



Ca' Foscari
University
of Venice

Master's Degree
in Global Accounting
and Finance

Double Degree Programme in
Corporate Financial Management
in cooperation with SKEMA
Business School

Final Thesis

**Does ESG performance affect
financial performance?
Evidence from Japan**

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Academic Year
2024 / 2025

「友達のおかげで立ってるんだ

家族のおかげで歩けるんだ

あなたのおかげで生きてるんだ」

(秋田ひろむ, 終わりで始まり, 2013)

“Thanks to my friends, I’m still standing.

Thanks to my family, I can walk.

Thanks to you, I’m alive”

(Hiromu Akita, A beginning at the end, 2013)

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INTRODUCTION

In the last decades, businesses are more frequently required to show their commitment to sustainable development and actively engage not only with their shareholders, but also with all the stakeholders. Among other terms, one that emerged recently is “ESG”, addressing more specifically issue regarding environmental, social and governance issues. However, in Japan this term is still not used yet and most of the companies refer still to corporate social responsibility when they address sustainability issues. This reflects an old-fashioned view of sustainability, which conceives it as a charitable response to the negative externalities generated by a firm’s operations. Such an interpretation might reduce sustainability to a philanthropic exercise rather than a proactive strategy for long-term value creation. This can somehow appear contradictory, as Japan is considered to have a rich history of community-oriented practices. As it was mentioned by Cremers et al. (2021), four hundred years before the coining of ESG, the Japanese government was encouraging firms to pursue the benefit of society beyond their own profits. Many of those companies lasted until today, conveying the importance of permanent employment, environmentally awareness and product safety. If Japan has had such a strong purpose-driven past, then it should be easy for these firms to integrate ESG pillars in the strategic and operational decision-making process. Yet there is a significant gap in the research about the relationship between ESG performance and financial outcomes. Although some studies investigated specifically environmental issues (Iwata & Okada, 2011), ESG is quite unexplored in Japan. Thus, this study focuses on Japan for three main reasons: its distinctive business and regulatory environment, paradoxical slow adoption of ESG and relative underrepresentation of Japan in recent ESG literature.

To address this gap, the present study examines whether the ESG performance has a positive impact on profitability and market value. The hypotheses are explicated in chapter one, that includes also the literature review about worldwide association between ESG and financial performance and the situation in Japan. The second chapter focuses on the description of the methodology and sample used in this study. The main model applies an Ordinary Least Squares (OLS) estimation regression, analysing the effects of overall ESG performance and individual pillars on some financial performance indicators, while controlling for some factors like size or

leverage. As for the dataset, it considers the whole Nikkei 225, but to further analyse this association, additional checks are run with two subsamples according to the level of their environmental impact. Then, the third chapter discusses the results of the model, while chapter four provides some suggestions and implications. Since the results are contradictory, this study investigates some of the possible reasons that led to these findings, by linking it to the regulatory and corporate behaviours. In particular, it argues that current regulatory frameworks are imposing a significant compliance burden on profitability, while the stock market is unable to recognise whether and when ESG activities are creating value. However, it is important to consider that this study has several limitations due to its methodological constraints.

Regardless of its limits, the study is relevant for the literature about ESG performance. In the first place, it provides some insights about country-specific reactions to ESG, enhancing the understanding of how it is perceived in the Eastern-Asian countries, which are highly underestimated in this field. Among these countries, Japan is particularly interesting, as it provides an example where both shareholder and stakeholder-oriented views are coexisting. In the second place, it suggests what governments and firms can do to surpass the idea that ESG performance increases at the expense of profitability and market value. By promoting a comprehensive set of laws and encouraging companies to integrate non-financial performance in their share prices, Japan can achieve not only a more sustainable development but also increase its economic output. Considering that every country perceives and integrates sustainability differently, analysing and finding the right approach to ESG is essential to ensure its implementation and improvement.

CHAPTER 1

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Although many companies recognise the relevance of sustainability, its relationship with financial performance is still unclear. According to a survey of McKinsey that included more than 1100 respondents in 90 countries, 93% of the respondents said that they consider at least one of the ESG dimensions in their agenda (Korkmaz et al., 2023). Another survey of EY addressed the concerns of global CEOs and showed that 54% give sustainability higher priority compared to 12 months ago (Guerzoni et al., 2024). However, it is still debatable whether companies with higher awareness of sustainability are also more profitable and have better stock prices. This confusion is created in the first place because of the difficulty in defining sustainability and ESG, which formally still doesn't have an official definition.

1.1. The emergence of ESG

ESG is an acronym that stands for “Environmental, Social and Governance” and it has been coined in the early 2000s, particularly after the creation of the “Global Compact” by the UN (Pollman, 2024). This initiative is aimed at strengthening CEO commitment to ten universal sustainability principles and to achieve truly sustainable development. On this occasion, Kofi Annan introduced the term ESG in his letter “Who cares wins” to explain how environmental, social and governance issues can be integrated in asset management and brokerage. The adoption of the ESG acronym, rather than broader notions such as sustainability or corporate citizenship, was intended to reduce interpretative ambiguity and to address directly these topics. Interestingly, governance was included because it was regarded as an essential prerequisite for effectively implementing social and environmental policies.

Contrary to Corporate Social Responsibility (CSR), ESG introduced some clear measures to assess the impact of the company on stakeholders different from shareholders (Passas, 2024). Some companies, like Shell and BP started to adopt ESG to demonstrate their commitment to sustainability by integrating it in their structures, process and risk management (Perceval, 2003). With the introduction of the United Nation Sustainable Development Goals (SDGs) in 2015, the importance of ESG kept increasing exponentially,

reaching its peak in 2020: the pandemics further highlighted the need for sustainable business practices (Bae et al., 2021). This is what Passas (2024) defined as the ESG 2.0 phase, where companies integrate sustainability in their strategy, instead of simply adding non-financial information in their report just to satisfy regulatory requirements. Here lies the diversity of ESG: companies are required to internalize sustainability into their strategy, moving from isolated campaigns to a comprehensive framework that provides clear linkages between their financial and non-financial performance (Friede et al., 2015). This would demonstrate that sustainability is not merely a cost, but an opportunity to generate corporate value and drive innovation.

However, this transition presents several challenges, such as the absence of definitive guidelines, lack of transparency and organizational failures (Ab Aziz & Alshdaifat, 2024). In particular, the constantly evolving regulatory landscape around sustainability poses a significant challenge. Over the past decade, Europe alone has introduced three major frameworks: starting with the Non-Financial Reporting Directive (NFRD) in 2014, followed by the EU Taxonomy in 2021, and most recently the Corporate Sustainability Reporting Directive (CSRD) in 2022. As noted by Ge and Zhang (2025), high levels of climate policy uncertainty can substantially undermine ESG performance, as they increase operational risks and complicate resource allocation (Hummel & Jobst, 2022). Due to this double nature, it is hard to understand if ESG has a positive or negative effect on financial performance.

1.2. ESG and financial performance

The relationship between ESG and financial performance is grounded in two clashing theoretical perspectives: shareholder theory and stakeholder theory. According to the shareholder theory, firms should focus primarily on profit maximization, as this is considered the only way of generating real value. The most prominent advocate of this view is Milton Friedman, who famously asserted that “the business of business is business” (Friedman, 1970). In other words, the social responsibility of corporations is restricted to the efficient use of resources, within the boundaries of a fair, competitive market and in the absence of fraudulent practices (Friedman, 1970).

On the other hand, stakeholder theory assumes that a firm's success depends on its capacity to meet the expectations and needs of its entire network of stakeholders—defined as all individuals or groups with an interest in or influence over the organization (Freeman, 1984). This network extends beyond shareholders and includes, for example, customers, employees, governments, and suppliers. Accordingly, firms are expected to enhance not only their financial outcomes but also their non-financial performance, including environmental, social, and broader economic dimensions.

The conclusion emerging from these two perspectives is sharply divergent: for Friedman, ESG is regarded primarily as an obligation of disclosure to the government, whereas Freeman believes that it constitutes an essential element of corporate evaluation. Consequently, within the shareholder theory, ESG is perceived as a cost to the firm that will only reduce financial returns. By contrast, within the stakeholder-oriented perspective, ESG and financial performance are aligned. In other words, stronger ESG practices are expected to translate into superior financial outcomes.

Apart from the stakeholder theory, there are other approaches that support the positive effect of ESG on financial performance, that are the stewardship, institutional (or legitimacy) and signalling theories. The first one suggests that stewardship-oriented leaders focus on long-term interests, particularly for stakeholders and foster a sense of ownership and responsibility among employees (Davis et al., 1997). In the case of ESG, by adopting this approach companies can implement ESG in their corporate culture and organization more easily, thus improving the firm's performance. The second theory instead argues that external pressures, such as norms and regulation can influence firms, as they need to gain and maintain legitimacy when operating (DiMaggio & Powell, 1983). In other words, there can be a positive association due to the influence of other forces in the implementation of ESG. Lastly, signalling theories assume that the company management transmits some information to third parties by using some signals, thus reducing the informational asymmetry between shareholders and managers (Spence, 2002). When this is applied to sustainability, having a clear and complete ESG report can signal to the market good management, so the link between financial and sustainability performance would be positive.

Many researchers have examined this relationship, but the debate is still continuing, as aggregate findings have often been inconclusive and ambiguous (Van Beurden & Gossling, 2008). Nevertheless, the majority of empirical results indicates a generally positive association between ESG practices and corporate financial performance. Friede et al. (2015), in a meta-analysis of more than 2,000 empirical studies published since 1970, identified a general positive association between ESG factors and financial performance. Similarly, another empirical review about sustainability that examined 132 papers from top-tier journals found a positive relationship between these two factors in 78% of the cases (Alshehhi et al., 2018). In a more recent study conducted by Rockefeller Asset Management, considering over 1,000 papers, reported evidence of a generally positive relationship in 58% of the cases (Whelan et al., 2021). However, it also emphasized the difficulty of determining the precise nature and extent of this association: 8% proved a negative relationship, 13% found no significant results and 21% had mixed findings.

Generally talking, many studies that analysed ESG and financial performance proved a positive relationship. In a study involving a sample of 3321 worldwide companies from 2011 to 2020, the researchers found a positive and significant association between Return on Asset (ROA) and ESG (Chen et al., 2023). Similarly, Bhaskaran et al. (2020) analysed the link between ESG performance and financial performance (FP), including measures of firm value like Tobin's Q and profitability metrics like ROA and ROE in a pool of 4887 firms from 2014 to 2018. Likewise, the authors identified a positive relationship, indicating that a high ESG performance contributes to better performance and value creation.

However, the study by Chen et al. (2023) highlights another important finding: the relationship between ROA and ESG differs between developed and developing countries. Specifically, while this association is statistically significant in developed countries, it becomes insignificant in developing countries. This evidence is further supported by García and Orsato (2020), who examined the ESG performance of 2165 firms across emerging and developed countries between 2007 and 2014, and found a negative relationship in the case of emerging economies. Instead, many studies proved this relationship in developed contexts such as European countries, starting from De Lucia et

al. (2020). In this paper, they studied a sample of 1038 listed firms of 22 European countries from between 2018 and 2019 and confirmed this positive association.

Moreover, several studies confirm this trend across both countries and sectors. For instance, evidence from Germany indicates a positive relationship between ESG performance and ROA (Velte, 2017). Similarly, in the European food industry, researchers have reported a positive impact of ESG performance on both ROA and ROE (Sandberg et al., 2022). The European agriculture industry shares the same findings, with a positive relationship between the same indicators (Mititean, 2023). Much in the same way, similar results were also found in the US: Fatemi et al. (2018) examined US firms from 2006 to 2011 and found a favourable impact of ESG on financial performance. Similarly, Nguyen et al. (2022) investigated whether S&P 500 non-financial firms from 2018 to 2020 have a positive effect on ROA, ROE and Tobin's Q. The results of their research proved that indeed there is a positive relationship, stronger especially for Tobin's Q.

However, although Chen et al. (2023) demonstrated substantial differences between developing and developed countries, evidence from single-country studies suggests that this distinction does not always apply. For example, Dalal and Thaker (2019) investigated 65 Indian firms between 2015 and 2017 and demonstrated a positive relationship. These results suggest a far more complex relationship between ESG and FP, but confirms an overall positive effect. Analogously, while Chen et al. (2023) suggested that environmentally sensitive industries tend to exhibit a more negative association with ESG performance, Naeem and Cankaya (2022) reported a positive effect on ROE for firms in the energy sector. In contrast, Abdi et al. (2022), in their analysis of the aviation sector, observed a positive relationship between ESG and financial performance, though this was limited to the governance dimension.

Though the majority of the research papers reports a positive association, several studies have documented a negative relationship; however, these findings are predominantly based on European single-country analyses. The most recent involving 54 listed Italian companies from 2007 to 2015 found a negative relationship between ESG score and financial performance (Landi & Sciarelli, 2019). Al-Tarawneh et al. (2024)

performed a similar analysis for 188 non-financial UK firms from 2015 to 2023 and found a negative relationship between ESG and Tobin Q. As the authors highlighted in their abstract, it shows that at least in the short-term ESG initiative doesn't have a good impact on the stock price. Another study in the UK analysed the data of 32 banks from 2017 to 2022 and found the same negative impact of ESG score on ROA and ROE (Giannopoulos et al., 2024). A noteworthy contribution beyond the European context is provided by Duque-Grisales and Aguilera-Caracue (2021), who analysed a sample of 104 multinational firms in Latin America between 2011 and 2015 and revealed a significant negative relationship between ESG scores and financial performance.

Some scholars have reported mixed or insignificant relationships between ESG and corporate financial performance (CFP). For instance, Giannopoulos et al. (2022) analysed Norwegian listed firms over the period 2010–2019 and identified a positive association with firm value, measured by Tobin's Q, but a negative association with profitability as captured by ROA. Likewise, Behl et al. (2022) performed an analysis on 62 listed firms in the Indian energy sector and showed a negative association between ESG scores and firm value, but a positive effect in the long term. The conclusion of the authors is that having better ESG performance doesn't automatically translate into better financial performance, especially in the short-term. In particular, CSR activities might not add any value to the company, increasing costs and decreasing firm value (Kalaitzoglou et al., 2020).

For this reason, it is reasonable that some studies found no direct effect of ESG: Atan et al. (2019), examining listed companies in Malaysia, found no significant association between ESG performance and financial outcomes. Ionescu et al. (2019) examined the travel and tourism industry and identified only a weak association between ESG performance and market value, suggesting that stock markets have yet to fully acknowledge non-financial performance as an intangible asset in this sector. Interestingly, her analysis revealed substantial differences in results across three groups of companies, distinguished by their regions: Asia, North America, and Europe.

Focusing more specifically on East Asian companies, the evidence regarding the relationship between ESG and CFP is even more contradictory. Some studies document a

positive association, yet the findings remain divided, which suggests that regional specificities play an important role in shaping outcomes. For example, Zhao et al. (2018) investigated the relationship between ESG scores, and return on capital employed (ROCE) in the Chinese market. They reported a favourable effect, supporting the view that enhanced ESG practices can translate into improved financial outcomes. Similarly, Yoon et al. (2018) analysed the Korean Stock Exchange from 2010 to 2015 and demonstrated that ESG ratings appear to have a positive influence on market value. Nevertheless, their analysis also revealed two important limitations: the positive association is considerably weaker in environmentally sensitive industries, and ownership structure appears to significantly moderate the ESG–CFP link.

Furthermore, some researchers moved beyond testing for simple linear associations and suggest that the relationship between ESG and financial performance may be non-linear in nature. For instance, Lee and Li (2022) investigated the effect of ESG on the financial performance of Chinese firms and identified an inverted U-shaped relationship. Their findings indicate that moderate levels of ESG engagement are associated with improved financial outcomes, but excessively high levels may generate diminishing returns or even negative effects. A comparable pattern is observed in the Taiwanese context, where Teng et al. (2022) found that both the environmental and social pillars exhibit an inverted U-shaped relationship with corporate performance. This phenomenon aligns with the so-called “too-much-of-a-good-thing” effect (Pierce & Aguinis, 2013). In other words, ESG initiatives provide positive financial benefits up to a certain threshold, beyond which additional investments incur costs that outweigh the related gains.

While scholars tend to agree on the generally positive impact of aggregate ESG metrics, the evidence on individual pillars remains inconclusive. For instance, Sandberg et al. (2022) reported that, within the European food industry, the environmental and social dimensions are strongly and positively associated with financial performance, whereas governance shows a positive but statistically insignificant effect. By contrast, Velte (2017) emphasized the pivotal role of governance, identifying a robust and significant association between governance scores and financial outcomes and underscoring how industry- or country-specific contexts shape the relative importance of ESG dimensions. In sharp contrast to both findings, Behl et al. (2022) reported negative effects across all

three ESG indicators, suggesting that under certain conditions ESG practices may impose costs that outweigh their benefits. Similarly, Ahmad et al. (2021) found that, although the overall effect of ESG on firm value in the FTSE was positive, the results at the pillar level were mixed, with only the social and governance components showing favourable effects. Among the three ESG dimensions, governance appears particularly controversial: even when examining the same institutional settings, Ahmad et al. (2021) and Al-Tarawneh et al. (2024) reported opposite conclusions in their analyses of UK firms over the past two decades.

Taken together, these divergent results highlight that the disaggregated analysis of environmental, social, and governance pillars reveals a substantial heterogeneity that complicates efforts to draw univocal conclusions. This tendency is particularly evident in the Asian sub-region, where studies have reported divergent outcomes. For example, Ionescu et al. (2019) identified a negative relationship between environmental and social performance and financial outcomes, while no significant findings for the governance dimension. Nevertheless, the possibility of non-linear dynamics should not be overlooked. Han et al. (2016), for instance, observed a U-shaped relationship between environmental performance and financial outcomes, as well as an inverted U-shaped association in the case of governance.

