.3 Regression analysis

Variable/Statistic	Coefficient/Value	Std. Error	t-Statistic	Prob.
C	0,83	0,13	6,17	0
ESG_SCORE	0	0	-3,6	0
ESG_COMBINED_SCORE	0	0	4,32	0
BETA	-1,13	0,02	-58,8	0
SIZE	0,02	0,01	3,01	0
BOOK_TO_MARKET_RATIO_BTM__	-183,73	461,81	-0,4	0,69
LEVERAGE_LEV__	0,06	0,04	1,57	0,12
R-squared	0,5	Mean dependent var		0,08
Adjusted R-squared	0,5	S.D. dependent var		0,8
S.E. of regression	0,57	Akaike info criterion		1,7
Sum squared resid	1102,17	Schwarz criterion		1,72
Log likelihood	-2924,86	Hannan-Quinn criter.		1,71
F-statistic	583,69	Durbin-Watson stat		1,97

**Figure 10.** Regression statistics.

Next, I conducted a regression analysis to evaluate the impact of the independent variables on the Cost of Equity (CoE). The regression included Beta, Size, Book-to-Market Ratio (BTM), Leverage, ESG Score, and ESG Combined Score as explanatory variables to examine how these factors influence a firm's cost of equity.

Beta showed a significant negative relationship with CoE, which is opposite to the traditional expectation that higher market risk (Beta) would lead to a higher CoE. This unexpected finding may be specific to this dataset or sample period, and further analysis could help clarify the underlying causes. Size had a significant negative association with CoE, supporting the idea that larger firms, generally more transparent and stable, tend to face lower equity costs due to reduced perceived risk. The Book-to-Market Ratio (BTM) and Leverage showed weak positive relationships with CoE, but neither was statistically significant, indicating limited influence on CoE within this model.

The ESG Score and ESG Combined Score had statistically significant, though small, effects on CoE. ESG Score showed a slight negative correlation with CoE, suggesting that higher ESG performance could marginally reduce financing costs. In contrast, the ESG Combined Score, which incorporates controversies, showed a weak positive correlation, implying that firms with ESG controversies might experience slightly higher CoE. These results indicate that while ESG performance may contribute to reputation and sustainability, its direct impact on the cost of equity remains limited but statistically notable in this analysis.

These results align with studies like Henisz et al. (2019), which indicate that while ESG performance improves stakeholder relations, its effect on financing costs may be indirect and context dependent. Hauptmann (2017) found that companies with higher ESG scores have slightly reduced financing costs, but this effect was more pronounced in regions where ESG criteria hold higher importance. For a broader perspective, the study by El Ghouli et al. (2011) supports the premise that firms with strong corporate social responsibility (CSR) profiles often benefit from lower equity financing costs. El Ghouli and colleagues found that companies investing in environmental and social policies can significantly reduce their cost of equity, largely due to enhanced investor confidence and improved creditworthiness.

To improve the quality of my analysis, I ran two more regressions: a main test with ESG and a robustness test with ESG Combined Score. This was necessary because ESG and ESG Combined Score have a high correlation (0.77), which can lead to multicollinearity. This multicollinearity can cause my t-stats to be artificially inflated, and some results might be biased.

Variable/Statistic	Coefficient/Value	Std. Error	t-Statistic	Prob.
C	1,06	0,12	8,74	0
BETA	-1,12	0,02	-58,65	0
SIZE	0,01	0,01	1,5	0,13
MRKT_VALUE_TO_BOOK	0	0	-1,15	0,25
LEVERAGE_LEV__	0,05	0,04	1,3	0,19
ESG_SCORE	0	0	-0,17	0,86
R-squared	0,5	Mean dependent var		0,08
Adjusted R-squared	0,5	S.D. dependent var		0,8
S.E. of regression	0,57	Akaike info criterion		1,71
Sum squared resid	1107,76	Schwarz criterion		1,72
Log likelihood	-2933,53	Hannan-Quinn criter.		1,71
F-statistic	693,65	Durbin-Watson stat		1,98