ESG disclosure is another controversial topic, as the literature provides both arguments in favour and against extensive disclosure practices. On one hand, a high level of ESG disclosure can generate clear benefits for firms: it can enhance transparency, strengthen stakeholder trust, and contribute to the consolidation of a stronger reputation, which in turn may translate into improved economic performance and long-term value creation. A meta-analysis of Bancu (2024), comparing 80 academic papers published in 50 journals, supported this theory, showing an overall positive effect of disclosure on financial performance. More specifically, the analysis identifies a strong and statistically significant positive relationship when financial outcomes are measured through accounting indicators, such as profitability ratios, as well as broader economic performance metrics. However, when considering market-based indicators, such as Tobin's Q, the study finds no significant association, a result that the author attributes to

the role of mandatory disclosure requirements, which may limit the informational value of reported ESG data.

On the other hand, there are several limitations and potential drawbacks. First of all, the preparation and maintenance of ESG disclosure reports involve substantial direct and indirect costs, especially for smaller firms (Zeidan, 2022). Secondly, excessive attention to ESG requirements may shift managerial focus away from financial performance, creating inefficiencies and strategic misalignments (Zhou et al., 2023). Thirdly, extensive reporting might be perceived by investors as an attempt to compensate for weak financial results, shifting shareholders attention away from profitability (Alsayegh et al., 2020). Lastly, the absence of a universally accepted and standardized framework for ESG reporting makes cross-company and cross-country comparisons very problematic, reducing the informational value of disclosures and contributing to market uncertainty (Dye et al., 2021). Mustafa et al. (2023), through a meta-analysis of 32 studies, identified a negative association between ESG disclosure and financial performance, providing evidence that the potential drawbacks of disclosure practices are indeed reflected in real corporate settings.

A third perspective is offered by Xie et al. (2019), who argue that the link between ESG disclosure and corporate financial performance observes an inverted U-shaped pattern. According to their findings, firms that engage in a moderate level of disclosure tend to experience positive effects, as the information released is sufficient to enhance transparency and build stakeholder confidence without generating excessive costs or scepticism. However, when disclosure levels are either too low or high, the benefits decrease. In the case of low disclosure, the lack of transparency may reduce the credibility of the firm's sustainability commitments. Conversely, when disclosure is excessive, it can raise doubts about the firm's commitment.

One last aspect worth mentioning is the role of size, which has been consistently identified in the literature as a significant determinant in the relationship between ESG and financial performance. Studies suggest that larger firms are more likely to exhibit stronger ESG performance, not only because they typically possess greater financial and organizational resources but also because they are subject to higher levels of public

scrutiny and stakeholder expectations (Chen et al., 2023). Thus, these firms are better positioned to allocate resources to social and environmental initiatives, implement comprehensive sustainability strategies, and communicate their achievements effectively (Bhaskaran et al., 2020; Ahmad et al., 2021). However, this positive association between firm size and ESG performance should not be considered universal. Evidence from Naeem and Cankaya (2022) depicts a negative relationship between firm size and return on equity (ROE), contradicting the economies of scale theory.

1.3. ESG in the Japanese context

Although the concept of ESG is relatively recent, Japanese firms have traditionally been regarded as strongly stakeholder-oriented. Historically, maintaining long-term and cooperative relationships with employees, customers, and suppliers constituted an essential element of Japanese success, particularly during the 1980s (Abegglen, 2006). In addition, Japanese cultural values have long emphasized harmony with nature and respect for the environment, anticipating the global trend of interest in sustainability (Murawski, 2016).

Based on these cultural and institutional foundations, one might reasonably expect Japan to be aligned with, or even ahead of, international standards in ESG regulation, especially regarding environmental and social dimensions. However, not only is there still no comprehensive law that regulates ESG (Saito et al., 2025), but also empirical evidence draws a different picture. A recent analysis by McKinsey (Cremers et al., 2021) assessed the ESG performance of 621 companies across Europe, Japan, and North America using reputable rating agencies such as MSCI, Bloomberg, RobecoSAM, and Sustainalytics. Interestingly, it revealed that Japanese firms tend to remain behind their European and North American counterparts in overall ESG performance. In particular, both social and governance seems to lag behind, whilst environmental shows only modest results (Figure 1 of Appendix).

In order to understand this contradiction, it is essential to understand why Japan is far from reaching a good ESG performance, starting from its regulatory framework. As mentioned previously, although Japan lacks an integrated legislation, there are various laws about ESG (Saito et al., 2025). For environmental impact, the “Basic Act on the

Environment” (Act No. 91 of 1993) established the fundamental national framework for promoting eco-friendly policies and practices. More recently, in response to the challenges of climate change, Japan enacted the “Act on Promotion of Global Warming Countermeasures” (Act No. 117 of 1998) and the “Climate Change Adaptation Act” (Act No. 50 of 2018), both of which provide targeted measures to mitigate and adapt to global warming. In addition, specific legislation addressing soil contamination, water pollution, and air pollution has been in place since 2002, 1970, and 1968 respectively, reflecting Japan’s longstanding regulatory efforts in different domains of environmental protection.

Similarly, also the social aspects were regulated back to 1947 with the “Labour Standard Act”, that legally forbids any discrimination based on nationality, social status or gender. Later on, there were also some laws which specifically addressed minorities like women (in 1972), people affected with disabilities in (1960) and elderly (in 1971). However, it is interesting to notice that women were the last category that was enforced by law, and it needed a more recent act, the “Act on Promotion of Women’s Active Engagement in Professional Life” in 2015.

Lastly, as for the governance pillar, significant attention was directed towards it during the second Abe administration, most notably through the introduction of the Stewardship Code in 2014 and the Corporate Governance Code in 2015. Both frameworks have undergone several revisions over time, the most recent being the amendment of the “Stewardship Code” in June 2025, which tightened the earlier “comply or explain” approach. The objective of these reforms is to enhance corporate efficiency and long-term value creation through more active engagement by both shareholders and stakeholders. Specifically, its target has been to raise the average ROE of companies listed on the Tokyo Stock Exchange (TOPIX) from 6% to 10%, in order to increase Japan’s attractiveness to global investors (Whittaker, 2024). The Corporate Governance Code reflects the broader Japanese regulatory perspective on ESG. Particularly, Section 2 emphasizes cooperation with stakeholders beyond shareholders, stating that sustainable growth in the medium and long term can only be achieved through the active engagement of multiple stakeholders. Within its subpoints, the Code explicitly highlights the need for companies to address social and environmental challenges, promote diversity, and foster greater participation of women in corporate structures. Section 3, by

contrast, concentrates on governance-related matters, requiring firms to ensure both financial and non-financial disclosure and transparency, with particular emphasis on the role of external auditors (JPX, 2021).

More recently, regulatory developments have reinforced this trend. In January 2023, an amendment to the Cabinet Office Order on Disclosure of Corporate Affairs introduced mandatory sustainability reporting within annual securities reports. Aligned with the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD), this reform requires companies to provide detailed information concerning governance, strategy, risk management, and metrics and targets. However, explicit mandatory disclosure requirements related to climate change have not yet been introduced. Several voluntary guidelines have been issued by the Ministry of the Environment, alongside a variety of certifications and international initiatives—such as the Science Based Targets (SBT) and RE100—that have been widely adopted by Japanese firms. However, adherence remains voluntary, leaving firms the discretion to participate.

This regulatory gap is expected to be addressed soon: in March 2025, the Sustainability Standards Board of Japan (SSBJ) released its final sustainability disclosure standards, which are aligned with the requirements of the International Sustainability Standard Board (ISSB) and will be applicable from 2027 (Reporting academy, 2025). According to this document, firms that are listed to the Tokyo Stock Exchange with a market capitalisation above 3 trillion yen must disclose their direct (Scope 1), indirect (Scope 2) and supply chain (Scope 3) emissions (Saito et al., 2025). Therefore, although Japan does not yet possess a fully consolidated framework of standards for the implementation of ESG principles, there is clear evidence of institutional efforts directed toward advancing sustainable growth.

These efforts have become particularly pronounced since the launch of “Society 5.0” in 2014 under the administration of Shinzo Abe, which sought to integrate digital innovation and sustainability into Japan’s broader socio-economic development strategy. Abe’s initiative has been further reinforced by his successor, Prime Minister Fumio Kishida, through the promotion of a so-called ‘new form of capitalism.’ This agenda aspires to move the country beyond the long-standing stagnation that followed the

collapse of the asset bubble in the 1990s, by fostering investment in advanced technologies, achieving carbon neutrality, and strengthening economic security (Whittaker, 2024). Central to both new policies is a people-centred vision of growth, with particular emphasis on expanding opportunities for women in the workforce, including measures aimed at redressing structural imbalances in labour participation and mitigating declining birthrates by supporting families' nursery care. Considering this evidence, it is perhaps unsurprising that Japan appears to be underperforming in the effective implementation of ESG practices.

1.4. ESG and financial performance in Japan

Despite the peculiarity of Japanese context, relatively few studies have examined the relationship between ESG scores and financial performance (Ismail & Azman, 2024). This is attributable to the fact that the concept of ESG remains relatively unfamiliar, with much of the existing literature focusing on the impact of CSR on financial outcomes.

As for ESG, much of the literature has produced inconclusive evidence concerning the relationship between sustainability and financial performance. Liu et al. (2023), analysing more than 300 listed firms in Japan over the period 2016–2021, investigated whether higher sustainability performance was associated with stock market outcomes during the COVID-19 pandemic. In contrast to the lack of significant results observed by Takahashi and Yamada (2021), their analysis revealed a positive and statistically significant association between the two variables. Similarly, Ismail and Azman (2024) examined the association between individual ESG dimensions and accounting-based measures across 351 listed Japanese companies between 2018 and 2022. Their results indicated a significant positive relationship between ROE and the social and governance pillars, while the environmental dimension displayed a negative association.

Creditworthiness has also been found to be positively associated with ESG. Kambe and Tamamura (2022) examined the impact of ESG on firms' credit ratings and reported that more sustainable companies enjoy easier access to loans. However, this effect was observed only for the overall ESG score and the governance dimension, whereas the environmental and social scores showed no significant interaction. Some researchers instead found a positive association, but in a non-linear model (Ikuta & Fujii, 2025).

Conversely, a comparative study examining the relationship between ESG and financial performance—measured through ROA and Tobin’s Q—found that Japan, alongside the Republic of Korea, consistently exhibited a negative association across all three ESG dimensions (Yoshida et al., 2024). These findings challenge the pattern identified by Chen et al. (2023), who argued that developed countries generally demonstrate a stronger positive link than developing ones. Instead, Yoshida et al. (2024) show that Southeast Asian economies, such as Indonesia and Malaysia, gain greater benefits from ESG practices, while a developed country like Japan seems to be penalised by ESG, maybe due to stiffer competition.

Vuong and Suzuki (2021), analysing 367 Japanese firms over the period 2005–2019, reached a similar conclusion: negative investor sentiment toward a stock serves as an incentive for firms to increase ESG activities in the subsequent year, partly as a means of diverting shareholder attention from financial performance. However, this association weakens in times of sector-wide crisis or during periods of economic recession. Lastly, Wang and Shimokawa (2025) investigated the impact of ESG performance on economic outcomes in 514 non-listed Japanese firms operating in the agricultural and food sector. Their analysis showed that ESG had no effect on total assets but was negatively associated with net profits. This study is particularly noteworthy as it examines firms that generally lack public disclosure, suggesting that ESG compliance may impose a disproportionate regulatory burden on smaller enterprises.

The role of disclosure itself further illustrates the complexity of this relationship, as empirical findings remain inconclusive. For instance, Kumarasinghe et al. (2018), analysing 101 Japanese firms, identified a positive association between disclosure and market performance, particularly in relation to social issues i.e. human rights, labour, and workplace safety. In contrast, Murata and Hamori (2021) reported a significant negative relationship between disclosure levels and stock prices.

In conclusion, according to the international literature, ESG performance is mostly expected to be positively associated with profitability. However, for Japanese firms this association might be different due to the unique features of the context. For this reason, this thesis aims to test the following hypothesis in the Japanese context:

Hypothesis 1: The ESG performance is positively associated with the financial performance.

Hypothesis 2: The environmental performance is positively associated with the financial performance.

Hypothesis 3: The social performance is positively associated with the financial performance.

Hypothesis 4: The governance performance is positively associated with the financial performance.

CHAPTER 2

METHODOLOGY

To examine the effect of ESG scores on financial performance, this study focuses on one of the most representative benchmarks of the Japanese stock market, the Nikkei 225 index. This index includes the 225 largest publicly listed companies in Japan by market capitalization, providing a comprehensive overview of the country's corporate landscape. The dataset includes both financial indicators and sustainability metrics collected from Bloomberg, a widely recognized source for financial and extra-financial information. The empirical analysis employs multiple regression models to assess whether ESG performance is systematically associated with firms' financial outcomes. Financial performance is evaluated using a variety of measures, including accounting-based indicators such as return on assets (ROA) and market-based indicators such as Tobin's Q. To reduce the risk of omitted variable bias, the regressions incorporate several control variables commonly used in the literature, such as firm size, level of debt, sales growth, and expenditures on advertising and research and development. These controls allow for a more accurate estimation of the unique contribution of ESG performance to financial outcomes.

In addition, the study undertakes a series of robustness checks to validate the reliability of the results. These include mostly analysis of sub-samples of the dataset and robustness checks. By adopting this methodological framework, the research aims to provide a deeper understanding of the link between ESG practices and corporate financial performance in Japan, while also contributing to the broader debate on the financial materiality of sustainability.

2.1. Sample

The sample for this study consists of the 225 largest Japanese companies included in the Nikkei 225 index as of June 2025. The data employed in the analysis were obtained from Bloomberg database and cover the period from fiscal year 2019 to 2024. The choice of this specific time frame is linked to the pandemics of Covid-19. Since it strongly affected not only the worldwide economy, but also Japan due to its high average population age, this study selected an interval that can capture both the pre- and post-pandemic periods and encompass the effects of this event. Furthermore, from a symbolic point of view,

2019 was the year of the instalment of the current Emperor, marking the beginning of “Reiwa” [beautiful harmony] era.

As for the use of Bloomberg, it is important to precise that it gathers sustainability and financial information primarily from firms’ annual reports, and only resorts to alternative sources when annual reports are unavailable. In general, the information refers to March of the indicated year, as traditionally Japanese businesses close the fiscal year on that month. The final dataset comprised approximately 1,350 firm-year observations. However, it should be acknowledged that certain companies exhibited missing data, in some cases lacking even basic financial information. The empirical analyses were conducted using STATA statistical software, which allowed the testing of the hypothesized relationships.

Furthermore, for the classification of the two subsamples of data, the study divided companies according to the sectors of the Nikkei 225 Official Site (Nikkei Indexes). According to Nikkei Indexes, data are divided into six sectors: technology, raw materials, consumer services, capital construction, banks and transports. Figure 2 of Appendix shows the distribution of companies across sectors. Overall, Japan seems to have a very diversified economy, where technology dominates with 28% of firms, followed by raw materials and then consumer services. While it is expected that technology is the core of the Japanese economy, especially considering widely recognised firms like Toyota and Sony, the financial sector is relatively small, only around 9%. Although Tokyo has one of the most widely recognised stock market in the world, the financial sector is relatively underrepresented in Nikkei 225. This is not just a matter of number of companies: Figure 3 of Appendix considers firms by market capitalization and shows the same trend. Interestingly, consumer services constitute the largest sector, indicating that although many companies operate in the technology sector, they are not the most important in terms of market capitalisation within the Nikkei 225. Furthermore, banks account for 15%, showing that financial consolidation is also a relevant issue in Japan.

In line with the framework of Iwata and Okada (2011), the study then identified the “dirtiest” and “cleanest” industries (Table 1 of Appendix), enabling a comparison between firms with higher and lower environmental externalities. This methodological

choice is particularly relevant because, to the best of current knowledge, no previous study has undertaken such a sectoral subdivision of ESG in the Japanese context. The use of Iwata and Okada's (2011) classification is further justified by its alignment with McKinsey's assessment of Japan's ESG landscape, which emphasizes that the environmental pillar remains the most advanced dimension in the Japanese context (Cremers et al., 2021). In addition, Iwata and Okada (2011) relied on financial data from the NEEDS (Nikkei Economic Electronic Databank System), released by Nikkei Digital Media (2010), which creates methodological continuity with the present research.

2.2. Variables

This study examines the relationship between ESG performance and financial performance. To provide a more comprehensive analysis, financial performance is conceptualized in two distinct ways: market performance and profitability as in Yoshida et al (2024) study. Market performance is assessed using Tobin's Q and Earnings Per Share (EPS) reflect investors' perceptions of a firm's value, integrating current financial and forward-looking considerations. On the other hands, profitability is evaluated using widely employed accounting-based indicators: Return on Assets (ROA), Return on Equity (ROE). These indicators provide insights into the efficiency and effectiveness of a firm to generate profits from its resources.

Considering Bloomberg's definition, Tobin's Q is the ratio between the market value of a firm and its total assets. It represents the market's assessment of a firm's value assuming that, in the long run, true value of a firm is given by the replacement cost of its assets. Many researchers used it as measure as proxy for firm value (Atan et al., 2019; Dalal and Thaker, 2019; Naeem & Cancaya, 2022). Formally, it is expressed as:

$$\text{Tobin's Q} = \frac{\text{Market Capitalization} + \text{Total Liabilities} + \text{Preferred Stock} + \text{Minority Interests}}{\text{Total Assets}}$$

Earnings per share provides a measure of profitability for each outstanding share. For this study, Bloomberg's estimations were used, as they provide a proxy for the expectations of investors, specifically on the sell side. It proves whether the stock market

appreciate ESG performance and a firm's productivity (Yoon et al., 2018). Formally, it is calculated as:

$$\text{EPS} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted Average Outstanding Shares}}$$

As for profitability measures, one of the most used is Return on Assets (ROA). It calculates the firm's ability to generate profits considering the assets that it controls, showing the efficiency of the management. It is widely used as dependent variable (Sandberg et al., 2022; Yoshida et al., 2024; Velte, 2017) and it's calculated by Bloomberg as:

$$\text{ROA} = \frac{\text{Net Profit over the Last 12 Months}}{\text{Average Total Assets}}$$

Similarly, Return on Equity (ROE) shows the profits a company is able to generate from shareholders' capital. This measure is also commonly used by previous studies (Teng et al., 2022; Naeem & Cancaya, 2022; Ionescu et al., 2019). It is calculated by Bloomberg as:

$$\text{ROE} = \frac{\text{Net Profit over the Last 12 Months}}{\text{Common Shareholders' Equity}}$$

An additional analysis considered Return on Capital Employed (ROCE), that, although less used by researchers, shows the profitability of a firm generated by its capital employed. Zhao et al. (2018) argues that it is a great indicator, as it eliminates the interference of tax rates when evaluating the financial performance. It is useful to analyse capital intensive firms, as they have more long-term investments in fixed assets and might be more polluting.

As for independent variables, this study considers five indicators: overall ESG score, E score, S score, G score and ESG disclosure. All of them have all been estimated using Bloomberg metrics, that take into consideration a company's financial materiality on ESG issues. In other words, these metrics assess whether a specific ESG factor is likely to have a positive or negative effect on the firm's financial performance. Scores range from 0 to 10, where 10 indicates a better management of the material issues and 0 a non-existent considerations of sustainability. As for the process, it takes into consideration only publicly and company's disclosed data, guaranteeing transparency and

comparability across firms. Specifically, the scoring process consists of five phases: first, Bloomberg utilises different sustainability standards, including IFRS, national and sector-specific prescriptions, to select the material issues. Then, data is collected and gets checked with statistical and heuristic methodologies. Once data is gathered, a preliminary score is issued considering disclosure, quality and other factors. Afterwards, scores are validated across input data, model components and outcomes and lastly, scores are published in Bloomberg terminal. Every analysed field that is considered material is grouped for sub-issues and then aggregated in issue. Issues are grouped in themes which generate the individual pillars: the overall ESG score is given by a weighted generalized mean of the three pillars.

Interestingly, the weight for every pillar is not fixed, but it is decided by Bloomberg Intelligence, that sets the importance of each component by assessing it on a scale from 1 to 5. Moreover, environmental and social pillar (ES) follows a different approach compared to governance: while both identify the most relevant issues with a top-down and bottom-up approach, governance is always organised in four themes – namely board composition, executive compensation, shareholder rights and audit. Conversely, Bloomberg doesn't specify which themes generate the ES pillars, as they depend on the circumstances. Similarly, ESG disclosure is also determined with a different method. Its score range is from 0 for companies that publish no ESG data to 100 for the most transparent. Furthermore, the three pillars are equally considered in the composition of the ESG disclosure, and every field is decided according to some general and sectorial requirements.

Lastly, the main control variables that have been identified are firm size, leverage, sales growth and advertisement and R&D expenses. As for firm size, although some studies utilised the number of employees (Ismail & Azman, 2024), most of the related studies employ the natural logarithm of the total assets (Naeem & Cancaya, 2022; Aydoğmuş et al., 2022; Abdi et al., 2021). For this reason, this study employs the same metrics: indeed, it allows the model to capture more easily the linear effects of the association between ESG and financial performance. It is expected that the more resources are available for a company, the more it can improve its ESG score with a more appropriate disclosure and

more sustainable initiatives. Since this mechanism might distort the results, it seems appropriate to include it in the model.

Leverage is calculated as the ratio between total debt divided by outstanding shares, and it shows the percentage of debt that the company is using to support its financial activities. Giannopoulos et al. (2024) used the same metrics, as it shows the effect that debt has on the firm's financial outcomes. It is likely that the more a firm is indebted, the less it will invest in ESG, leading to lower ESG performance. For this reason, debt must be included as a control variable in the analysis.

Another factor that can bias the relationship between ESG and financial performance is growth, as the more a company is expected to grow the more it is likely to invest in ESG. Sales growth can be a good indicator for a firm's maturity and it has been widely used by researchers (Lee & Li, 2022).

Other two variables that were included are research and development expenses and advertising expenses. These two variables were proven to have a significant influence on firm's performance (Wang, 2011; Chou & Tang, 2023) and were used as control variables from some studies investigating the association of ESG and firm performance (Velte, 2017; Lee & Li, 2022; Iwata & Okada, 2011; Konar & Cohen, 2001).

2.3. Model

After having considered the previous literature, this study develops the following model to investigate the relationship between ESG and financial performance, including individual pillars:

$$\text{Financial Performance}_{i,t} = \beta_0 + \beta_1 \text{ESG Performance}_{i,t} + \beta_2 \text{Size}_{i,t} + \beta_3 \text{Debt}_{i,t} + \beta_4 \text{R\&D}_{i,t} + \beta_5 \text{Marketing}_{i,t} + \beta_6 \text{Growth}_{i,t} + \varepsilon_{i,t}$$

where "i" refers to the company and "t" stands for time. Financial performance refers to Tobin's Q, EPS, ROA and ROE while the independent variables are ESG score and control variables. To test the hypotheses concerning the individual ESG pillars, the same model is estimated by substituting overall ESG performance with the respective pillar under analysis. Furthermore, in order to choose the better panel data specification, namely random effect model or fixed effect model, this study employed the Wu-Hausman test. This test is designed to assess if individual effects are correlated with the independent variables. The null hypothesis states that effects are not correlated, thereby it is better to use a random effects model. Conversely, if it is rejected, it is preferable to use a fixed

effect model, as it might be correlated with individual effects. Since the test rejected the null hypothesis for all the models, this study uses the fixed effect estimation. This allows control for unobserved and time-invariant effects that might affect the financial performance, such as the industry. Similarly to the models of Iwata and Okada (2011), this study applies an industry-specific estimation. Considering the relatively short time horizon of the dataset, this method addresses potential endogeneity concerns, ensuring that estimates can accurately capture the effect of ESG performance on CFP, while avoiding biases arising from omitted, time-invariant factors.

CHAPTER 3

RESULTS

In this chapter, this study will discuss the empirical findings derived from the estimated model. The first sub-section examines the results for the entire sample of firms, checking with robust standard errors to enhance the reliability of the statistical inference. The following sections focus on two industry-specific subsamples, namely the “dirtiest” sectors and the “cleanest” sectors, as classified according to previous literature. The disaggregated analysis of these subsamples has a double aim. On one side, it provides an additional robustness check, controlling whether the results of the full sample are consistent when firms are grouped by environmental sensitivity. On the other side, it allows a more correct interpretation of the findings from the main sample.

3.1. Full sample

The descriptive analysis of the full sample variables is outlined in Table 1. As for financial performance, Tobin’s Q shows that Japanese firms tend to be a little bit overvalued by the market, as the mean is above 1. However, compared to other datasets, the degree of overvaluation is smaller than that observed worldwide (Aydoğmuş et al., 2022) and among German companies (Velte, 2017). Furthermore, the mean is similar to what was found in previous studies about Japan, around 1 (Nishitani & Kokubu, 2011; Hatakeda et al., 2012). As for ROA, the present sample found an average return of 4.3%, which is broadly consistent with the findings of previous international studies, although some variation emerges across contexts. For instance, Velte (2017) estimated the mean ROA at 5% in his analysis, suggesting a slightly higher level of profitability, while Chen et al. (2023) documented a lower average of around 3%. Overall, the average value found in this study falls within the range identified in the literature. Similarly, Liu et al. (2023) and Vuong and Suzuki (2021) report that the ROA of Japanese firms stood at around 4% between 2016–2021 and 2005–2019, respectively. This suggests that overall asset profitability has remained largely unchanged over the past two decades.

The findings related to ROE are particularly interesting for this study, as they give a hint about the influence of government over companies. In fact, in their study of the Japanese context, Iwata and Okada (2011) reported an average ROE of only 4%, while

internationally Naeem and Cancaya (2022) showed a higher average of 9%, reflecting stronger performance on a global scale. The present study finds a mean ROE of 8.7%, suggesting that this upward convergence may plausibly be linked to the introduction of the Stewardship Code (2014) and the Corporate Governance Code (2015). These regulatory initiatives seem to have increased investor attractiveness, aligning Japan with global standards. However, it is important to remember that a better ROE does not always translate in more profitability, because it could be increased by incrementing debt or buybacks. Lastly, EPS shows that on average every share has a profit of 166 yen, showing a relatively strong performance, which reflects the rising expectation of the market (Tang, 2025).

Moving on with the ESG score, Japan scored on average only 3.8 out of 10. Although this result might seem low, it is aligned with the worldwide mean, as reported by Aydoğmuş et al. (2022). Moreover, these findings are consistent with the broader literature about Japanese sustainable performance. For instance, Vuong and Suzuki (2021) reported an average ESG score of 4.1 out of 10, whereas Liu et al. (2023) provided a more optimistic estimate of 4.8. Much in the same way, Kambe and Tamamura (2022) observed one of the higher means, with a score of 5.6 out of 10. Interestingly, analysing the individual pillars, it seems like social performance is relatively the worst, proving that Whittaker (2024) was right claiming that the attention of Japanese firms to social issues has declined. It also shows that governance contributes the most to the ESG score, aligning with the worldwide literature, particularly with Chen et al. (2023) and Aydoğmuş et al. (2022). Considering the three pillars together, this study confirms what Vuong and Suzuki (2021) found: governance is the highest score, followed by environmental and social pillar. However, the difference between the average score is much wider compared to the one of those researchers, that covers up the period 2005-2019, proving a stronger effect of governance in the period 2019-2024. In general, it seems like the trend in Japan has not significantly changed.

Lastly, as for control variables, size is around 10 like other studies in the Japanese context, slightly increasing compared to last decade (Hatakeda et al., 2012; Iwata & Okada, 2011). Other control variables seem to also have increased compared to previous studies. Aruba et al. (2022) studied the period 2011-2019 and documented sales growth

equal to 4.4%, R&D expenses at 2.2% and advertising expenses at 2.8% on average, while this study found that average results were, respectively, 6.3%, 4.1% and 3.5%. Overall, the findings of this study align with those of prior research, while also indicating subtle change over time. However, in order to understand whether these changes are significantly affecting the relationship between ESG and financial performance, it could be interesting to look first at the Pearson correlation (Table 2). From the analysis of the simple correlation between ESG and FP, ignoring other variables, findings are quite controversial. For example, ESG score seems to have a positive relationship with Tobin's Q, but negative with EPS.

The result of the first model comparing FP and ESG score, might help to better understand the situation (Table 3). Contrary to the expectations, there is no evidence of a positive and significant association between the two analysed variables, considering all the performance indicators. On the contrary, the association is negative and mostly non-significant, apart from ROE. Interestingly, other control variables such as size, leverage and R&D expenses are statistically significant, confirming the relevance of including them in the model. This ensures that the effect of ESG performance on financial outcomes is not confused by other characteristics. In particular, it seems likely that size and sales growth have a positive effect on accounting measures, indicating that larger firms that showed an increase in sales are more profitable, while debt, advertising and R&D have a negative impact. Interestingly, Tobin's Q shows no effect from any variables and this is confirmed by the fact that, according to R squared, the model is explaining only 4%. Conversely, forward EPS displays patterns similar to those of the profitability indicators, indicating that the stock market might be particularly receptive to profitability measures. Overall, there are no significant results of a positive relationship between ESG and financial measure, thus rejecting hypothesis 1.

Table 4 shows the results of the relationship between E score and financial performance. Similarly to the finding for ESG score, there is no significant and positive association between E score and any of the financial indicators, while control variables are all significantly correlated with the dependent variable. For this reason, this study also rejects hypothesis 2, as there is no significant results. As for social performance, findings can be seen in Table 5. Once again, there is a negative association between sustainability

and financial performance and control variables have a significant impact in the association. However, for social issues the association is significant for most of the financial indicators, proving that environmental and social pillars reduce firms' performance. So, according to the findings of this study, hypothesis 3 is strongly rejected. Furthermore, it might be interesting to notice that size is significant in the profitability measures, suggesting that larger companies might perceive ESG, particularly S issues, as a significant cost.

Lastly, association between G score and financial metrics can be found in Table 6. As it was expected from the Pearson correlation results, governance has a positive and significant effect on corporate financial performance. This is particularly true for ROA: when governance score increases by 1 unit, the return on assets increase by 0.92, holding all else constant. Particularly interesting is the fact that for all the three pillars, Tobin's Q is not affected by ESG performance at all, while all the other profitability indicators and EPS show some effects. It seems like the market value is not able to capture ESG effects or conversely investors are not interested in these investments. However, considering that Japan's sustainability investment rose significantly in the last few years from 24% in 2020 to 34% in 2022 (Saito, K. et al., 2025), the former seems the most plausible case. In general, from these findings, it is possible to conclude that at least there is a positive association between profitability and governance performance, thereby accepting hypothesis 4.

By looking at Table 7, which investigates the relationship between financial performance and ESG disclosure, it seems like ESG disclosure has a particularly negative effect on ROA. This outcome is somewhat paradoxical when compared to the finding that governance have a positive influence on ROA. One possible interpretation is that Japanese firms, regardless of their strong internal governance structures, face high costs of compliance when disclosing ESG-related information. These compliance costs may, in turn, offset the potential profitability gains that could otherwise arise from sound governance practices. This reasoning is supported by Japanese regulatory environment, that lacks a comprehensive, unified legislative framework governing ESG disclosure. As a result, firms are required to adopt fragmented reporting standards, increasing the administrative and financial burden of compliance. This might affect the overall ESG

score: while there is a positive association between ESG disclosure and ESG scores, implying that greater transparency enhances a firm's evaluated sustainability performance, both variables display an inverse relationship with ROA. In other words, increased disclosure contributes to higher ESG ratings, yet both higher ESG scores and greater disclosure are associated with reduced profitability. This may indicate that ESG engagement carries substantial short-term financial costs that weigh on firm-level performance.

Assuming that there is heteroskedasticity, this study checked the estimations of the four models. The negative association between ESG and ROE is robust, but it is significant only at 10%, which makes it very weak. However, the overall trend shows a negative association between ESG and firm performance, as two out of the three pillars have an overall negative association. Although there are no significant results for the environmental pillar, social score has an unfavourable effect on all the profitability measures. This result is particularly interesting, as it shows that initiatives for employees, human rights and communities is a huge cost for companies, proving that Japanese firms cannot view sustainability as a driver for innovation yet. Lastly, the positive association between G score and ROA seems to be robust for errors, proving that governance affects positively on the financial performance. Similarly, the negative relationship between ESG disclosure and ROA is robust under the assumption of different variance for errors.

Taking these analyses all together, they draw a clear picture: ESG performance, particularly environmental and social, have no significant impact on firm's value nor profitability. When a pillar has a significant impact, it is usually negative and these results are resistant even when assuming no homoskedasticity. The only exception is governance, that exhibits a positive significant association, in particular with ROA. Furthermore, all control variables seem to be significant in the considered models except for those where Tobin's Q is employed as the financial performance measure. However, the models based on this metric exhibit low explanatory power, which may suggest that stock market valuations are influenced by additional factors beyond those incorporated in this study.

3.2. Dirtiest industries

Analysing the most pollutant industries, it emerges the overall ESG score is negatively correlated with all the indicators of financial performance (Table 8). This is unsurprising, as it is likely that companies operating in environmentally intensive sectors are often subjected to high stakeholder and regulatory pressure to adopt sustainability practices. While this might strengthen long-term return, it is also associated with substantial compliance costs, which can erode profitability in the short term. Interestingly, when testing the same relationship with robust errors, it seems that Tobin's Q is significantly affected by ESG, keeping all other variables equal. In other words, if a dirty firm increases its ESG score by one unit, it is expected that its market value would decrease by 0.4 unit. This finding may reflect investors' perceptions of sector-wide risks: rather than rewarding ESG improvements, the market might discount firms in "dirty" industries because of the long-term uncertainties associated with their operations. In this context, higher ESG scores could paradoxically be interpreted as a sign of higher costs and reduced competitiveness, rather than as a signal of better sustainability.

Considering the individual pillar, both the environmental (Table 9) and social (Table 10) scores contribute significantly to the negative association between ESG and financial performance, as all regressions found a negative and significant association. Particularly, environmental score maintains a negative influence over market value and profitability, even after the robustness check. Interestingly, an additional analysis with Return on Capital Employed (ROCE), not included in the text, showed one of the highest significance levels, proving that capital-intensive firms are affected by this relationship. On the other hands, governance shows no significant result (Table 11). Moreover, G score seems to have a negative effect on financial performance indicators, subtly implying that polluting companies might have a more pronounced reduction of return. This may suggest that, although governance is a critical factor for organizational stability, its direct financial impact in dirty industries is relatively low. Instead, the high and immediate costs associated with environmental and social initiatives might overshadow the role of governance for short-term performance.