**Figure 11.** Regression statistics (ESG\_SCORE).

Variable/Statistic	Coefficient/Value	Std. Error	t-Statistic	Prob.
C	1,01	0,12	8,24	0
BETA	-1,12	0,02	-58,7	0
SIZE	0,01	0,01	1,31	0,19
MRKT_VALUE_TO_BOOK	0	0	-1,18	0,24
LEVERAGE_LEV__	0,05	0,04	1,18	0,24
ESG_COMBINED_SCORE	0	0,01	2,41	0,02
R-squared	0,5	Mean dependent var		0,08
Adjusted R-squared	0,5	S.D. dependent var		0,8
S.E. of regression	0,57	Akaike info criterion		1,71
Sum squared resid	1105,89	Schwarz criterion		1,72
Log likelihood	-2930,64	Hannan-Quinn criter.		1,71
F-statistic	695,98	Durbin-Watson stat		1,98

**Figure 12.** Regression statistics (ESG\_COMBINED\_SCORE).

The key difference that this regression shows is that in the first regression, ESG\_SCORE is negative but statistically insignificant ( $P = 0.8661$ ), suggesting it does not explain the Cost of Equity effectively. However, in the second regression, ESG\_COMBINED\_SCORE is positive and significant ( $P = 0.0161$ ), indicating that firms with higher ESG combined scores are associated with lower perceived risk and lower cost of equity. This difference can be explained by the fact that the ESG combined score accounts for controversies. The ESGC score provides a better and broader picture of a company's overall ESG performance and its ability to manage risks effectively. Companies with higher ESG scores are

perceived as more stable and trustworthy, which can lower their perceived risk and financing costs.

While this study provides valuable insights, it is limited by the scope of the S&P 500 firms. Further research might consider expanding the dataset to include smaller firms or companies from regions with significantly different ESG reporting standards. For example, the Nordic countries would be an interesting focus group, as ESG concepts and legislation there are particularly well-developed and advanced. After examining the Nordics, the research could naturally extend to a broader European context. Another approach would be to focus on specific industries, as examining different sectors could reveal intriguing variations in ESG impacts.

## 8 Conclusion

This thesis examines how a high ESG profile can benefit a company's business and help it secure more affordable financing. The focus is on how ESG impacts various aspects of a company's operations, both internally and externally, including investor interest, financing costs, employee well-being, corporate image, and overall profitability. Additionally, the thesis explores the history of ESG, showing how agreements, events, and legislation have shaped its development.

Research indicates that investors are increasingly interested in companies with strong ESG profiles, although there is debate on whether this guarantees better returns. Nevertheless, there is a growing consensus that a high ESG profile is generally advantageous for companies (Henisz et al., 2019). Specifically, companies with strong ESG ratings may benefit from cheaper financing, as their responsible practices reduce perceived risk for lenders and investors (Hauptmann, 2017).

Responsibility is becoming a defining factor in modern consumption patterns and a key competitive advantage. It's no longer merely about complying with regulations; responsible practices can attract consumers and create significant business value. As companies integrate responsible actions into their core operations, they cultivate a culture of responsibility, which not only supports long-term sustainability but also strengthens brand loyalty.

While the evidence supports a generally positive correlation between ESG performance and financial benefits, the relationship is complex and varies across industries and geographic regions. This thesis recognizes that more research is needed to explore these nuances and understand why certain sectors may not experience the same level of benefit. For management, the findings suggest a compelling case for investing in ESG, not only to appeal to stakeholders but also to manage risk and enhance operational efficiency.

For investors, ESG serves as a measure of responsibility, and in addition to just responsibility, it now also offers interesting opportunities considering numbers and sustainability.

ESG is a trend, and its demand is growing at an ever-increasing rate. Investors, government agencies, and organizations are demanding ESG readings and ESG is rapidly becoming a part of companies' strategic operations. It can be seen to shape the operations of companies and companies that are on the crest of the trend can perhaps achieve better results with it. However, responsibility also brings new challenges for management, raising important questions: Can investing in ESG improve profitability? To what extent should resources like time and money be allocated to ESG initiatives? And is prioritizing responsibility compatible with profit maximization?

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