In general, these findings suggest that ESG efforts in high-emission sectors may be perceived by both markets and firms as cost-heavy commitments, reducing short-term financial benefits. This is confirmed also by the fact that ESG disclosure has a negative significant effect on ROE, while the effects on market value are relatively weaker. This proves that, for Japanese firms, a better level of disclosure is associated with a worse performance.

3.3. Cleanest industries

While the findings for polluting industries were somehow expected, the sub-sample including the less-polluting industries is more complicated to interpret. Table 12 shows the results of the regression having an ESG score as an independent variable: notably, the overall picture is quite controversial. On one side, Tobin's Q has a positive, though statistically non-significant, association with ESG performance. This implies that market evaluation is not directly influenced by variations in ESG scores. Although the coefficient is a positive, the absence of statistical significance means that no robust relationship can be established. In other words, according to this analysis, investors might not reward ESG improvements when assessing firm value.

On the other side, both ROA and ROE confirm the negative trend observed in the main sample. Specifically, the estimates suggest that a one-unit increase in the ESG score corresponds to a decrease of nearly one unit in ROA and two units in ROE. These results provide evidence that having a high ESG performance may impose short-term financial costs on firms, particularly for profitability ratios that reflect asset utilization and shareholder returns. The contrast between market and accounting-based measures underlines the tension between investor perceptions and operational outcomes: while the stock market may not penalize ESG efforts, the immediate impact on profitability remains substantially negative. This conclusion remains robust even when accounting for potential heteroskedasticity in the error terms, providing additional confirmation of the negative trend observed in profitability.

Similarly, the analysis of environmental performance reveals patterns that mirror those of the overall ESG score (Table 13). Notably, environmental performance demonstrates a positive but non-significant association with market-based measures, such as Tobin's Q,

while exhibiting a negative and statistically significant association with profitability indicators, particularly with ROA. This implies that, even if investors might not penalise firms in less polluting industries for their environmental initiatives, their financial costs weigh on short-term profitability.

As for social performance, the results (Table 14) indicate no statistically significant effects on financial performance, although both market and accounting associations have the same direction of environmental score. The lack of a significant association might reflect either a low emphasis on social issues or the difficulty of quantifying social performance. While such activities could enhance long-term firm value, as reflected in Tobin's Q, they may at the same time reduce short-term profitability.

Particularly interesting are the findings on governance performance (Table 15). For the cleanest industries, G score displays a positive but statistically non-significant relationship with financial performance, both in market and accounting terms. This result suggests that while having good governance is appreciated both by investors and managers, it may not directly translate into measurable financial benefits for less-polluting companies. In contrast, the analysis of ESG disclosure provides a clearer signal. Disclosure is found to have a significant negative effect on accounting measures of performance, confirming the evidence presented in both the main sample and the most polluting sub-sample. This consistency across different specifications suggests that compliance with disclosure requirements imposes substantial costs on firms, which can diminish profitability regardless of industry type. The persistence of this negative relationship suggests that, in the Japanese context, ESG disclosure is more strongly associated with financial burden than with value creation.

CHAPTER 4

DISCUSSION

Overall, a brief review of this study's results can be found at Table 16. In general, this study found no support for the positive effects of ESG score on financial performance, for both market and accounting indicators. Analysing the individual pillars, no significant positive association emerged for environmental and social score, but governance demonstrated to have a positive significant effect on financial performance, particularly for profitability indicators. Interestingly, for the full sample of ESG and S scores, it seems like there is a negative association with short-term profits, which means the higher a firm score on these two dimensions, the greater the corresponding decline in its profitability. This might indicate that compliance with sustainability regulation is weighting on firms' performance, reducing its profitability margins. Conversely, market measures seem to not be affected by ESG performance, neither the full sample nor the cleanest industries sample. The only exception is the sample that considers the dirtiest sectors, that is always displaying a negative association. However, this seems to reflect a lack of understanding from investors on which companies can be considered sustainable, by punishing only firms in the dirtiest sector without considering their actual efforts.

This chapter will focus on analysing these two aspects: the former is the need for the Japanese government to improve its ESG regulation framework and the latter is the remedies that can be adopted to implement ESG performance in the evaluation of shares.

4.1. The role of government

One of the most important results of this study is that, for Japanese firms listed in Nikkei 225, enhancing ESG performance means renouncing some short-term profits for both assets and equity holders. This happens for all the analysed companies, without considering their sector and for all scores apart from governance. This suggest that particularly E and S scores might be burdened by complex regulatory requirements. Indeed, most environmental and social protection laws in Japan were introduced prior to the early 2000s. Although more recent legislation has addressed issues such as climate change and women's employment, the overall regulatory framework lacks coherence. This regulatory gap might explain why the environmental and social pillars display

comparatively weaker and negative effects. By contrast, the governance pillar has benefited from substantial institutional reforms in recent years, most notably through the introduction of the Stewardship Code and the Corporate Governance Code (Saito et al., 2025), which have provided clearer guidance and better alignment with international best practices.

Similar results were found by Velte (2017) in the German context: although in his study all ESG components had a positive association, this was particularly stronger for governance. According to his opinion, a possible explanation is the long tradition of corporate governance in Germany. Interestingly, he also found no significant association between market value and ESG performance. This similarity with Germany is quite unsurprising, considering that both countries have an alike system of corporate governance, which separates the management from market force (Loewenstein, 2002). This facilitates Japanese firms in taking into consideration also the interests of other stakeholders. However, Loewenstein noted that the Japanese system has some common traits with American governance, such as more shareholders power over the board and a stronger equity market, due to American influence over its Commercial Code. Recent regulatory changes have reinforced this shareholder-oriented approach, as proven by the marked increase in share buyback activities. In other words, it means that firms are using their profits to buy their own shares instead of investing them within the company. By reducing its number of outstanding shares, they increase their earning per share, although it does not last in the long-term. According to a report of Sumitomo Mitsui DS Asset Management, in 2023 Japanese firms gave in total 18.4 trillion yen of dividend of which 9 trillion yen were buybacks (三井住友 DS アセットマネジメント株式会社). This trend is also confirmed by a recent statement from the Keidanren, Japan's main business federation, that lamented an excessive focus on shareholder capitalism (Keidanren, 2023). A progressive deviation from its stakeholder-oriented approach might explain what Whittaker (2024) defined as "the demise of employee-favouring firms" in name of "shareholders-favouring firms". By using these words, he indicated the decreased attention of firms to their employees, characterized by corporate restraints in capital expenditure, policies for labour cost cutting, increased reserves and savings and a general loss of confidence in the so-called "J-firms". This provides an additional

justification of the relatively weaker results of social performance, particularly when contrasted with governance over the past five years.

Furthermore, even if sustainability might provide some benefits, they are counterbalanced by high expenses to comply with regulations. As Gunawan (2023) wrote, a lack of standardised regulation hinders the advancement of ESG implementation across sectors, weakening credibility and comparability of ESG scores. Since in Japan there is no comprehensive law about ESG, firms often face substantial costs in meeting confusing and often overlapping compliance requirements. The fact that governance is the only pillar that has a positive impact proves the concrete effect of regulation on firms: having clear ESG requirements reduces uncertainty. As Ge and Zhang (2025) mentioned, climate policy uncertainty increases operational risks and costs due to researching and analysing changes in regulation (Ghoshal & Moran, 1996). This could lead managers to take decisions to maximise short-term benefits, such as shifting from ESG to production or marketing, and adopt a wait-and-see approach. Long-term decisions also will be affected, as firms will be more likely to delay decisions that require larger capital outlays and returns in the future. According to risk aversion theory, managers adopt conservative strategies when the environment is uncertain to minimise their risks (Sauner-Leroy, 2004). In the case of ESG and particularly environmental issues, that rely a lot on technology, this could be very risky and without proper benefits it could feel a waste of resources. Considering the switching from stakeholder attention to shareholder introduced with laws about governance, paradoxically this gives an additional incentive for companies to not invest in environmental initiatives, justifying the results of this study. As it was mentioned by Ioannou and Serafeim (2012), Japanese institutions as well as political and regulatory issues emphasise the need for firms to improve their competitiveness at the expense of other aspects.

For these reasons, it is expected that governance, that has clear requirements and could be directly related to some benefits to shareholders, has a positive impact on the profitability of the firm. Conversely, social and environmental dimensions have a negative association due to fragmented regulation and the recent incentive to increase profitability at the expense of any ES initiative. Disclosure about ESG is coherent with these findings, as this study proved a negative impact with ROE, both for the dirtiest and

cleanest industries. As Mustaffa et al. (2023) proved, ESG disclosure is negatively affecting the profitability of listed firms due to high cost for regulatory requirements. Many reasons lead to this outcome: first, increased investor scrutiny requires that companies disclose ESG information to maintain trust (Lipton, 2020). According to legitimacy theory, having stakeholders trust is a way for firms to keep their social license to operate in the market. For this reason, particularly companies that are in environmentally sensitive industries employ ESG disclosure to gain investors' trust and be socially acknowledged. However, this provokes a reduction in the profitability of firms.

Second is the difficulty of dealing with ESG reporting, as it is always changing and evolving. This dynamic environment makes it particularly difficult for firms to adopt a stable and consistent reporting framework over time. This is particularly difficult for listed companies that have a significant portion of their operations across different countries (Ho & Park, 2019). For listed Japanese companies that operate on a global scale, it is particularly complex since they are required not only to comply with Japan's own evolving disclosure practices but also to align with the often more demanding standards of international markets, such as those in the United States or the European Union.

Lastly, ESG metrics face an additional challenge compared with traditional financial indicators: the difficulty of quantifying and measuring a company's broader impact. Unlike financial performance, ESG performance often depends on more qualitative and context-specific evaluations. This lack of standardisation can create inconsistencies in measurement and interpretation of the real ESG performance, increasing its perception of unreliability. As a result, the credibility of ESG risks being undermined for investors that are looking for trustworthy information (Linnenluecke, 2022).

Furthermore, there is the risk that a company might exaggerate or misrepresent its sustainability practices to create a positive image without taking actions (Vanclay & Hanna, 2019). This practice is called "greenwashing" and, together with the lack of international standards, might be seriously damaging the reliability of ESG indicators. Specifically, in Japan there is not much attention yet to this phenomenon, due to a lack of

an anti-ESG sentiment, and this could be a problem because companies might use this regulatory hole for their advantage. The only act is “against unjustifiable premiums and misleading representations” that regulates misleading advertisements about sustainability and recently sanctioned a firm for some taglines about biodegradable plastic (Saito et al., 2025). However, since this law does not explicitly target greenwashing practices, the chances that companies resort to these practices remains a concrete risk in the Japanese context. A study from Frendy et al. (2024) confirmed it: it investigated 420 listed firms between 2018 and 2019 and found that the probability of engaging in misleading ESG practice was negatively associated with environmental performance. In other words, some companies with a poor ESG performance are more likely to lie about it to protect their reputation. Furthermore, corporate governance characteristics are not associated with environmental disclosure, implying that the actual structure of governance is ineffective to avoid greenwashing behaviour. For this reason, considering that the risk of greenwashing is high, it is essential to implement a clear regulation to address this material issue.

Putting all these considerations together, they give a very precise image of the Japanese context on ESG implementation. Currently, the costs for ESG practices are significantly reducing firms’ profitability, but this trend can be inverted by designing a comprehensive set of laws for ESG. The positive association of governance with the implementation of the Stewardship and Corporate governance Code seems to prove that better regulation can have an impact on profitability of firms. Although Japan had regulations about ESG even before the emergence of the concept in itself, they lack harmony and this explains the difference between the results in Japan and worldwide. It is worth noticing that in Japan the main challenge is not the absence of sustainability-related regulation, but rather the fragmentation of already existing procedures. In other words, the issue does not lie in creating yet another layer of legislation that would add more rules to an already dense regulatory landscape. Instead, this study advocates for the development of a coherent framework that consolidates current requirements, while allowing for flexibility. In this way, regulators can create a more stable institutional environment in which companies can operate with reduced uncertainty and lower the costs currently associated with managing overlapping requirements. This would reduce the negative short-term effects of ESG integration on profitability, allowing firms to better capture the

long-term benefits of sustainable practices. Ultimately, a clear regulatory framework would shift ESG from being perceived as a costly burden to being recognized as a strategic opportunity for competitiveness and value creation.

However, even considering a better framework, there might be some hurdles for the implementation of ESG in the Japanese context. Improving regulatory frameworks does not automatically translate into a shift in societal perceptions of sustainability. While Japanese firms and stakeholders often demonstrate flexibility and a willingness to compromise, this pragmatism should not be mistaken for full acceptance or deep internalisation of sustainability principles. As Mahmud (2021) proved, Japanese firms demonstrate a strong tendency to comply with sustainability guidelines, not because of coercive forces, but rather due to normative isomorphism, namely the pressure to conform to stakeholders' expectations within the business community. Thus, in the Japanese context, firms tend to align their behaviour with the community's standards even without strict enforcement. For this reason, the adoption of a "comply-or-explain" regulatory framework is relatively effective in Japan, providing companies with the choice of either complying with the recommended practices or explaining their reasons for non-compliance. Similarly, Luo (2024) analysed Japan using Hofstede and Mintov framework to understand their type of culture. The country ranked 40th out of 1000 in "flexumility", a word that is used to indicate a culture that exercises humility and self-flexibility (Table 2 of Appendix). Some characteristics of this trait is the importance of compromise, easy adaptation to other cultures and conflict avoiding negotiation style. In other words, although the external pressure of stakeholders might convince firms of the importance of certain issues like sustainability, it might be not enough to integrate it into the firms' strategy. For example, although in 2024 there has been a surge in shareholders' proposals about sustainability, reflecting a growing interest in climate change, they are not commonly adopted by managers (Saito et al., 2025). Much in the same way, an analysis of Toyota ESG report by Vanblaricom-Nutt (2024) underlined the fact that although the firm had robust reporting, it lacked depth, particularly on governance disclosure. According to the researcher, this suggests that regulatory requirements alone might not be sufficient for a good quality reporting, thus improving the ESG score. Similar results were found also by Eccles et al. (2019) in their comparative analysis of sustainability reports from 50 global companies. They

recognised that Japanese firms tend to have a relatively lower quality compared to other developed countries. These findings suggest that transforming ESG compliance in a resource of innovation requires more than regulatory adjustments. It is also crucial to fully integrate sustainability into the firm's strategic mindset such as by giving a market incentive, which will be analysed in the next section.

4.2. The effect on market

As it was previously mentioned, the market seems to have no association with ESG, apart from the negative link for dirtiest industries. These results are conflicting with the worldwide findings, as overall the market tends to perceive that more ESG-friendly companies will have better returns in future, thus rewarding their efforts. However, they confirm the findings of study with Japanese companies by Mitsuyama and Shimizutani (2015), investigating the stock market reactions to announcements about ESG, defined as "ESG brand". They found no significant results, neither around the event day nor 100 days after the announcement. Two possible reasons can explain this outcome: the first is that since firms are not expected to really attain those sustainable goals, they have low value for investors. Alternatively, perhaps ESG announcement does not generate any significant market reaction because it repeats initiatives in which the firm was already engaged. Since this is not giving any new information, stock prices remain unaffected.

Furthermore, as highlighted by Friede (2019), there are many challenges for a holistic integration of ESG issues in the decision-making process of investors. In his framework, he divided these arguments into four main topics: investors' characteristics, firm-related issues, market-based reasons and regulatory framework, which was discussed in the previous section. Interestingly, according to his findings, market-based problems emerged as the most relevant, particularly what is called "investor institutions". With this term, the research points to the structural difficulties investors must face when attempting to integrate ESG issues, as well as other non-financial considerations, into their valuation of share. This also includes the lack of appropriate benchmarking from peer-to-peer judgments, which affect investors' ability to assess ESG performance. Consequently, investors are not convinced that ESG can have a material impact on financial outcomes. As it was mentioned by Kotsantonis and Serafeim (2019), although

more investors are looking for information about ESG activities, it is not clear whether this data can accurately capture the sustainability performance. They identified four reasons: inconsistency of data, distortion introduced by benchmarking, data imputation and lastly contradictory results of different rating agencies. In other words, the paper argued that the following limitations are affecting current ESG scores: the first is that the same issue is evaluated by using different terms and often units of measurement. Since there are various metrics, it might be hard to identify which company would be the top performing. The second difficulty arises in the benchmarking process: in order for the score to have a sense, it is important to anchor it to a peer group. However, having a universal peer group might make an approximated ranking, while groups based on sub-industries might determine different ranking for the same company, making it difficult to evaluate diversified businesses. Data imputation refers instead to the fact that, since there are no universal standards, some companies might lack some data. For this reason, there might be different strategies to tackle this lack of information, such as using a rule-based approach or statistical regressions, but all approaches have their flaws. Lastly, even assuming that firms have no incentive to hide their real performance, empirical studies proved that companies with better ESG disclosure often have more disagreements on ESG rating. For all these reasons, investors worldwide feel that these data are not providing reliable information like financial indicators. Similarly, Japanese investors feel concerned about the transparency and credibility of ESG ratings due to biases that might be influencing agencies' evaluations (Muraoka, 2022). Together with the lack of an accurate regulatory environment, these factors are affecting the indifference of shareholders toward firms that are actively engaging in ESG issues.

However, another possible explanation may be rooted in the specific characteristics of shareholders, as differences in beliefs, knowledge and cognitive biases can shape how firms respond to ESG-related strategies (Friede, 2019). In particular, this might account for the observed negative association between polluting industries and stock market valuation, suggesting that investors impose a form of market-based penalty on firms perceived as environmentally harming. By contrast, the opposite rewarding mechanisms do not appear to be applied to firms operating in cleaner industries, showing an asymmetry based on sectors. This aspect cannot be explained by regulation or market issues, so it might be related to investors' traits. Risk aversion theory can provide an

explanation to this behaviour: investors are progressively integrating sustainability risk in their evaluations for the creation of their portfolio, so they try to avoid firms operating in risky sectors. A recent research article written by Aruga and Islam (2025) explored the investing preferences of Japanese retail investors for sustainability bonds. Among their interesting findings about investors characteristics, it is worth noticing that government bonds are preferred over ESG bonds when the return rate is high, seeking to avoid the associated risks. Conversely, when the return rate is low, investors prefer to invest in ESG due to their added non-pecuniary benefits, even if it means they might accept lower returns. Since companies in the dirtiest sectors with higher returns are more willing to improve their ESG performance to compete with governmental shares, they might seriously impact their profitability evaluation and Tobin's Q might reflect this negative impact. However, clean companies already have a low risk profile, so they do not bear the same high costs of the dirty sector.

An interesting study by Lim et al. (2024) proved this asymmetry in these rewarding and punishing mechanisms, by investigating the role of individual shareholders and their non-monetary motives in sustainability investments. Notably, they focused on how emotions like empathy and self-esteem affect the decision-making process of Japanese and German investors. In other words, the researchers wanted to understand whether investors are more influenced by empathy, namely the ability to relate with other people's feelings, or self-esteem, as consumers who choose ethically superior products tend to have a boost of pride and happiness. According to Hoftsedde (1994), Japanese people tend to have a more collectivistic mentality, which means that they are more likely to be sensitive to empathy stimuli than self-esteem. In any case, it is important to notice that Japan's cultural tendency towards collectivism is not always clear, as it is considered the most individualistic among East-Asian countries, surpassing countries like South Korea, Singapore and Malaysia (Luo, 2024). However, as proved by Lim et al. (2024), Japanese investors seem to be particularly sensitive to empathy stimuli, compared to German investors. Although there is no evidence of this punitive behaviour for poorly performing firms, it suggests that Japanese stakeholders are more inclined to scrutinise companies for harmful practices than to reward those actively engaging in sustainability. Particularly, Japanese experienced investors tend to connect more with people who bear with firms' negative externalities than feeling proud when they help

environmental-friendly companies. However, potential investors are typically less affected by these empathy stimuli and the study speculates that one motivation could be a difference between generations. Older generations might resonate more with environmental victims, while younger investors are less sensitive due to differences in their experiences.

Considering that a significant percentage of investors are foreigners (Japan Exchange Group, 2025), it is interesting to analyse their reactions to the implementation of ESG in the firms' strategy. As it was highlighted by a report of COMGEST (Kaye, 2021), Japanese investments often tend to be misunderstood and underestimated, not only in their ESG performance, but also in the estimations of companies' real value. According to their research, on average each of the Japanese listed firms is followed by only seven analysts, compared to forty for the US. Foreigner investors seem to have many difficulties in assessing the information given by companies and firms can rarely guarantee a good quality disclosure, considering the substantial language and cultural barriers. For this reason, since ESG is already a controversial matter in more analysed markets, it becomes even more complex in the Japanese context. Interestingly, this report mentioned that firms focused more on the governance pillar, confirming the findings of this study, but it was more cautious on attributing this to an attention to ESG. Furthermore, the high regulatory requirements for Japanese firms, combined with a minor pressure to ESG disclosure and a general habit of moving slowly on introducing new policies compared with Europe and US, make it difficult for investor to evaluate the real ESG performance. For this reason, the Japanese equity market tends to be misunderstood and ESG rating agencies might misrepresent the real sustainability performance (Kaye, 2021). For example, Daikin, a famous Japanese air conditioning manufacturer, produces one of the most performing and energy-saving products in the same sector, but since this aspect is not considered in the ESG evaluation, it has a relatively low ESG score. Another example of misperceived stock in terms of sustainability is Orix, a company that has the largest renewable energy assets in Japan and half of board with independent directors. Regardless of these aspects that are typically considered when evaluating the ESG performance, Orix is rated as a high-risk firm due to failure in engaging with rating agencies (Kaye, 2021). All these examples provide an explanation for the absence of

association in this study: although investors would like to invest in ESG, they often lack information about the real performance of firms.

The last factor considered by Friede et al. (2019) is firms' characteristics, which include management structures, organizational practices and communication with stakeholders. In the case of Japan, this includes two main factors: the first one is a lack of integration between ESG and corporate strategy. Although Japanese companies are assessing the material sustainability issues, around half of them do not provide any explanation on how they are related with strategy and capital allocation plans (Nissay, 2025). By disconnecting business plans with ESG goals, Japanese sustainability tends to gravitate more easily towards corporate social responsibility or, even worse, to greenwashing. The second reason is that, similarly to investors, Japanese managers are mostly working to minimise the risks instead of maximising the growth opportunity that ESG can bring. This is concerning, as companies that avoid taking risks are more likely to lag behind in terms of market competition (Nissay, 2025). The solutions proposed by the paper is to increase the board oversight and enhance the reliability of ESG information. Indeed, the former would allow a better integration in the strategy of their sustainable issues to actively enhance long-term corporate value. Instead, the latter would signal to investors which companies are investing in ESG opportunities, allowing them to distinguish between inefficient companies and firms investing for future growth.

Lastly, another reason that might explain this lack of reaction from the market on ESG performance could be a low sustainability awareness among consumers. Japanese people are less likely to pay more for sustainable products, with an average of 32% against 48% worldwide and the maximum premium they would pay is below 10% for 39% of the respondents and between 10 and 25% for 43%, against a global average of 23% and 41% respectively (Nissay, 2025). Since most of the time sustainable products have higher prices compared to others, as they internalise the negative externalities, it is very unlikely that companies would start to manufacture products that no consumer would buy. For this reason, many companies lack the incentive to become more sustainable, as they know an increase of price would not be accepted by their clients.

All these reasons might explain what was defined as the “ESG paradox” by Nissay (2025). On one side, Japan is known for its sustainability attention as one of the first countries that adhered to GRI standards, Kyoto protocol and actively participating in the TNFD (Task Force on Nature-related Financial Disclosure), while ranking first on disclosure in 2023 (CDP Climate Change Report, 2023). On the other hand, there are still no clear guidelines on ESG measurement, firms seem to view sustainability as a regulatory burden instead of a chance to grow and there is no clear relationship between ESG and financial performance, contrary to European and American firms (Nissay, 2025). These factors are strongly affecting the reaction of investors and the stock market, limiting their ability to effectively differentiate between firms that create genuine value and those that engage in less efficient practices. For this reason, a change in regulation is not sufficient to deal with this lack of integration of ESG in firms’ strategy.

One solution could be the use of the Yanagi model, also known as the “Synchronisation model of non-financial capital and equity spread” (Yanagi, 2018) . Developed by Ryohei Yanagi, former chief financial officer at Eisai, this model aims at quantifying the impact of ESG and other non-financial issues directly in the evaluation of firm value. The representation of the model can be found in Figure 4 of Appendix. The shareholder value is defined as the sum of the book value of shareholder equity plus market value added (MVA) that represents the non-financial value attributed by investors to firms. This is coherent with the Price-Book Ratio model, that considers the shareholder value as the sum of financial aspects, namely the book value, plus intangible assets including intellectual, manufactured, human, social and natural added value. This aspect needs to be synchronized with the market by using the Olhson model, that considers the overall firm value as the sum of book value once again plus the sum of present value given by equity spread. The equity spread, namely the difference between return on equity and cost of equity, represents the excess return that a firm generates aside from its cost of capital and the greater it is, the higher the value. The MVA can be further understood as the reduction of cost of equity, given by the reduction of sustainability risks, and the margin improvement, that includes customer, human and organizational capital.

The idea is to transmit sustainability directly to the share price by intervening in the relationship between non-financial capital and equity. This would allow investors to

better understand the efficiency of the company while providing better information about the long-term ESG performance. As it was mentioned by the COMGEST report, a lot of investors have difficulties in understanding the real firms' value, particularly foreigners (Kaye, 2021). Since Japanese companies hold significant portions of cash, they tend to invest less money and in the long run it destroys assets (Yanagi, 2018). Although, as it was proven by Opler (1999), this behaviour is typical of companies that prefer bank lending over capital market, it distorts financial indicators, reducing the perceived value from investors. Furthermore, poor investor relations and cultural differences further enlarge this gap between Japanese firms and international shareholders (Rahman & Varghese, 2023). According to Yanagi, this loss is significant, as foreigner investors tend to discount investments in Japanese yen by 50% (Yanagi, 2018). Similarly, investors cannot notice the ESG efforts by firms in Japan and they underestimate their real performance (Yanagi, 2018). However, by using the model that he suggested, expenses for sustainability can be considered in the share price. Indeed, this approach was used by Eisai in its Integrated report in 2020 and it showed encouraging results: considering an increase of 10% in personnel costs, R&D expenses, female manager ratio and childcare system will lead to an increase on PBR of 13.8%, 8.2%, 2.4% and 3.3% respectively (Yanagi & Michels-Kim, 2021). However, this improvement does not happen within the same year, but it takes 5 years for employee costs, 10 years for R&D expenses, 7 years for the increase of women participation and 9 years for childcare. Interestingly, he found a negative significant relationship in the short term for the 500 largest companies in capitalization of the Tokyo Exchange, particularly from year 0 to 4 (Yanagi & Sugimori, 2021). Although Yanagi and Sugimori found that this relationship is negative considering only market-based measures, these findings are very similar to the results of this study about profitability. Similarly, another study from Yanagi and Yoshino (2017) found that the stronger effect on MVA is given by organizational capital, which includes systems, processes and structures to enable effectiveness in the company. In other words, governance is the pillar that is affecting the financial performance more than anything else. Another confirmation of this trend is given by an interview by CFA institute about the perception of ESG in the Asian Pacific markets. As for Japan, 66% of the respondents answered that governance risks often or always affect the share price, while this percentage decreased by 23% and 31% for environmental and social risks respectively (CFA institute, 2019).

Considering all these results together, this study argues that the use of the Yanagi model, together with a renovation of the regulatory framework in ESG, might help companies in the integration of sustainability performance in their strategy and transmitting this information to the market. Particularly, the government should encourage ESG integration as it can have some significant macroeconomic impacts. A study by Zhou et al. (2020) found that for developed countries a one-unit increase in social performance is correlated with an increase of 0.07% in GDP per capita. This means that, as it was mentioned by Rahman and Varghese (2023), if Japanese social performance that was standing at 44 points was raised to 67 like for Spanish companies, this would increase by 18% Japanese GDP per capita. However, it is essential that company's approach ESG not only as a matter of regulatory compliance but as a strategic driver of continuous improvement and innovation. If such an orientation is increasingly recognized and rewarded by the stock market by using the Yanagi model, it may further reinforce managerial commitment to integrate sustainability within their business practices. In particular, the Yanagi model could be a useful tool for increasing key stakeholders' engagements, focus on long-term creation and improve transparency. In this way, the government can not only achieve better financial evaluations, increasing the value of ROE in a sustainable way, without using myopic measures like shares buybacks, but also improve the economic situation of its population.

However, this solution should not be considered as the cure-all remedy that can ultimately change the perception of ESG in Japan. Although the Yanagi model solves many problems related with market, investors and regulatory characteristics, true integration of ESG can be achieved only when all components are working for the same goal, including consumers and firms' management as well. Furthermore, one of the biggest limitations of this study is that it examined only listed firms. The research of Wang and Shimokawa (2025) proved the difficulties in integrating ESG for SME and this could be a serious obstacle, considering that they are a significant portion of the overall Japanese economy (Oikawa, 2023). In this case, the Yanagi model is not providing any added value for these firms, but it would be interesting to develop a model that can reduce the cost of lending instead of the cost of financing. As it was mentioned by Kambe and Tamamura (2022), creditworthiness shows a similar pattern to profitability, with a

strong relationship for governance, but weak results for social and environmental. For this reason, better regulation can surely reduce the compliance burden, but a credit rating that includes ESG with the same logics of the Yanagi model can provide an incentive for firms to integrate sustainability in their strategy. Indeed, banks always look for guarantees that the company will keep operating until the end of the lending period at least, so it is more likely that a company that invests in sustainability is solid and will last more compared to its competitors. This is coherent with the signalling theory, which suggests that sustainability can be interpreted as a signal from firms of reliability, under the condition that ratings are accurate as well. For this reason, lending institutions are more likely to have agreed on a lower interest rate and firms have more space of negotiation in this scenario, reducing the informational asymmetry. In other words, this would reduce the cost of debts for SME that are not listed and improve the overall market efficiency. Further research might explore the effects of creditworthiness in non-listed companies and how to integrate ESG in their evaluation.

Another limitation of this study is that it considered the impact of ESG on financial performance, but not the opposite relationship. Some studies, such as one research from Li et al. (2023) in the Chinese context, found that corporate financial performance has a significant positive effect on corporate environmental responsibility. However, when analysing the reversed relationship, no significant results were detected. This might indicate that companies with a better performance will be more likely to have more resources to improve their ESG score. Considering the important effect of size, this hypothesis cannot be completely dismissed.

Furthermore, this study has some limitations due to limited research on this field in Japan, particularly for three aspects. The first one is related to the classification between dirtiest and cleanest industries, following the framework of Iwata and Okada (2011). Although it is an accredited paper, it only considered the environmental aspects of industries, but the least virtuous in environment might be different from the least virtuous in social or governance pillar. For this reason, considering different classifications might change the results of the association between ESG and financial performance. The second limitation is that this study analysed a linear relationship, but previous studies, specifically in the Eastern Asian countries found a non-linear

association (Lee & Li, 2022; Teng et al., 2022). This might suggest that the relationship between ESG and financial outcomes is not always direct as in other contexts but might be subjected to other influences. However, in Japan not many researchers have used these models, so it could be interesting to further analyse the presence of different patterns. Lastly, although Bloomberg terminal provides information about the financial performance, sometimes it was not possible to access some data due to a lack of release in public reports, particularly for ESG metrics. These metrics are also particularly vague, as the full calculation is carried out by Bloomberg Intelligence, whose methodology may introduce biases in the determination of ESG weightings.

CONCLUSION

The main goal of this paper is to investigate the relationship between ESG and financial performance, that has been subjected to a lack of research in the Japanese context. Indeed, there are many studies that address Corporate Social Responsibility or certain types of initiatives related to sustainability in Japan, such as women's presence or carbon emissions. However, ESG is considered a recent concept and not many researchers have analysed its impact on profitability and market value. This study is addressing this research gap, by examining the effect of Bloomberg ESG rating, one of the most acknowledged metrics, on four financial metrics. Interestingly, it found that there is no significant association between these two variables and by analysing the three pillars – environmental, social and governance – it discovered an overall negative effect for ES and positive for governance on profitability, although not always significant. Conversely, market value is not affected by ESG, with the exception of the dirtiest industries.

These results seem to suggest that the regulatory environment is significantly affecting the effects of ESG, as governance is the only pillar that has recently received attention from regulators and has a positive relationship with profits. Conversely, environmental pillar usually requires high initial investments to companies, and it is subjected to more frequent change in regulation, as more effective technology is developed. Similarly, social pillar is affected by the recent cost-cutting policies of companies, thus encouraging a negative association between the two variables. Furthermore, ESG reporting can significantly decrease profitability in the short-term, particularly in the dirtiest industries, due to high cost in maintaining a good reputation, unstable regulation, no clear standard measurements for ESG issues and lastly the phenomenon of greenwashing. This one is particularly risky in the Japanese companies, as there are still no clear laws about what can be considered mischievous in sustainability practices. For all these reasons, the government should address this issue by creating a comprehensive set of laws that can clearly explain what firms are expected to disclose, how frequently and in which form. Although indeed some acts are regulating some sustainability issues, they are fragmented and inconsistent (Gunawan, 2023). However, by designing a clear and ordered regulation on ESG, compliance costs would be significantly reduced.

This is the starting point to improve the perception of sustainability among firms and stakeholders, but it is not sufficient to fully integrate ESG in corporate strategy. Particularly, in the Japanese context, sustainability reporting lacks depth and seems to be intended more as a tool for compliance than actual innovation driver. For this reason, it is important to consider other means to convey ESG within the internal process of firms, such as the Yanagi model (Yanagi, 2018). Since the market is particularly inefficient in showing the real impact of firms from this point of view, this model is trying to directly integrate non-financial information in the share price. Indeed, it seems like the market price is not affected by the ESG performance in this study's findings, not only because of regulation, but also due to characteristics of the market, investors, firms themselves and lastly consumers. Specifically, the ESG data given by rating agencies is not always reliable and considering the traditional Japanese risk aversion of investors, there is space for informational asymmetry between firms and investors. This is confirmed by the fact that the dirtiest industries seem to be negatively affected by ESG, reflecting a general scepticism of these sectors more than firms themselves. For this reason, the Yanagi model would be able in the first place to avoid the use of rating agencies by synchronizing the value of non-financial assets with the dividend discount model. Secondly, it would raise awareness among investors, by providing reliable and clear information about ESG performance, thus encouraging green investments. Thirdly, it would contribute to broader economic issues, helping the government and giving firms an ulterior motive to act for society. Although its application is limited to listed companies, that are only a small part of the total firms in Japan, the adoption of the Yanagi model provides a framework to Japanese firms for the integration of ESG in the decision-making process. Together with clear guidelines, it has the potential to change the current approach to ESG to make it valued by firms and seen by stakeholders.

The Japanese context offers a unique field to study how ESG is perceived, due to its dual attention to shareholders and stakeholders. Although historically it has been considered more stakeholder-oriented, recent changes towards a shareholder-favouring view have challenged this perspective, complicating the evaluation of ESG effects. The negative or absent results of this paper suggest that sustainability is seen as an obligation to outside pressures that can hardly be transmitted to the core business strategy and firm value. This relatively obsolete view of sustainability reflects the prudent approach of Japan in

accepting and implementing novelty, particularly when it comes from outside. Although acting for social harmony is not a new concept in itself, clearly linking how to reach certain goals like carbon neutrality or gender equality is the real challenge of Japan. This involves not just the government and firms, but also investors, banks, consumers and the whole society. Addressing only a single ESG dimension without a coherent strategic plan is insufficient to achieve meaningful impact. As noted by Arisa Kishigami and Daniel Read in the interviews conducted by Gunawan (2023), firms should perceive ESG as an opportunity instead of a burden and design clear roadmaps to meet their sustainable goals. This orientation is the key to achieve sustainable development, which constituted the main rationale for the coinage of the term “ESG”. Japan is a reminder of how cohesion plays an essential role in sustainability: as symbolised by the name of the new era, “culture exists where people come together in beautiful harmony”(内閣官房長官, 2019).

Tables

Table 1: descriptive analysis of the full sample

Variables	Number	Mean	Median	SD	Min	Max
Tobiq	1346	1.50435	1.03155	1.430938	0.5847	19.0832
Roa	1347	4.313495	3.6309	5.49311	-30.8453	50.3947
Roe	1347	8.744883	8.4135	12.22681	-111.927	116.5048
Eps	1348	166.1134	117.505	285.5379	-1082.04	3444.55
Esgscore	1314	3.831636	3.825	1.086369	1.07	7.27
Escore	1314	3.758661	3.68	1.930085	0	9.19
Sscore	1314	2.78911	2.525	1.544841	0	9.33
Gscore	1320	5.662508	5.725	0.94778	3.01	8.11
Disclosure	1346	54.1918	55.4673	11.08552	21.0743	80.2334
Size	1036	13.92922	13.90356	1.075328	10.09798	17.62429
Debt	1348	90.18215	49.0556	148.1972	0	1426.371
Rdonsales	1035	0.040522	0.028015	0.049806	0	0.393169
Advonsales	323	0.03603	0.018009	0.063699	0.000254	0.44978
Salegrowth	1346	6.274644	4.5743	16.15419	-65.2775	112.8046

Table 2: Pearson correlation results

Variables	tobiq	eps	roa	roe
Esgscore	-0.0867	-0.0078	0.0324	0.0484
	0.0017	0.7781	0.2407	0.0795
Escore	0.0109	-0.0488	0.0527	0.0352
	0.6936	0.0772	0.056	0.2017
Sscore	-0.1104	0.0005	-0.0333	-0.0233
	0.0001	0.9854	0.2277	0.3983
Gscore	-0.0134	-0.0108	0.1024	0.1352
	0.6268	0.696	0.0002	0.000

Disclosure	-0.2138	-0.0824	-0.0629	-0.0236
	0.000	0.0025	0.0209	0.386

Table 3: Result of the model ESG score and financial performance for full sample

VARIABLES	(1) tobinq	(2) eps	(3) roa	(4) roe
Esgscore	-0.0444 (0.122)	-17.49 (11.73)	-0.297 (0.307)	-1.205* (0.677)
Size	-0.432 (0.331)	212.5*** (31.90)	1.761** (0.836)	3.893** (1.840)
Debt	-0.000315 (0.00311)	-1.708*** (0.299)	-0.0531*** (0.00784)	-0.168*** (0.0173)
Rdonsales	-10.91 (7.101)	-791.5 (684.1)	-59.85*** (17.92)	-208.4*** (39.46)
Advonsales	2.741 (4.943)	-1,925*** (476.3)	-107.5*** (12.48)	-416.2*** (27.47)
Salegrowth	0.0102** (0.00488)	2.776*** (0.470)	0.0670*** (0.0123)	0.155*** (0.0271)
Constant	8.356* (4.588)	-2,590*** (442.0)	-10.01 (11.58)	-10.13 (25.50)
Observations	319	319	319	319
R-squared	0.040	0.484	0.510	0.694
Number of ncompany	55	55	55	55

where *** p<0.01, ** p<0.05, * p<0.1

Table 4: Result of the model E score and financial performance for full sample

VARIABLES	(1) tobinq	(2) eps	(3) roa	(4) roe
Escore	-0.0103 (0.0681)	-10.07 (6.558)	-0.179 (0.172)	-0.496 (0.379)
Size	-0.453 (0.334)	214.5*** (32.21)	1.806** (0.844)	3.693** (1.863)
Debt	-0.000403 (0.00310)	-1.714*** (0.299)	-0.0531*** (0.00782)	-0.169*** (0.0173)
Rdonsales	-10.93 (7.159)	-710.8 (689.4)	-58.37*** (18.06)	-205.8*** (39.89)
Advonsales	2.770 (4.946)	-1,931*** (476.3)	-107.6*** (12.48)	-416.0*** (27.55)
Salegrowth	0.0101** (0.00489)	2.785*** (0.471)	0.0672*** (0.0123)	0.154*** (0.0272)
Constant	8.521* (4.688)	-2,650*** (451.4)	-11.19 (11.82)	-10.16 (26.12)
Observations	319	319	319	319
R-squared	0.040	0.484	0.511	0.692
Number of ncompany	55	55	55	55

where *** p<0.01, ** p<0.05, * p<0.1

Table 5: Result of the model S score and financial performance for full sample

VARIABLES	(1) tobinq	(2) eps	(3) roa	(4) roe
Sscore	-0.0451 (0.0808)	-15.91** (7.758)	-0.361* (0.203)	-0.981** (0.448)
Size	-0.439 (0.319)	208.3*** (30.60)	1.751** (0.801)	3.526** (1.766)
Debt	-0.000342	-1.723***	-0.0531***	-0.169***

	(0.00309)	(0.297)	(0.00777)	(0.0171)
Rdonsales	-11.02	-839.1	-60.53***	-211.8***
	(7.083)	(680.0)	(17.80)	(39.25)
Advonsales	2.935	-1,854***	-106.0***	-411.7***
	(4.945)	(474.8)	(12.43)	(27.40)
Salegrowth	0.0101**	2.734***	0.0665***	0.152***
	(0.00485)	(0.466)	(0.0122)	(0.0269)
Constant	8.419*	-2,552***	-9.999	-6.721
	(4.504)	(432.4)	(11.32)	(24.96)
Observations	319	319	319	319
R-squared	0.041	0.488	0.515	0.696
Number of ncompany	55	55	55	55

where *** p<0.01, ** p<0.05, * p<0.1

Table 6: Result of the model G score and financial performance for full sample

VARIABLES	(1) tobinq	(2) eps	(3) roa	(4) roe
Gscore	0.0198	21.90*	0.921***	1.044
	(0.129)	(12.38)	(0.320)	(0.717)
Size	-0.472	195.1***	1.407*	2.744
	(0.314)	(30.23)	(0.782)	(1.750)
Debt	-0.000448	-1.758***	-0.0538***	-0.172***
	(0.00308)	(0.297)	(0.00768)	(0.0172)
Rdonsales	-11.15	-929.8	-63.90***	-216.5***
	(7.097)	(682.4)	(17.66)	(39.51)
Advonsales	2.939	-1,747***	-100.6***	-407.3***
	(5.024)	(483.1)	(12.50)	(27.97)
Salegrowth	0.00987**	2.588***	0.0612***	0.144***
	(0.00488)	(0.470)	(0.0122)	(0.0272)
Constant	8.645*	-2,538***	-11.57	-4.519

	(4.507)	(433.4)	(11.21)	(25.09)
Observations	319	319	319	319
R-squared	0.040	0.486	0.524	0.693
Number of ncompany	55	55	55	55

where *** p<0.01, ** p<0.05, * p<0.1

Table 7: Result of the model ESG disclosure and financial performance for full sample

VARIABLES	(1) tobinq	(2) eps	(3) roa	(4) roe
Disclosure	0.00237 (0.0128)	-2.303* (1.229)	-0.0519 (0.0322)	-0.174** (0.0709)
Size	-0.493 (0.333)	218.3*** (32.00)	1.974** (0.838)	4.429** (1.846)
Debt	-0.00038 (0.00304)	-1.738*** (0.293)	-0.0534*** (0.00766)	-0.169*** (0.0169)
Rdonsales	-11.35 (7.094)	-710.8 (682.5)	-57.71*** (17.86)	-202.6*** (39.36)
Advonsales	2.835 (4.900)	-1,880*** (471.4)	-106.6*** (12.34)	-412.5*** (27.19)
Salegrowth	0.00992** (0.00481)	2.714*** (0.463)	0.0660*** (0.0121)	0.151*** (0.0267)
Constant	8.911* (4.538)	-2,615*** (436.6)	-11.43 (11.43)	-13.08 (25.18)
Observations	323	323	323	323
R-squared	0.040	0.485	0.512	0.695
Number of ncompany	55	55	55	55

where *** p<0.01, ** p<0.05, * p<0.1

Table 8: Result of the model ESG score and financial performance for dirtiest industries

VARIABLES	(1) tobinq	(2) eps	(3) roa	(4) roe
Esgscore	-0.465** (0.144)	-97.81** (31.56)	-3.529*** (0.892)	-7.504*** (1.750)
Size	-5.652** (1.753)	-766.2* (384.0)	-26.08** (10.85)	-48.19* (21.30)
Debt	0.0396*** (0.0116)	-1.951 (2.533)	-0.0611 (0.0716)	-0.124 (0.140)
Rdonsales	-133.2*** (32.74)	-13,299* (7,173)	-348.8 (202.7)	-510.0 (397.9)
Advonsales	-39.36*** (9.248)	-2,921 (2,026)	-97.79 (57.27)	-210.4* (112.4)
Salegrowth	-0.00888 (0.00925)	2.023 (2.026)	0.0842 (0.0573)	0.209* (0.112)
Constant	94.62*** (26.99)	12,585* (5,914)	423.9** (167.1)	786.4** (328.0)
Observations	18	18	18	18
R-squared	0.887	0.723	0.788	0.824
Number of ncompany	3	3	3	3

where *** p<0.01, ** p<0.05, * p<0.1

Table 9: Result of the model E score and financial performance for dirtiest industries

VARIABLES	(1) tobinq	(2) eps	(3) roa	(4) roe
Escore	-0.354** (0.132)	-84.29*** (25.57)	-2.990*** (0.731)	-6.192*** (1.508)
Size	-5.466** (1.926)	-784.0* (372.2)	-26.43** (10.64)	-47.99* (21.95)
Debt	0.0459*** (0.0119)	-0.999 (2.296)	-0.0249 (0.0656)	-0.0407 (0.135)

Rdonsales	-146.9***	-16,916**	-475.4**	-766.7
	(37.03)	(7,156)	(204.5)	(421.9)
Advonsales	-38.92***	-2,514	-84.70	-187.8
	(10.35)	(2,001)	(57.19)	(118.0)
Salegrowth	-0.0130	1.182	0.0537	0.144
	(0.0100)	(1.935)	(0.0553)	(0.114)
Constant	91.31**	12,737*	425.1**	774.7**
	(29.58)	(5,718)	(163.4)	(337.1)
Observations	18	18	18	18
R-squared	0.865	0.740	0.797	0.814
Number of ncompany	3	3	3	3

where *** p<0.01, ** p<0.05, * p<0.1

Table 10: Result of the model S score and financial performance for dirtiest industries

VARIABLES	(1) tobinq	(2) eps	(3) roa	(4) roe
Sscore	-0.364***	-70.28**	-2.573***	-5.502***
	(0.105)	(25.22)	(0.720)	(1.415)
Size	-6.424***	-877.9*	-30.42**	-57.66**
	(1.779)	(426.0)	(12.16)	(23.90)
Debt	0.0323**	-3.022	-0.103	-0.215
	(0.0123)	(2.940)	(0.0839)	(0.165)
Rdonsales	-134.6***	-13,336	-351.6	-517.2
	(31.58)	(7,565)	(216.0)	(424.3)
Advonsales	-41.33***	-3,484	-117.2*	-250.9*
	(8.696)	(2,083)	(59.46)	(116.8)
Salegrowth	-0.0114	1.456	0.0640	0.166
	(0.00882)	(2.112)	(0.0603)	(0.118)
Constant	105.5***	14,128*	484.1**	918.2**
	(27.24)	(6,524)	(186.3)	(365.9)

Observations	18	18	18	18
R-squared	0.896	0.693	0.760	0.800
Number of ncompany	3	3	3	3

where *** p<0.01, ** p<0.05, * p<0.1

Table 11: Result of the model G score and financial performance for dirtiest industries

VARIABLES	(1) tobinq	(2) eps	(3) roa	(4) roe
Gscore	-0.650* (0.334)	-121.0 (75.16)	-4.005 (2.433)	-8.869 (4.919)
Size	-2.134 (2.100)	-58.32 (472.9)	-1.265 (15.31)	5.294 (30.95)
Debt	0.0522*** (0.0126)	0.878 (2.845)	0.0449 (0.0921)	0.0974 (0.186)
Rdonsales	-110.4** (40.34)	-8,729 (9,086)	-189.3 (294.1)	-165.5 (594.6)
Advonsales	-41.49*** (11.52)	-3,578 (2,595)	-126.2 (83.97)	-266.2 (169.8)
Salegrowth	-0.00756 (0.0117)	2.148 (2.635)	0.0852 (0.0853)	0.214 (0.172)
Constant	45.52 (31.75)	2,642 (7,153)	73.81 (231.5)	33.50 (468.1)
Observations	18	18	18	18
R-squared	0.829	0.555	0.554	0.607
Number of ncompany	3	3	3	3

where *** p<0.01, ** p<0.05, * p<0.1

Table 12: Result of the model ESG score and financial performance for cleanest industries

	(1)	(2)	(3)	(4)
VARIABLES	tobinq	eps	roa	roe
Esgscore	0.206 (0.208)	-17.51 (13.84)	-0.990** (0.456)	-2.000* (1.083)
Size	-1.209* (0.620)	272.2*** (41.32)	3.667*** (1.361)	11.38*** (3.233)
Debt	0.00455 (0.00901)	-1.375** (0.601)	-0.0343* (0.0198)	-0.0952** (0.0470)
Rdonsales	-92.76*** (18.80)	-933.9 (1,253)	-37.27 (41.28)	-68.49 (98.05)
Advonsales	-51.04 (33.33)	-3,336 (2,221)	-25.28 (73.19)	-105.3 (173.8)
Salegrowth	-0.00993 (0.00798)	1.582*** (0.532)	0.0776*** (0.0175)	0.135*** (0.0416)
Constant	23.79** (9.492)	-3,570*** (632.6)	-41.06* (20.84)	-138.8*** (49.50)
Observations	113	113	113	113
R-squared	0.253	0.668	0.465	0.461
Number of ncompany	19	19	19	19

where *** p<0.01, ** p<0.05, * p<0.1

Table 13: Result of the model E score and financial performance for cleanest industries

	(1)	(2)	(3)	(4)
VARIABLES	tobinq	eps	roa	roe
Escore	0.140 (0.126)	-10.92 (8.391)	-0.615** (0.276)	-1.116* (0.659)
Size	-1.195* (0.610)	269.8*** (40.70)	3.530*** (1.340)	10.95*** (3.196)
Debt	0.00265	-1.217**	-0.0254	-0.0777*

	(0.00891)	(0.594)	(0.0196)	(0.0467)
Rdonsales	-91.46***	-1,053	-44.02	-83.21
	(18.63)	(1,243)	(40.92)	(97.60)
Advonsales	-49.44	-3,408	-29.10	-104.4
	(33.43)	(2,230)	(73.43)	(175.1)
Salegrowth	-0.00884	1.481***	0.0719***	0.122***
	(0.00771)	(0.514)	(0.0169)	(0.0404)
Constant	23.88**	-3,565***	-40.73*	-136.5***
	(9.459)	(631.0)	(20.77)	(49.55)
Observations	113	113	113	113
R-squared	0.255	0.669	0.466	0.458
Number of ncompany	19	19	19	19

where *** p<0.01, ** p<0.05, * p<0.1

Table 14: Result of the model S score and financial performance for cleanest industries

VARIABLES	(1) tobinq	(2) eps	(3) roa	(4) roe
sscore	0.0579 (0.132)	-9.587 (8.752)	-0.478 (0.291)	-0.948 (0.689)
size	-1.081* (0.608)	265.8*** (40.42)	3.248** (1.344)	10.52*** (3.182)
debt	0.00473 (0.00961)	-1.515** (0.639)	-0.0405* (0.0212)	-0.107** (0.0503)
rdonsales	-91.37*** (18.89)	-961.0 (1,256)	-40.05 (41.74)	-74.46 (98.88)
advonsales	-57.30* (32.73)	-2,943 (2,176)	-1.155 (72.33)	-56.03 (171.3)
salegrowth	-0.00869 (0.00802)	1.557*** (0.533)	0.0751*** (0.0177)	0.129*** (0.0420)
Constant	22.62** (9.463)	-3,519*** (629.2)	-37.48* (20.92)	-131.4*** (49.54)

Observations	113	113	113	113
R-squared	0.246	0.667	0.453	0.452
Number of ncompany	19	19	19	19

where *** p<0.01, ** p<0.05, * p<0.1

Table 15: Result of the model G score and financial performance for cleanest industries

VARIABLES	(1) tobinq	(2) eps	(3) roa	(4) roe
gscore	0.112 (0.222)	6.555 (14.84)	0.417 (0.496)	0.498 (1.173)
size	-1.065* (0.599)	254.1*** (40.10)	2.630* (1.340)	9.412*** (3.170)
debt	0.00249 (0.00905)	-1.300** (0.605)	-0.0303 (0.0202)	-0.0851* (0.0479)
rdonsales	-91.72*** (18.93)	-1,236 (1,267)	-54.95 (42.33)	-99.61 (100.1)
advonsales	-60.43* (32.60)	-2,742 (2,181)	7.725 (72.89)	-34.25 (172.4)
salegrowth	-0.00834 (0.00779)	1.352** (0.521)	0.0643*** (0.0174)	0.110*** (0.0412)
Constant	22.09** (9.364)	-3,417*** (626.4)	-32.36 (20.94)	-121.4** (49.52)
Observations	113	113	113	113
R-squared	0.247	0.663	0.441	0.441
Number of ncompany	19	19	19	19

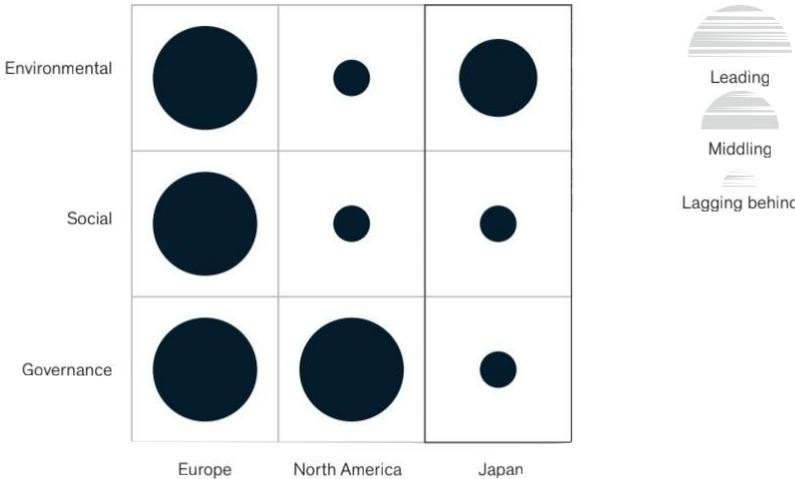
where *** p<0.01, ** p<0.05, * p<0.1

Table 16: Overall findings of this study

Scores	Sample	Market	Profit
ESG score	full	No	-
	dirty	-	-
	clean	No	-
E score	full	No	No
	dirty	-	-
	clean	No	-
S score	full	No	-
	dirty	-	No
	clean	No	No
G score	full	No	+
	dirty	-	No
	clean	No	No

Appendix:

Figure 1: ESG performance for larger and smaller companies combined



Source: McKinsey analysis

Figure 2: Composition of Nikkei by sector for number of firms in percentage

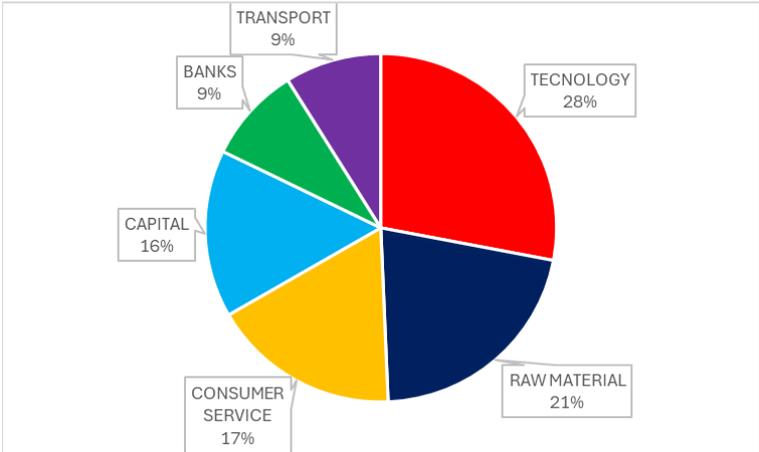


Figure 3: Composition of Nikkei by sector for market capitalisation in percentage

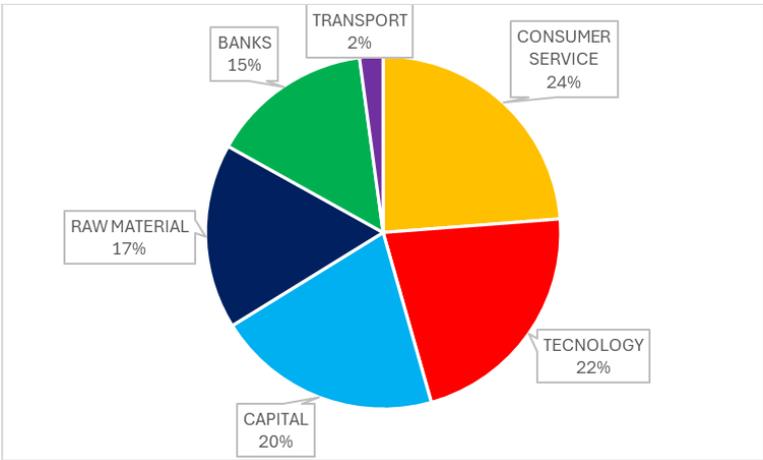


Table 1: Division by sector of cleanest and dirties companies

Clean	Dirty
Foods	Pulp and Paper (D)
Textiles and Apparels (C)	Chemicals (D)
Oil and Coal Products	Pharmaceutical
Glass and Ceramics Products	Rubber Products
Machinery (C)	Iron and Steel (D)
Electric Appliances (C)	Nonferrous Metals (D)
Transportation Equipment (C)	Metal Products
Precision Instruments (C)	
Other Products	

Notes:

1. "C" and "D" in parentheses indicate industries which include the five cleanest and four dirtiest industries, respectively.

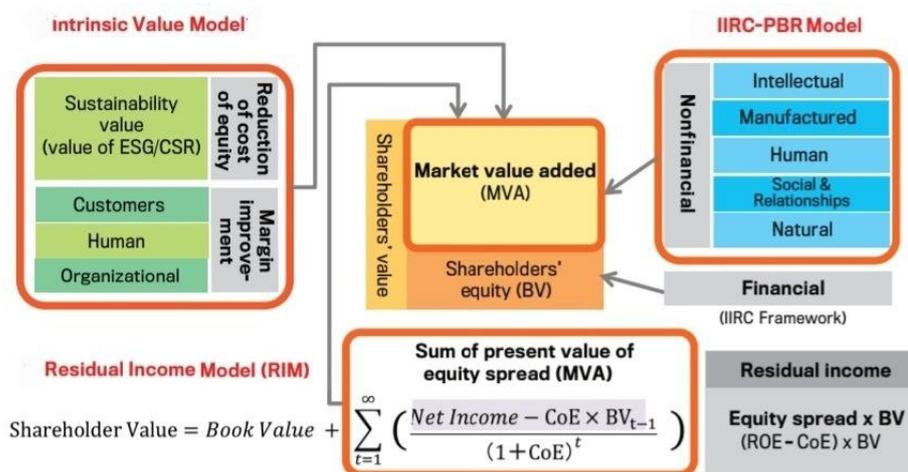
Iwata and Okada (2011)

Table 2: Ranking of Japan in "flexumility"

SCORE	COUNTRY	SCORE	COUNTRY	SCORE	COUNTRY
1,000	Egypt	571	Argentina	276	Moldova
997	Iraq	564	Chile	265	Bulgaria
955	Jordan	527	India	242	Switzerland
908	Nigeria	521	Romania	191	Russia
890	Morocco	505	Poland	184	Sweden
811	Zimbabwe	492	Uruguay	175	Ukraine
747	Iran	436	Australia	165	France
736	South Africa	427	Spain	119	Netherlands
668	Turkey	423	Vietnam	99	Germany
667	Colombia	388	New Zealand	43	South Korea
662	Georgia	359	Serbia	40	Japan
659	Mexico	354	United Kingdom	16	Taiwan
623	Indonesia	352	Italy	0	China
614	Brazil	340	Slovenia		
572	United States	312	Finland		

Higher-numbered scores are seen as favoring monumentalism traits; a lower score denotes a preference for flexumility traits. Source: Adapted from M. Minkov, *Cultural Differences in a Globalized World* (United Kingdom: Emerald, 2011).

Figure 5: Synchronisation model of non-financial capital and equity spread model



*R. Yanagi, *Financial Strategies for Maximizing Corporate Value*, Doyukan, Tokyo, Japan, 2009. Source: Adapted from R. Yanagi, "CFO Policy," *Chuo Keizai-Sha*, 2020; partially reedited.

Bibliography

Ab Aziz, N. H.; Alshdaifat, S. M. (2024). ESG reporting: Impacts, benefits and challenges. In *Sustainable Horizons for Business, Education, and Technology* (pp. 69–76). Springer. https://doi.org/10.1007/978-981-97-2981-4_5

Abdi, Y.; Li, X.; Camara-Turull, X. (2022). Exploring the impact of sustainability (ESG) disclosure on firm value and financial performance (FP) in airline industry: The moderating role of size and age. *Environment, Development and Sustainability*, 24, 5052–5079. <https://doi.org/10.1007/s10668-021-01649-w>

Abegglen, J. C. (2006). *21st-Century Japanese management: New system, lasting values*. Basingstoke, UK: Palgrave Macmillan.

Ahmad, N.; Mobarek, A.; Roni, N. N. (2021). Revisiting the impact of ESG on financial performance of FTSE350 UK firms: Static and dynamic panel data analysis. *Cogent Business & Management*, 8(1). <https://doi.org/10.1080/23311975.2021.1900500>

Alsayegh, M. F.; Abdul Rahman, R.; Homayoun, S. (2020). Corporate economic, environmental, and social sustainability performance transformation through ESG disclosure. *Sustainability*, 12(9), 3910. <https://doi.org/10.3390/su12093910>

Alshehhi, A.; Nobanee, H.; Khare, N. (2018). The Impact of Sustainability Practices on Corporate Financial Performance: literature trends and future research potential. *Sustainability*, 10(2), 494. <https://doi.org/10.3390/su10020494>

Al-Tarawneh, A. et al. (2024). The impact of ESG scores on corporate financial performance: A study of non-financial firms listed in the UK. *Asian Economic and Financial Review*, 14(11), 852–867. <https://doi.org/10.55493/5002.v14i11.5229>

Aruba, R.; Goshima, K.; Chiba, T. (2022). CO2 Emissions and Corporate Performance: Japan's evidence with double machine learning. *Institute for monetary and economic studies*, Discussion paper 2022-E-1

Aruga, K.; Islam, M. M. (2025). Assessing investor preferences for environmental and sustainability bonds in Japan: A discrete choice experiment approach. *Green Finance*, 7(2), 200–222. <https://doi.org/10.3934/gf.2025008>

Atan, R. et al. (2019). The Impacts of environmental, social, and governance factors on firm performance: Panel study of Malaysian companies. <https://doi.org/10.1108/MEQ-03-2017-0033>

Aydoğmuş, M., Gülay, G., & Ergun, K. (2022). Impact of ESG performance on firm value and profitability. *Borsa Istanbul Review*, 22, S119–S127. <https://doi.org/10.1016/j.bir.2022.11.006>

Bancu, A. (2024). A Meta-Analysis of ESG disclosure and Company's economic performance. *Proceedings of the . . . International Conference on Business Excellence*, 18(1), 2042–2056. <https://doi.org/10.2478/picbe-2024-0173>

Bae, K.H et al. (2021), O. Does CSR matter in times of crisis? Evidence from the COVID-19 pandemic. *J.Corp. Financ*, 67, 101876. <https://doi.org/10.1016/j.jcorpfin.2020.101876>

Behl, A. et al. (2022). Exploring the relationship of ESG score and firm value using cross-lagged panel analyses: Case of the Indian energy sector. *Annals of Operations Research*, 313, 231–256. <https://doi.org/10.1007/s10479-021-04189-8>

Bhaskaran, R. K. et al. (2020). Environmental, social and governance initiatives and wealth creation for firms: An empirical examination. *Managerial and Decision Economics*, 41(5), 710–729. <https://doi.org/10.1002/mde.3131>

CDP Worldwide. (2023). *CDP Climate Change 2023 Questionnaire: Version control and reporting guidance*. <https://guidance.cdp.net/en/guidance?cid=46&ctype=theme&idtype=ThemeID&incchild=1µsite=0&otype=Questionnaire&tags=TAG-13071%2CTAG-605%2CTAG-599>

CFA Institute. (2019, July 1). *ESG Integration in Asia Pacific: Markets, Practices, and Data*. CFA Institute & Principles for Responsible Investment. <https://www.unpri.org/download?ac=6459>

Chen, S.; Song, Y.; Gao, P. (2023). Environmental, social, and governance (ESG) performance and financial outcomes: Analyzing the impact of ESG on financial performance. *Journal of Environmental Management*, 345, 118829. <https://doi.org/10.1016/j.jenvman.2023.118829>

Chou, Y.; Tang, W. (2023). Corporate advertising expense and share price synchronization. *Finance Research Letters*, 56, <https://doi.org/10.1016/j.frl.2023.104126>

Cremers, V. et al. (2021). Charting a path from the shuchu kiyaku to ESG for Japanese companies. McKinsey & Company. <https://www.mckinsey.com/capabilities/sustainability/our-insights/charting-a-path-from-the-shuchukiyaku-to-esg-for-japanese-companies>

Dalal, K. K., & Thaker, N. (2019). ESG and corporate financial performance: A panel study of Indian companies. *Journal of Corporate Governance*, 18, 44–59.

Davis, J. H.; Schoorman, F. D.; Donaldson, L. (1997). Toward a Stewardship Theory of Management. *The Academy of Management Review*, 22(1), 20–47. <https://doi.org/10.2307/259223>

De Lucia, C.; Paziienza, P.; Bartlett, M. (2020). Does good ESG lead to better financial performances by firms? Machine learning and logistic regression models of public enterprises in Europe. *Sustainability*, 12(13), 5317. <https://doi.org/10.3390/su12135317>

DiMaggio, P. J.; Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160.

Duque-Grisales, E.; Aguilera-Caracuel, J. (2021). Environmental, social and governance (ESG) scores and financial performance of multilatinas: Moderating effects of geographic international diversification and financial slack. *Journal of Business Ethics*, 168, 315–334. <https://doi.org/10.1007/s10551-019-04177-w>

Dye, J.; McKinnon, M.; der Byl, C. (2021). Green gaps: Firm ESG disclosure and financial institutions' reporting Requirements. *Journal of Sustainability Research*, 3(1).

Eccles, R.G.; Krzus, M.P.; Solano, C. (2019), A comparative analysis of integrated reporting in tencountries, *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3345590>

Fatemi, A., Glaum, M., & Kaiser, S. (2018). ESG performance and firm value: The moderating role of disclosure. *Global Finance Journal*, 38, 45–64. <https://doi.org/10.1016/j.gfj.2017.03.001>

Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Cambridge CB2 8RU, UK: Cambridge University Press. The Edinburgh Building.

Frendy, F.; Oshika, T.; Koike M. (2024). Environmental greenwashing in Japan: the roles of corporate governance and assurance. *Meditari Accountancy Research*, 32 (7), 266–295. <https://doi.org/10.1108/MEDAR-11-2023-2216>

Friede, G. (2019). Why don't we see more action? A metasynthesis of the investor impediments to integrate environmental, social, and governance factors. *Business Strategy and the Environment*, 28(6), 1260–1282. <https://doi.org/10.1002/bse.2346>

Friede, G.; Busch, T.; Bassen, A.; (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210-233, <https://doi.org/10.1080/20430795.2015.1118917>

Friedman, M., (1970) *A Friedman doctrine – The social Responsibility of Business is to increase its profits.* The New York Times.

<https://www.nytimes.com/1970/09/13/archives/a-friedman-doctrine-the-social-responsibility-of-business-is-to.html>

Garcia, A. S., & Orsato, R. J. (2020). Testing the institutional difference hypothesis: A study about environmental, social, governance, and financial performance. *Business Strategy and the Environment*, 29, 3261–3272. <https://doi.org/10.1002/bse.2570>

Ge, H.; Zhang, X. (2025). From uncertainty to sustainability: How climate policy uncertainty shapes corporate ESG?. *International Review of Economics & Finance*, 98(C). <https://doi.org/10.1016/j.iref.2025.104011>

Ghoshal, S.; Moran, P. (1996). Bad for practice: A critique of the transaction cost theory. *Academy of Management Review*, 21 (1), 13–47. <https://doi.org/10.2307/258627>

Giannopoulos, G. et al. (2022). The ESG disclosure and the financial performance of Norwegian listed firms. *Journal of Risk and Financial Management*, 15, 237. <https://doi.org/10.3390/jrfm15060237>

Giannopoulos, G., Pilcher, N., & Salmon, I. (2024). What Is the Relationship between Corporate Social Responsibility and Financial Performance in the UK Banking Sector? *Journal of Risk and Financial Management*, 17(5), 187. <https://doi.org/10.3390/jrfm17050187>

Guerzoni, A.; Mirchandani, N.; Perkins, B. (2024). How CEOs juggle transformation priorities – the art of taking back control. EY CEO Outlook Pulse Survey. <https://ey.com/CEOOutlook>

Gunawan, D. (2023). *ESG implementation into corporate sustainability in Japan: Challenges and opportunities* (Unpublished master's/doctoral thesis). Waseda University. https://waseda.repo.nii.ac.jp/record/2000975/files/57210511_GUNAWAN%20Daniel_202307.pdf

Han, J.; Kim, H. J.; Yu, J. (2016). Empirical study on relationship between corporate social responsibility and financial performance in Korea. *Asian Journal of Sustainability and Social Responsibility*, 1(1), 61–76. <https://doi.org/10.1186/s41180-016-0002-3>

Hatakeda, T. et al. (2012). Factors influencing corporate environmental protection activities for greenhouse gas emission reductions: The relationship between environmental and financial performance. *Environmental and Resource Economics*, 53(4), 455–481. <https://doi.org/10.1007/s10640-012-9571-5>

Ho, V. H.; Park, S. K. (2019). ESG disclosure in comparative perspective: Optimising private ordering in public reporting. *University of Pennsylvania Journal of International Law*, 249. Available at: <https://scholarship.law.upenn.edu/jil/vol41/iss2/1>

Hofstede, G. (1994). The business of international business is culture. *International Business Review*, 3(1), 1–14. [https://doi.org/10.1016/0969-5931\(94\)90011-6](https://doi.org/10.1016/0969-5931(94)90011-6)

Hummel, K.; Jobst, D. (2024). An Overview of Corporate Sustainability Reporting Legislation in the European Union, *Accounting in Europe*, *Jensen M.C.*, 21(3), 320-355. <https://doi.org/10.1080/17449480.2024.2312145>

Ikuta, T.; Fujii, H. (2025). An analysis of the relationship between ESG activities and the financial performance of Japanese companies toward sustainable development. *Sustainability*, 17(15), 6790. <https://doi.org/10.3390/su17156790>

Ioannou, I.; Serafeim, G. (2012). What drives corporate social performance? The role of nation-level institutions. *Journal of International Business Studies*, 43(9), 834–864. <http://www.jstor.org/stable/41674526>

Ionescu, G. H. et al. (2019). THE IMPACT OF ESG FACTORS ON MARKET VALUE OF COMPANIES FROM TRAVEL AND TOURISM INDUSTRY. *Technological and Economic Development of Economy*, 25(5), 820–849. <https://doi.org/10.3846/tede.2019.10294>

Ismail, A. M.; Azman, K. B. B. (2024). The impact of environmental, social, and governance performance on financial performance: Evidence from Japanese companies. *Edelweiss Applied Science and Technology*, 8(3), 236–258. <https://doi.org/10.55214/25768484.v8i3.950>

Iwata, H.; Okada K. (2011). How does environmental performance affect financial performance? Evidence from Japanese manufacturing firms. *Ecological Economics*, 70, 1691-1700. <https://doi.org/10.1016/j.ecolecon.2011.05.010>

Japan Exchange Group (2025). *Investor-type statistics archives*. <https://www.jpx.co.jp/english/markets/statistics-equities/investor-type/00-00-archives-00.html>

JPX (2021). Japan's Corporate Governance Code, Tokyo Stock Exchange

Kalaitzoglou, I.; Pan, H.; Niklewski, J. (2020). Corporate social responsibility: How much is enough? A higher dimension perspective of the relationship between financial and social performance. *Annals of Operations Research*, 1–37. <https://doi.org/10.1007/s10479-020-03834-y>

Kambe, H.; Tamamura, M. (2022). Effects of firm-level ESG performance on creditworthiness in Japanese listed companies. *International Journal of Economic Policy Studies*, 16(2), 465–489. <https://doi.org/10.1007/s42495-022-00084-7>

Kaye, R. (2021, June). *ESGInsight – Japan is Misunderstood and Underestimated* [Investment letter]. Comgest. <https://www.comgest.com/-/media/files/investment-letters/en/il-esginsight-esg-in-japan-jun2021-en.pdf>

Keidanren. (2023, April 26). サステイナブルな資本主義に向けた好循環の実現: 分厚い中間層の形成に向けた検討会議 報告 [Achieving a virtuous circle toward sustainable capitalism: Report of the deliberation council on forming a thick middle class]. Japan Business Federation. https://www.keidanren.or.jp/policy/2023/030_honbun.pdf

Konar, S.; Cohen, M.A. (2001). Does the market value environmental performance? *Review of Economics and Statistics*, 83 (2), 281–289.

Korkmaz, B. et al. (2023). ESG momentum: Seven reported traits that set organizations apart, McKinsey & Company. <https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/esg-momentum-seven-reported-traits-that-set-organizations-apart>

Kotsantonis, S.; Serafeim, G. (2019). Four things no one will tell you about ESG data. *Journal of Applied Corporate Finance*, 31(2), 50–58. <https://doi.org/10.1111/jacf.12346>

Kumarasinghe, S; Will, M.; Hoshino, Y. (2018). Enhancing performance by disclosing more: some evidence from Japanese companies. *Pacific Accounting Review*, 30(1), 110–128. <https://doi.org/10.1108/PAR-01-2016-0001>

Landi, G.; Sciarelli, M. (2019). Towards a more ethical market: The impact of ESG rating on corporate financial performance. *Social Responsibility Journal*, 15(1), 11–27. <https://doi.org/10.1108/SRJ-11-2017-0254>

Lee, E. T.; Li, X. (2022). Too much of a good thing? Exploring the curvilinear relationship between environmental, social, and governance and corporate financial performance. *Asian Journal of Business Ethics*, 11(2), 399–421. <https://doi.org/10.1007/s13520-022-00157-y>

Li, Y.; Ye, F.; Zhu, H. (2023). Impact of interaction between corporate environmental responsibility and corporate financial performance: the moderating effects of environmental regulation and internal control. *Applied Economics*, 56(29), 3431–3444. <https://doi.org/10.1080/00036846.2023.2206624>

Lim, S. et al. (2024). I feel and I invest: Social emotions and sustainable investing in Germany and Japan. *Sustainable Development*. <https://doi.org/10.1002/sd.3202>

Linnenluecke, M. K. (2022). Environmental, social and governance (ESG) performance in the context of multinational business research. *Multinational Business Review*, 30(1), 1–16. <https://doi.org/10.1108/mbr-11-2021-0148>

Lipton, A. M. (2020). Not everything is about investors: the case for mandatory stakeholder disclosure. *Yale Journal on Regulation*, 37, 499

Liu, L.; Nemoto, N.; Lu, C. (2023). The Effect of ESG performance on the stock market during the COVID-19 Pandemic — Evidence from Japan. *Economic Analysis and Policy*, 79, 702–712. <https://doi.org/10.1016/j.eap.2023.06.038>

Loewenstein, M. J. (2002). Stakeholder protection in Germany and Japan. *Tulane Law Review*, 76 (5-6), 1673-1690.

Luo, L. (2024). Analysis of Japanese cultural patterns — Based on Hofstede's value dimensions and Minkov's cultural dimensions. *International Journal of Education and Humanities*, 14(1), 367-374. <https://doi.org/10.54097/atw22v23>

Mahmud, M. T. (2021). *Materiality of integrated reports and motivations for publishing: Evidence from Japan* (Doctoral thesis, Kyushu University). Kyushu University Institutional Repository. <https://hdl.handle.net/2324/4784394>

Mititean, P. (2023). Sustainability disclosure and corporate performance: a European evidence from agriculture industry. *Economic Engineering in Agriculture and Rural Development*, 23(1)

Mitsuyama N.; Shimizutani, S. (2015) 'Stock market reaction to ESG-oriented management: an event study analysis on a disclosing policy in Japan. *Economics Bulletin*, 35 (2),1098-1108

Muraoka, M. (2022, June 17). Responsible Investor Japan 2022 evaluates progress. *The Japan Times – Sustainable Japan*. <https://sustainable.japantimes.com/esg/112>

Murata, R.; Hamori, S. (2021). ESG Disclosures and Stock Price Crash Risk. *Journal of Risk and Financial Management*, 14, 70. <https://doi.org/10.3390/jrfm14020070>

Murawski, T. (2016). Corporate Social Responsibility in Japanese Banking Sector. *Copernican Journal of Finance and Accounting*, 5(2), 149-161.

Mustaffa, A. H. et al. (2023). A Meta-Analysis of ESG disclosure and listed companies' financial performance. *the European Proceedings of Social & Behavioural Sciences*, 131, 655–669. <https://doi.org/10.15405/epsbs.2023.11.56>

Naeem, N.; Cankaya, S. (2022). The impact of ESG performance over financial performance: a study on global energy and power generation companies. *International Journal of Commerce and Finance*, 8 (1), 1-25

Nguyen, D.T.; Hoang, T. G.; Tran, H. G. (2022) Help or Hurt? The Impact of ESG on Firm Performance in S&P 500 Non-Financial Firms, *Australasian Accounting, Business and Finance Journal*, 16(2), 91-102. <https://doi.org/10.14453/aabfj.v16i2.7>

Nikkei Digital Media, 2010. NEEDS Financial Quest 2.0. Nikkei Digital Media, Tokyo. <https://nkbb.nikkei.co.jp/en/service/needs-financialquest/>

Nikkei Indexes, Components: Nikkei Stock Average (Nikkei 225) <https://indexes.nikkei.co.jp/en/nkave/index/component>, accessed in 30th June 2025

Nishitani, K.; Kokubu, K. (2011). Why does the reduction of greenhouse gas emissions enhance firm value? The case of Japanese manufacturing firms. *Business Strategy and the Environment*, 21(8), 517–529. <https://doi.org/10.1002/bse.734>

Nissay (Nippon Life Insurance Company). (2025). *Exploring root causes of the ESG paradox: A perspective of systems thinking*. https://www.nissay.co.jp/redirect/kaisha/csr/management/communication/pdf/esgparadox_en.html

Oikawa, T. (2023). SMEs sustainability in the case of Japan: Localism or localization? *International Journal of Small and Medium Enterprises and Business Sustainability*, 8(2), 57–68. <https://doi.org/10.55942/ijsmrebs.v8i2.20126>

Opler, T. (1999). The determinants and implications of corporate cash holdings. *Journal of Financial Economics*, 52(1), 3–46. [https://doi.org/10.1016/s0304-405x\(99\)00003-3](https://doi.org/10.1016/s0304-405x(99)00003-3)

Passas, I. (2024). The evolution of ESG: From CSR to ESG 2.0. *Encyclopedia*, 4 (4), 1711–1720. <https://doi.org/10.3390/encyclopedia4040112>

Perceval, C. (2003). Towards a Process View of the Business Case for Sustainable Development: Lessons from the Experience at BP and Shell. *The Journal of Corporate Citizenship*, 9, 117-132. <http://www.jstor.org/stable/jcorpciti.9.117>

Pierce, J. R.; Aguinis, H. (2013). The too-much-of-a-good-thing effect in management. *J. Manag.* 39, 313–338. <https://doi.org/10.1177/0149206311410060>

Pollman, E. (2024). The Making and Meaning of ESG. *Articles*. 453. https://scholarship.law.upenn.edu/faculty_articles/453

Rahman, A., & Varghese, V. (2023). Would adopting the ‘Yanagi model’ be Japan’s path to building an ESG friendly economy? *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4407174>

Reporting Academy. (2025, March 10). *Japan issues first sustainability reporting standards aligned with IFRS*. <https://reporting.academy/en/pages/japan-issues-first-sustainability-reporting-standards-aligned-with-ifrs/>

Saito, K. et al. (2025). Environmental, Social, & Governance Laws Japan 2025, *ICLG* <https://iclg.com/practice-areas/environmental-social-and-governance-law/japan>

Sandberg, H.; Alnoor, A.; Tiberius, V. (2022). Environmental, social, and governance ratings and financial performance: Evidence from the European food industry. *Business Strategy and the Environment*, 32(4), 2471–2489. <https://doi.org/10.1002/bse.3259>

Sauner-Leroy, J.B. (2004). Managers and productive investment decisions: The impact of uncertainty and risk aversion. *Journal of Small Business Management*, 42 (1),1–18 <http://dx.doi.org/10.1111/j.1540-627X.2004.00094.x>

Spence, M. (2002). Signaling in retrospect and the informational structure of markets. *American Economic Review*, 92(3), 434–459. <https://doi.org/10.1257/00028280260136200>

Takahashi, H., Yamada, K., (2021). When the Japanese stock market meets COVID-19: Impact of ownership, China and US exposure, and ESG channels. *Int. Rev. Financ. Anal.* 74, 101670. <http://dx.doi.org/10.1016/j.irfa.2021.101670>

Tang, F. (2025) Japan's Nikkei 225 hits record high on tariff and rate optimism <https://www.japantimes.co.jp/business/2025/08/12/markets/nikkei-record/>

Teng, X. et al. (2022). Too little or too much? Exploring the inverted U-shaped nexus between voluntary environmental, social and governance and corporate financial performance. *Frontiers in Environmental Science*, 10. <https://doi.org/10.3389/fenvs.2022.969721>

Vanblaricom-Nutt, A. (2024). ESG Management Across Cultures: A Study of American & Japanese Firms. *Horizons*, 9(1). <https://hdl.handle.net/10125/110938>

Van Beurden, P.; Gössling, T. (2008). The Worth of Values – A literature review on the relation between corporate social and financial performance. *Journal of Business Ethics*, 82(2), 407–424. <https://doi.org/10.1007/s10551-008-9894-x>

Vanclay, F.; Hanna, P. (2019). Conceptualizing Company Response to Community Protest: Principles to Achieve a Social License to Operate. *Land*, 8 (6), 101. <https://doi.org/10.3390/land8060101>

Velte, P. (2017). Does ESG Performance have an impact on financial performance? Evidence from Germany. *Journal of Global Responsibility*, 8,169–178. <https://doi.org/10.1108/JGR-11-2016-0029>

Vuong, N. B.; Suzuki, Y. (2021) : The Motivating Role of Sentiment in ESG Performance: Evidence from Japanese Companies, *East Asian Economic Review (EAER)*, 25(2), 125-150, <https://doi.org/10.11644/KIEPEAER.2021.25.2.393>

Wang, C. (2011). Clarifying the Effects of R&D on Performance: Evidence from the High Technology Industries. *Asia Pacific Management Review*, 16(1), 51–64. <https://doi.org/10.6126/apmr.2011.16.1.04>

Wang, Y.; Shimokawa, S. (2025). Does ESG Matter for Unlisted Companies in the Agri-Food Industry? Evidence From Japan's Unlisted Agri-Food Companies. *Pacific Accounting Review*, 30 (1), 110-128. <https://doi.org/10.1108/PAR-01-2016-0001>

Whelan, T. et al. (2021). ESG and financial performance: Uncovering the relationship by aggregating evidence from 1,000plus studies published between 2015-2020. NYU Stern Center for Sustainable Business, Rockefeller Asset Management

Whittaker, D.H. (2024) Japan's quest for a sustainable, virtuous circle of growth and innovation. *Asia Pacific Business Review*, 30(3), 451-466. <https://doi.org/10.1080/13602381.2024.2320537>

Xie, J. et al. (2019). Do Environmental, Social and Governance activities improve corporate financial performance? *Business Strategy and the Environment*, 28, 286–300. <https://doi.org/10.1002/bse.2224>

Yanagi, R. (2018). Synchronization of non-financial capital and value creation: Japan should show ROE of ESG. *Springer eBooks* (pp. 167–210). https://doi.org/10.1007/978-981-10-8503-1_7

Yanagi, R.; Michels-Kim, N. I. N. A. (2021). EISAI'S ESG INVESTMENTS. *Strategic Finance*, 102(11).

Yanagi, R.; S. Sugimori. (2021). Delayed Penetration Effect of ESG KPIs on PBR and Disclosure in Integrated Report. *Kigyo Kaikei*, 112–120.

Yanagi, R.; Yoshino, T. (2017). Relation between Human and Intellectual Capitals and Corporate Value (PBR). *Gekkan shihon Shijo*, 10

Yoon, B.; Lee, J.; Byun, R. (2018). Does ESG performance enhance firm value? Evidence from Korea. *Sustainability*, 10(10), 3635 <https://doi.org/10.3390/su10103635>

Yoshida, K. et al. (2024). Environmental, social, and governance performance and financial impacts: Comparative analysis of companies in Asia, ADB Economics Working Paper Series, No. 741, *Asian Development Bank (ADB), Manila*, <https://doi.org/10.22617/WPS240415-2>

Zeidan, R. (2022). Why don't asset managers accelerate ESG investing? A sentiment analysis based on 13,000 messages from finance professionals. *Business Strategy and the Environment*, 31(7), 3028–3039. <https://doi.org/10.1002/bse.3062>

Zhao, C. et al. (2018). ESG and Corporate Financial Performance: Empirical Evidence from China's Listed Power Generation Companies. *Sustainability*, 10, 2607–2826. <https://doi.org/10.3390/su10082607>

Zhou, X. et al. (2020). The effect of Firm-Level ESG practices on macroeconomic performance. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3618748>

Zhou, R.; Hou, J.; Ding, F. (2023). Understanding the nexus between environmental, social, and governance (ESG) and financial performance: evidence from Chinese-listed companies. *Environmental Science and Pollution Research*, 30(29), 73231-73253. <https://doi.org/10.1007/s11356-023-27449-5>

内閣官房長官. (2019年4月1日). 新元号についての内閣官房長官発表 [*Statement by the Chief Cabinet Secretary on the new era name*]. 首相官邸.

https://www.kantei.go.jp/jp/98_abe/statement/2019/0401singengou.html

三井住友DSアセットマネジメント株式会社. (2022年7月5日). 日本株にまつわる5つの誤解 その1 日本企業は株主還元消極的では? [*Five Misconceptions about Japanese Stocks Part 1: Are Japanese Companies Reluctant to Return Value to Shareholders?*]. 三井住友DSアセットマネジメント.

<https://www.smdam.co.jp/market/daily/marketreport/2022/07/news220705jp/>